

THE SUSTAINABLE STATE 2016 UPDATE & THE NEW GOLD STANDARD



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ACKNOWLEDGEMENTS

Sustainable Jersey would like to express our deep gratitude to the Surdna Foundation and the New Jersey Board of Public Utilities for underwriting our efforts to produce a Gold Level of Certification and track municipal progress toward a sustainable future.

We are also deeply grateful to many New Jersey state agencies – in particular the Board of Public Utilities and the Department of Environmental Protection - for their support, data, expertise, and time and attention, to the development of the new Gold Star Standards. Achieving a sustainable future is a collective effort and would not be possible without the cooperation and commitment of key people throughout these agencies.

The Gold Star Standard was created through an extensive process of stakeholder engagement, research, and expert consultation. We would like to thank the members of all the committees that participated including the Energy and Waste Task Forces, the Certification Standards Committee, and the Gold Standard Sub-committee. While there are too many contributors to thank everyone, in particular we would like to express awe and gratitude to Gary Sondermeyer who drives us to excellence with his enthusiasm and dedication, and Caroline Ehrlich who tirelessly drives and oversees the Sustainable Jersey process for creating new actions and standards.

We would also like to express our thanks to the Sustainable State Review Committee for their role in judging New Jersey’s progress toward the Sustainable State Goals in 2016 and giving feedback on the indicators and overall quality of the report. The members are: Anne-Marie Peracchio, Tim Evans, Teri Jover, Gary Sondermeyer, Caroline Ehrlich, Amy Greene, Debbie Mans, John Hasse and Dan Fatton.

INTRODUCTION: SETTING GOALS, ACHIEVING GOALS

In 2015 Sustainable Jersey released the first Sustainable State of the State Report to set our vision for New Jersey's future and begin to track progress. This year we are adding the next component to the Sustainable Jersey program as we present the new Gold Star Standards for Energy and Waste for municipalities. The Gold Stars integrate the Sustainable Jersey certification system with our statewide goals. The award of a Gold Star indicates that a municipality is making a direct contribution to the collective achievement of our sustainability goals. This year we update that report and release the first Sustainable Jersey Gold Star Standards.

The first section of this document presents highlights of the *2016 Sustainable State of the State Report*, which is followed by an overview of the Gold standard of certification and the introduction of Gold Stars in Energy and Waste. The full details of the Gold Stars in Energy and Waste will appear on the Sustainable Jersey website in January 2017 and municipalities can apply for Gold Stars in the certification cycle that starts June 2017.

2016 SUSTAINABLE STATE OF THE STATE

Preparing the *2016 Sustainable State of the Report* involved several tasks: reviewing feedback from stakeholders and experts, improving existing indicators and data sources, searching the data sources used in the 2015 report, extracting any data that had since been updated, and filling gaps with new indicators and data. Many indicators are based on data that are updated at intervals greater than one year (e.g., the U.S. Census). An expert panel reassessed each of the 57 sustainability goals for which new indicator data were found. The panel evaluated the current and past data to determine if the trend represents adequate or inadequate progress towards the goal, or if further investigation was required. The overall picture for New Jersey points to mounting challenges on the path to a sustainable future. In all, the most recent available data indicated that we are making inadequate progress for 27 out of the 57 goals, including two that had been given a positive assessment last year.

Both of the trends that reversed direction were in the transportation dimension. That sector became less efficient as its greenhouse gas emissions crept up again and the number of miles we drove grew proportionately faster than the state's economic production. Despite signs of recovery in some areas of the economy, continued weakness in the business sector merited a 'thumbs down,' due to concerns that it has been lagging the rest of the country in business dynamism, underemployment, and the rate of payroll growth.

In other cases, lack of critical data made it impossible to determine the direction of progress. For example, recent news reports of damaging levels of lead in water from public school drinking fountains underscore the fact that safe drinking water supply systems (our indicator) do not guarantee that water is still safe after it passes through building pipes and comes out the faucet. This prompted the expert panel to add a new indicator for "tap water quality" for which we currently have no data.

"Minimizing the negative impacts of the energy system" was another crucial sustainability goal that was assigned an "indeterminate trend," for the second year running. The key indicator, the level of greenhouse gas emissions, went 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 climate change.

