2019 NEW JERSEY SUSTAINABLE STATE OF THE STATE REPORT

TECHNICAL REPORT

SUSTAINABLE JERSEY® • CERTIFIED •

A Better Tomorrow, One Community at a Time

Introduction to Report and Technical Volume

On the occasion of the tenth anniversary of the founding of Sustainable Jersey in 2009, we have decided to take a different approach to the annual *New Jersey Sustainability State of the State Report*. Since the first edition appeared in 2015, this series of reports presented a long-term vision for sustainability in New Jersey defined in terms of 57 goals and a set of measurable indicators to track progress. For our tenth anniversary, we decided to take a step back and focus on ten key trends over the past ten years that we must influence to achieve a sustainable future. This year's report is therefore brief, and tracks the performance of only ten critical indicators, or closely related sets of indicators.

The fact that only two out of the ten trends are moving in a positive direction, and several have reached critical levels, underscores how essential our work together is.

A two-page narrative description of the ten selected trends is found here (and also in the program book for the 2019 Sustainability Summit). This document serves as the *Technical Volume*, providing the sources, data, and other supporting detail for each selected trend and indicator. Please refer to the 2018 *Summary Report* for a description of the full framework (available here), which lays out a framework for defining sustainability along 14 dimensions, describes 3-5 specific goals for each dimension, and 1-5 indicators for each goal. The goals statements pertinent to each of the ten trends cited below are taken from this document.

Ten Years of Top Ten Trends

Since 2015, Sustainable Jersey has tracked progress towards sustainability at the state level in an annual Sustainable State of the State Report. For our tenth anniversary, we decided to take a step back and look at the key trends we must influence to achieve a sustainable future. The fact that only two out of the ten are moving in a positive direction, and several have reached critical levels, underscores how essential our work together is.

Dimension: Energy

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.

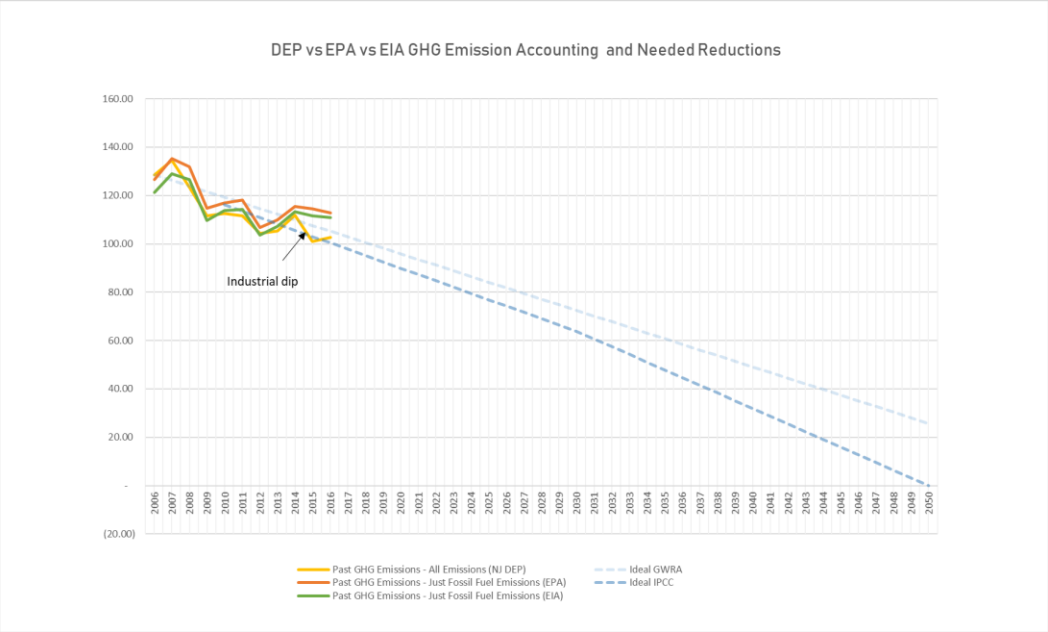
Trend

Annual greenhouse gas emissions from energy consumption have declined since 2006… The recently released report of the Intergovernmental Panel on Climate Change warns that limiting global warming to a safe level would require even more rapid, far-reaching and unprecedented changes in energy, land, urban and infrastructure systems.

In general, New Jersey's greenhouse gas (GHG) emissions from energy consumption have declined since 2006, largely due to the transition from coal to natural gas. There are three main sources of emissions data, the U.S. Environmental Protection Agency (EPA), the U.S. Energy Information Administration (EIA) and the New Jersey Environmental Protection (NJDEP). Based on our analysis of 2006-2016 data provided by both the EPA and EIA, the state's GHG emissions exceed the rate of reduction needed to meet New Jersey state targets established by the Global Warming Response Act (GWRA) of 2007, N.J.S.A. 26:2C- 37. However, according to the NJDEP's data, the most recent (2015) emissions levels fall slightly under the target rate of reduction. Actual emissions may fall somewhere in between these values. More importantly, early reports are that this gap has widened in 2017 and 2018,1meaning that state may be failing to meet its commitments made more than a decade ago. Taking the new scientific consensus represented by IPCC into account, it is even more starkly clear that much more needs to be done to do our part to mitigate the climate crisis.