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 have been bright spots, 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 with Sustainable Jersey. There are now hundreds of green teams created as formal bodies of local government and charged with driving change. Collectively these municipalities have implemented over 5,000 discrete actions from the list of best practices. In the coming year they will have the opportunity to apply for the first Sustainable Jersey Gold Stars, in Energy and Waste, on the road to achieving the Gold level of certification as it expands year-by-year to incorporate all the dimensions of sustainability.

SUMMARY TABLE OF GOALS AND PROGRESS (2016)

This table presents in concise form the findings detailed in the 2016 State of the State Report. 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 does not present a clear picture of our progress.



Icons that are circled indicate the assessment of progress has changed direction since last year.

CROSSCUTTING THEMES



Signifies that the goal or indicator relates to climate change



Signifies that the goal or indicator relates to equity

For the indicators supporting the goals, the underlying trend is represent by an icon that depicts its direction: up arrow, down arrow, flat, baseline only, or insufficient data or analysis. The indicators, with corresponding trend arrows, are listed in Volume I of the full report. The supporting data are presented in Volume II, the Technical Report (see Publications page si.tcnj.edu/publications).

NATURAL CAPITAL

BIODIVERSITY AND ECOSYSTEM SERVICES

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

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

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

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

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			
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			
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			
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			
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			
New Jersey residents have affordable housing choices.			
All New Jerseyans have housing choices that provide a safe and healthy environment .			
All New Jersey housing is resilient to the impacts of climate change in terms of design and location.			

 TRANSPORTATION			
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			
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			
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			
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.			



GETTING TO GOLD

The establishment of 'Gold,' Sustainable Jersey's highest level of certification, forges the link between the municipal program and the broader, long-term outcomes we are striving to achieve. The Sustainable State of the State Report defines sustainability in terms of multiple dimensions, with concrete goals for each, and provides a regular scorecard on New Jersey's progress towards these outcomes. While achieving these goals will rely on action at many scales and across boundaries, municipal governments and local action have a crucial role to play.

The Gold level of certification provides a performance standard and guidelines for action that correspond to our best, evolving, understanding of what is a fair and feasible share of the effort to expect from each borough, town and city. If everyone became Gold certified, their collective impact would register at the state level, and the Sustainable State of the State Report would soon demonstrate substantial and continuing progress towards our sustainability goals.

The Gold level of certification differs from Bronze and Silver in several ways. By setting a measurable standard rather than requiring prescriptive actions, it rewards performance and innovation. As long as the data submitted by an applicant support the desired result, the applicant can avoid the burden of having to document all the steps they took to get there. In some cases where certain outcomes cannot be feasibly measured, Gold will require specific, impactful actions.

Finally, Gold differs from the other levels in that it will not be attained in the course of one cycle or application. Rather, the Gold Standard will be comprised of Gold 'Stars' that will be granted one dimension of sustainability at a time. This document presents the first Sustainable Jersey Gold Star Standards in Energy and 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.

We began with Energy and Waste because they are fundamental dimensions of sustainability for which there are widely accepted metrics of performance supported by readily available quantitative data. This will not be true of sustainability outcomes in other dimensions (e.g., Social Capital). For these, we will develop qualitative rubrics. For our first, quantitative Gold Standards, Energy and Waste, we approach the performance standard from two directions: (1) top-down, by setting target rates of improvement, and (2) bottom-up, by identifying practical municipal strategies that add up to meeting those targets.

In these pages, the Energy and Waste standards are presented first in the form of rules, which set the target rates of improvement in the key performance standards, bolstered where necessary by specific actions. These mandates are followed by tables that list already known municipal strategies and the estimated range of impacts they will deliver based on current research. Of course, municipalities are free to innovate their own, locally appropriate strategies. Indeed, the evidence shows, that while meeting the Gold standard is feasible today, getting to our ultimate sustainability goals will demand evolving new, more effective strategies to maintain progress and overcome future obstacles.

THE SUSTAINABLE JERSEY GOLD STAR IN ENERGY

The Gold Star in Energy is intended to achieve the Sustainable Jersey goals for energy set forth in the New Jersey Sustainable State of the State Report:

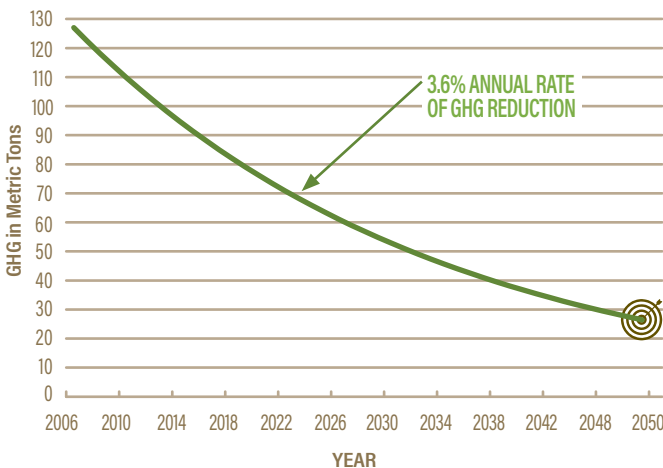
1. Decrease **greenhouse gas emissions** in time to avoid catastrophic climate impacts (minimize environmental harm);
2. Increase the **renewable energy** fraction (decrease vulnerability of energy system);
3. Increase **affordability** of energy;
4. Increase **resilience** (decrease outages and vulnerability to disruptions);
5. Decrease **risk to human health** from the energy system

The primary goal is reducing greenhouse gas (GHG) emissions. Responding to this overarching imperative will help achieve all the subsidiary goals. New Jersey’s Global Warming Response Act calls for an **80% reduction of GHG emissions from 2006 levels by the year 2050**. The Sustainable Jersey Gold Star in Energy is calibrated to achieve this target. To meet the target New Jersey has to reduce GHG emissions at a rate of **3.6%** a year, every year. Much of this reduction will be achieved by state and federal policies, but municipalities have an important role to play. Municipal operations are significant emitters of GHG, and municipalities can play a key role influencing the broader community. To reflect this dual role, the Gold Star in Energy will be awarded when a municipality meets two standards:

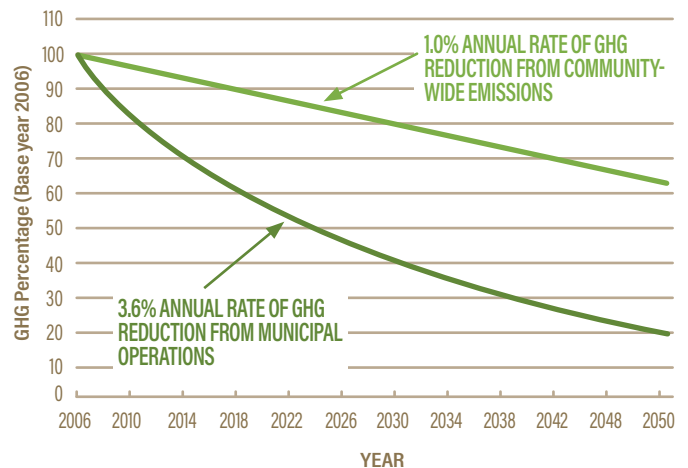
1. **Municipal Operations Standard:** Achieve measurable emissions reductions from their own operations and facilities
2. **Community-wide Emissions Standard:** Take effective steps to bring down GHG emissions in the broader community

The Sustainable Jersey Gold Star standards for GHG reduction reflect what the municipal role and responsibility should be within our federal system of shared government. Our analysis indicates that known municipal strategies can achieve 100% of the reductions needed to achieve the municipal operations standard (**3.6% per year**). Municipal governments have less control over the businesses and residents in their communities, so they would be responsible for a smaller portion (**1% per year**) of the GHG reductions expected from the community as a whole. As we gain experience in implementing this pioneering standard, we may adjust the rates or modify how they are assessed. The Gold Star in Energy may also evolve over time to grapple more directly with the subsidiary goals 2-5 (above).

STATEWIDE REDUCTIONS REQUIRED BY GLOBAL WARMING RESPONSE ACT



REDUCTIONS REQUIRED FOR GOLD STAR IN ENERGY



THE RULES: GOLD STAR IN ENERGY

To be awarded the Gold Star in Energy municipalities must (a) achieve GHG emissions reductions for their facilities and operations, and (b) take actions that will lower GHG emissions in the broader community.

MUNICIPAL OPERATIONS STANDARD

- **Lower GHG emissions 3.6% per year** from municipal fleet and buildings (including street and other exterior lighting).
- Municipalities must show an average annual 3.6% reduction over a three-year period (10.8% total) before becoming eligible.
- Progress will be measured from a baseline year. In order to take 'credit' for past energy conservation efforts, municipalities can select any base year going as far back as 2006.
- A 3.6% average annual reduction must be demonstrated since the base year. For example, if a municipality applying for the Gold Star in 2017 selects 2007 as the base year, it must show a total 36% reduction over that ten-year period.
- Every three years thereafter, municipalities must demonstrate continued reductions at the mandated rate to maintain the Gold Star.
- Sustainable Jersey will adjust the data to account for weather and changing fuel sources supplying the electricity grid in order to ensure that the GHG reductions shown were the result of municipal actions and not broader trends that are not affected by local action.

COMMUNITY-WIDE EMISSIONS STANDARD

- Implement four actions that our analysis shows will **lower GHG emissions at least 1% per year** in the community as a whole. The specific actions will be based on existing Sustainable Jersey actions that will be updated prior to January 2017. The actions address four key areas:
 1. Take Actions to Promote Alternative Fuel Vehicles
 2. Take Actions to Promote Solar and Renewable Energy
 3. Promote Building Efficiency to Residents
 4. Promote Building Efficiency to Businesses

The Gold Star will be awarded once all four of these actions are successfully completed.

- After five years, Sustainable Jersey will perform a review and determine if the community has met a 1% annual reduction by tracking GHG emissions over time (adjusting for weather and the changing carbon intensity of the electric grid). Adjustments may be made for local circumstances on a case-by-case basis.
- The target rate of 1% annual reduction will be calculated on the basis of the total number of residents and the total number of people employed in a municipality.
- Municipalities are encouraged to innovate and implement additional GHG-reducing actions they deem suited to their local conditions. Over time, the energy utility data collected and analyzed by Sustainable Jersey will provide evidence of how effective municipal efforts to influence community-wide emissions have been.

IMPLEMENTING
GOLD STANDARD
GHG REDUCTION
STRATEGIES

COULD REDUCE
GHG EMISSIONS
19-33%



STRATEGIES FOR GETTING TO GOLD: MUNICIPAL OPERATIONS

The table below shows key strategies that municipalities can implement in the near-term to lower their greenhouse gas emissions to meet the Gold Star standard. For each strategy, the table indicates a rough estimate of the range of its potential impact (as a percentage of total annual municipal emissions).

MUNICIPAL OPERATIONS: GHG REDUCTION STRATEGIES AND GOAL

STRATEGIES AND ACTIONS TO ACHIEVE GOLD	TIME TO IMPLEMENT	IMPACT ON MUNICIPAL GHG
Renewable Energy Generation		4-38%
On-Site Solar System	1-2 years	1-35%
On-Site Wind System	3-5 years	<1%
Geothermal System	2-3 years	3%
Greening the Municipal Fleet		15-18%
Purchase Alternative Fuel or Efficient Vehicles	3-7 years	4%
Convert Vehicles to Alternative Fuel	1 year	2%
Trip Optimization Software	1 Year	3-6%
Proper Vehicle Maintenance	1 Year	6%
Driver Training	1 year	3%
Buildings and Street Lighting Efficiency		12-19%
Implement Energy Efficiency Measures	2-4 years	10-17%
Energy Tracking & Management	1 year	2%
Estimated Impact from Reduction Strategies		31-75%

These charts show 100% of GHG emissions from municipal operations and the impact of strategies.

LOW-END ESTIMATED IMPACTS



HIGH-END ESTIMATED IMPACTS



- Renewable Energy Generation
- Greening the Municipal Fleet
- Buildings and Street Lighting Efficiency

- The Gap: Future Reductions From Municipal Action
- Goal Achieved: Left Over Emissions After 80% Reduction

STRATEGIES FOR GETTING TO GOLD: INFLUENCING THE COMMUNITY

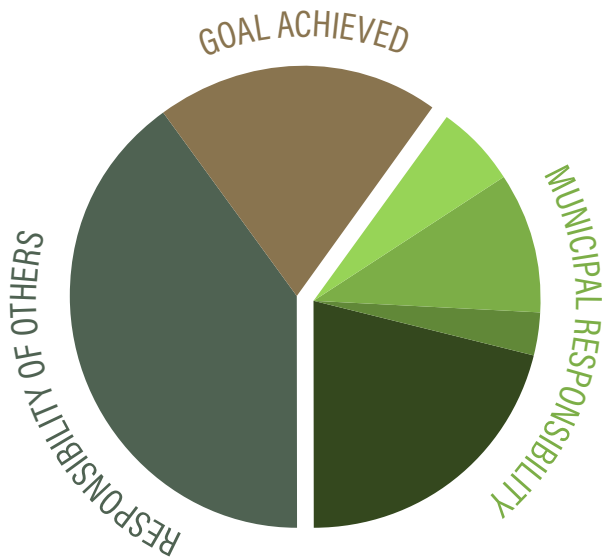
The table and charts below show key strategies that are known and available today that municipalities can implement to influence GHG emissions from the broader community. The table below shows that the required 1% annual rate of reduction to meet the Gold Star Standard is achievable for most municipalities over the short and medium term. Municipalities can implement innovative strategies beyond this representative sample.

COMMUNITY-WIDE GHG EMISSIONS: REDUCTION STRATEGIES AND GOAL

STRATEGIES AND ACTIONS TO ACHIEVE GOLD	TIME TO IMPLEMENT	IMPACT ON MUNICIPAL GHG
Renewable Energy Generation		6-11%
Community Purchase of Green Energy (Aggregation)	1-2 years	4-7%
Community-led Solar Initiatives	1-2 years	2-4%
Mobile Sources (vehicles)		10-18%
Public Alternative Fuel Vehicle (AFV) Refueling Station	1 year	5-10%
AFV Infrastructure Permitting and Zoning	1-2 years	
Development Patterns/Intensity	5-10 years	5-8%
Promoting Walking and Bicycling	2-10 years	
Building Energy Efficiency		3-4%
Commercial Sector Outreach (Direct Install)	1-2 years	≈1%
Outreach to Residents (Home Performance w/Energy Star)	1-2 years	≈1%
Tree Canopy (Shading Effect)	1-10 years	1-2%
Estimated Impact from Reduction Strategies		19-33%

These charts show 100% of GHG emissions from community and the impact of strategies.

LOW-END ESTIMATED IMPACTS



- Renewable Energy Generation
- Mobile Sources (Vehicles)
- Buildings Energy Efficiency

HIGH-END ESTIMATED IMPACTS



- The Gap: Future Reductions Required From Municipal Actions
- Reductions by Non-Municipal Actors (Federal, State, Market)
- Goal Achieved: Left Over Emissions After 80% Reduction

THE SUSTAINABLE JERSEY GOLD STAR IN WASTE

The Gold Star in Waste is intended to achieve the Sustainable Jersey Goals for Waste set forth in the New Jersey Sustainable State of the State Report. The primary goals in the Waste dimension are:

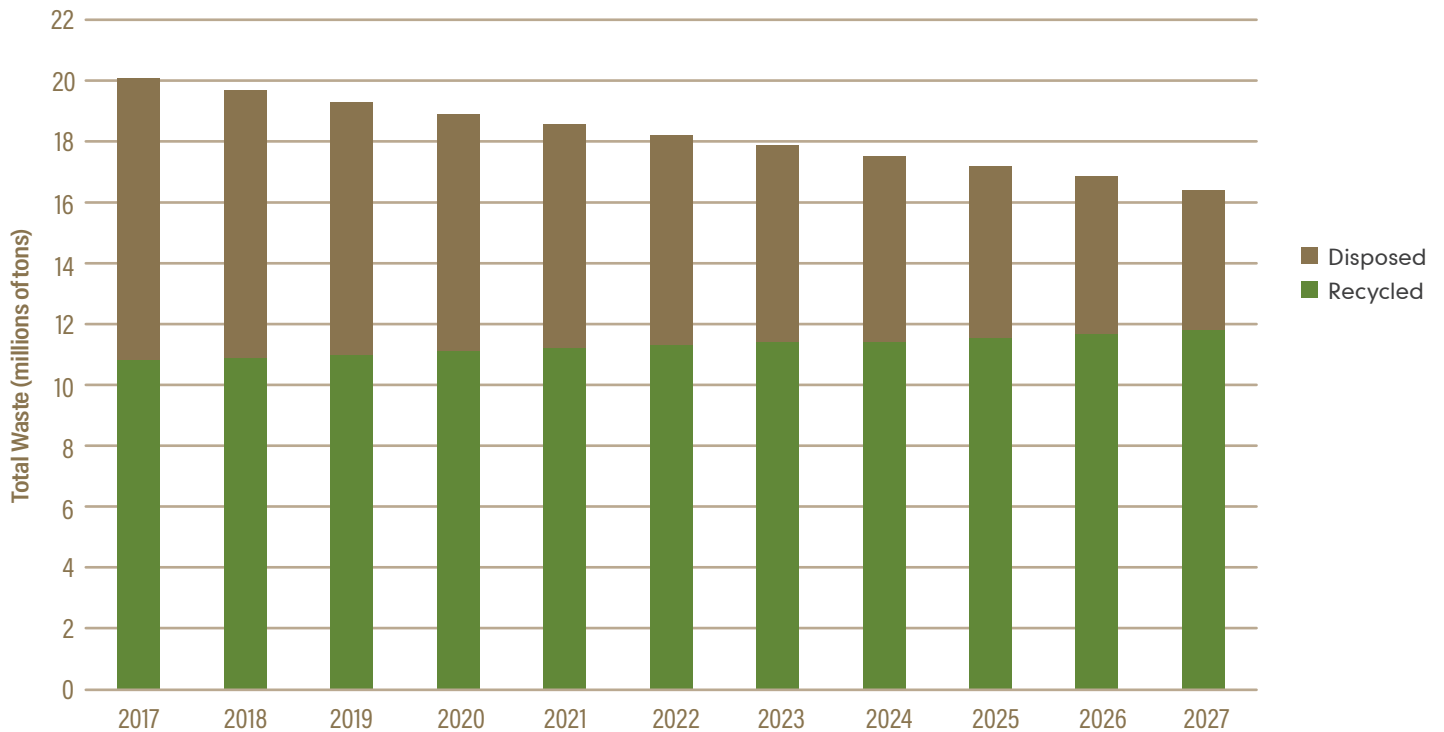
1. **Solid waste** generation is minimized.
2. **Reuse and recycling** of waste generated are maximized.
3. The production of **hazardous waste** is minimized, and that which is produced is disposed of in ways that are safe for both humans and the environment.
4. There is an **equitable distribution** of the impacts on human health of all forms of toxic pollution and waste disposal.

To be awarded the Gold Star in Waste municipalities must meet four (4) criteria. They must meet performance targets for recycling and for waste reduction, and implement key actions to improve the quality of recycling and reduce improper disposal of hazardous waste. In the future, the Gold Standard may be expanded to include related areas of waste management, such as elements of environmental justice and green municipal purchasing and operations.

Municipalities have authority over the collection of both recycling and waste within their jurisdictions, and thus have a key role to play in driving improved rates of both. A maxim of sustainability is: Reduce, Reuse, Recycle – in that order. Every item we discard has an ecological footprint resulting from energy use and other environmental impacts of resource extraction, manufacturing, packaging, and transporting. Most municipal waste programs and certification standards (such as zero waste) treat recycling as if does not count as waste generated. Yet recycling itself uses a significant amount of energy and results in degraded raw materials (down-cycling). Instead, the Sustainable Jersey Gold Star waste Reduction target includes both waste recycled and waste disposed, i.e., total waste generated. At the same time, the Gold Star for Waste has a recycling target that recognizes that, once generated, as much as possible of the waste that is generated should be recycled.

IMPACT OF GOLD STANDARD ON NJ WASTE GENERATION & RECYCLING

This chart shows the impact on the statewide waste stream if every municipality achieved the Gold Star.





RECYCLING STANDARD

There are two mandated recycling rates for the state of New Jersey: (1) 50% of municipal solid waste (MSW), which includes residential, commercial and institutional waste, and (2) 60% of total solid waste (TSW), composed of MSW plus bulky items, such as large appliances and waste from construction and demolition. The state as a whole has generally failed to reach those standards (although for

few years in the late 1990's we cleared the bar for total solid waste).

The Sustainable Jersey Gold Star in Waste target rates of recycling surpass the state's mandates:

- **Total Solid Waste recycling rate: 65%**
- **Municipal Solid Waste recycling rate: 55%**

In order to adjust for the different amounts of tree cover in the state's urban, suburban and rural municipalities, these rates exclude the mandated collection and special disposal of leaves at composting facilities. Since leaves can make up 20% or more of the total recycled material in some municipalities, this represents an additional level of challenge for many municipalities.

WASTE REDUCTION STANDARD

To be sustainable, the total amount of waste—whether it's recycled, downcycled, or disposed—needs to be reduced. Based on our feasibility analysis of New Jersey's waste data, progressive municipal sustainability programs and existing waste reduction strategies, Sustainable Jersey sets the following Gold Star target rate:

- **2% annual reduction in total solid waste generation** (per capita and per job).

EDUCATION AND ENFORCEMENT STANDARD

In recent years, recycling has entered a crisis period, brought on by increasing levels of contamination of single-stream recycled material that devalues it, coupled with poor markets for all recycled material. Municipalities can make an important difference in providing education to residents not only on "why recycle," but on "how to do it right." They can also go further and produce immediate, strong gains in recycling by instituting robust enforcement. To serve as a qualification for the Gold Star, the existing Sustainable Jersey recycling education and enforcement action will be strengthened and re-released prior to January 2017.

HAZARDOUS WASTE STANDARD

We do not have adequate performance measures for hazardous waste. Such data are not captured at the municipal level (nor in many cases at state or higher levels). In any case, there are more categories of hazardous substances released into our environment by human activity than we could measure even if we had the know-how and resources to do so. Furthermore, weight is a poor gauge of the detrimental environmental and public health consequences of hazardous waste, some forms of which are highly toxic in tiny doses.

In the absence of a comprehensive performance measure, the Gold Star relies on a series of prescriptive actions through which municipalities can promote the reduction and safe disposal of household, and eventually, commercial hazardous waste. Currently, counties coordinate household hazardous waste collection days periodically throughout the year. Municipal actions will be designed to complement existing county programs.

THE RULES: GOLD STAR IN WASTE

1) DOCUMENTED RECYCLING RATE

To attain the Gold Star in Waste, a municipality must document an annual recycling rate that averages over a three-year (renewable) period at least:

- **65%** of **Total Solid Waste** (exclusive of leaves) **or**
- **55%** of **Municipal Solid Waste** (exclusive of leaves).

2) WASTE GENERATION REDUCTION

- The amount of total solid waste generated must decrease at the rate of **2%** or more per year, averaged over three years (**6%**).
- This rate shall be calculated on the basis of the total number of residents and the total number of people employed in a municipality.
- Every three years, a further reduction of 6% Total Solid Waste must be demonstrated in order to renew Gold Star status.

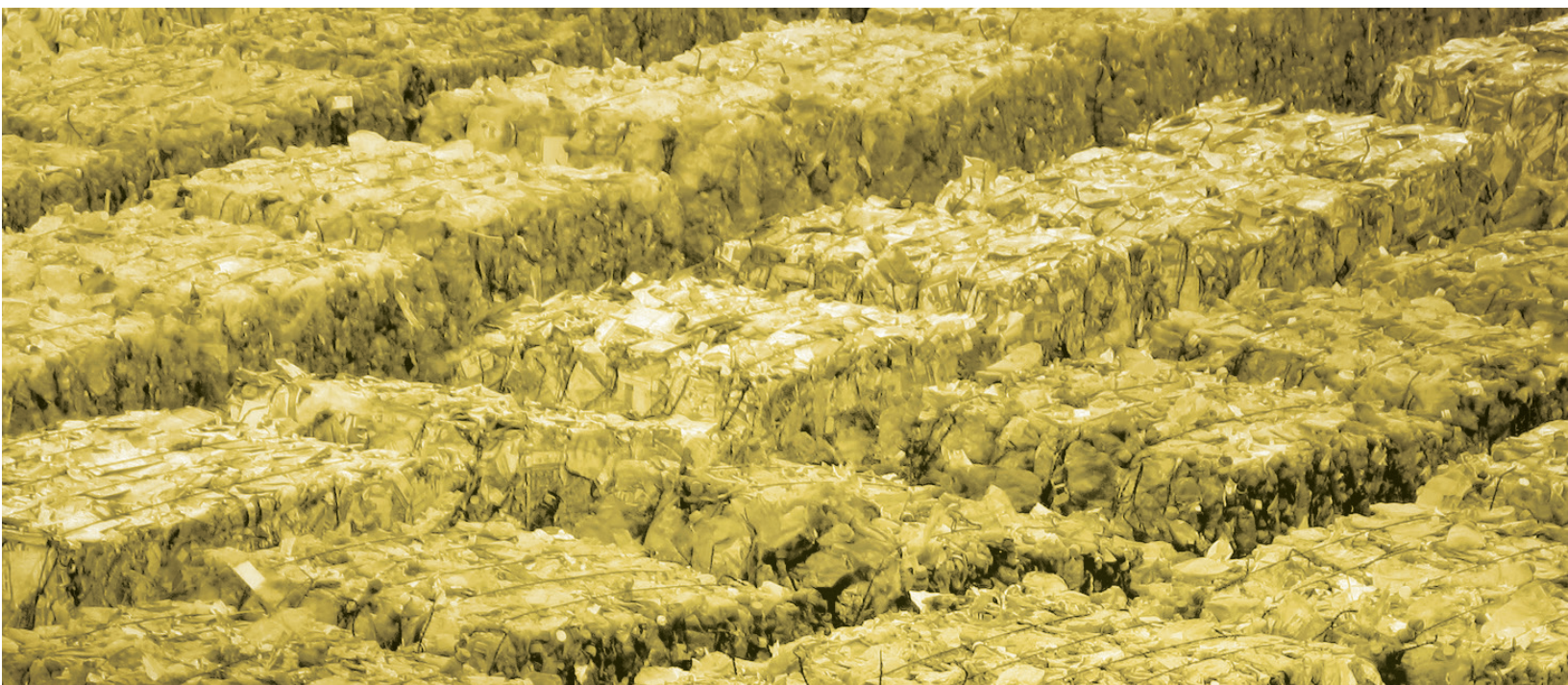
3) HOUSEHOLD HAZARDOUS WASTE REDUCTION AND SAFE DISPOSAL ACTIONS

- Municipalities will be required to implement prescriptive actions dealing with collection of common hazardous materials. These actions will be released as more rigorous and/or comprehensive versions of existing Sustainable Jersey actions in January 2017.
- Municipal collections may include such hazardous materials as: used motor oil, consumer electronics, paint, and/or batteries.
- A strong effort on prescription drug safety and disposal will be among the mandated actions.

4) COMMUNITY EDUCATION AND ENFORCEMENT

Municipalities will be required to implement a robust education and/or enforcement campaign on recycling and waste reduction. The campaign must address:

- source reduction to lower the generation of waste,
- the quality of recycling stream (absence of non-recyclable materials), and
- alternatives to and safe disposal of household hazardous waste.



STRATEGIES FOR GETTING TO GOLD: RECYCLING AND WASTE REDUCTION

The Gold Star in Waste requires municipalities to make progress increasing the amount of the waste stream that is recycled and decreasing the total waste stream; including what is recycled and disposed. The tables below show illustrative strategies that municipalities can implement in the near-term to achieve the Gold Star Standard.

For each strategy, the table indicates a rough estimate of the range of its potential impact. The estimates are based on an assessment of past New Jersey trends and data, and evaluation of national literature and case studies detailing what has been achieved in other places. Not all strategies will be equally effective for all municipalities; however taken together they suggest that there are enough strategies that are readily available to most municipalities that the Gold Star Standard is achievable.

Of note, some of these strategies overlap and therefore their impact is not additive.

IMPACTS FROM WASTE REDUCTION STRATEGIES

WASTE REDUCTION STRATEGIES	IMPACT ON ANNUAL WASTE REDUCTION
Pay-As-You-Throw Program	14-27%
Cut It and Leave It Program (Grass)	3 - 5%
Waste Reduction Education & Enforcement	1-10%
Backyard Composting	1-5%
Materials Reuse Program	1-5%
Reusable Bag Education Program	0.60%

IMPACTS FROM RECYCLING STRATEGIES

RECYCLING STRATEGIES	ESTIMATED ANNUAL INCREASE IN RECYCLING RATE
Pay-As-You-Throw Program	30-60%
Food Waste	8%- 25%
Recycling Education & Enforcement	1-20%
Non-Mandated Materials Recycling	5-15%
Construction and demolition	4-11%
Commercial & Institutional Recycling	4-10%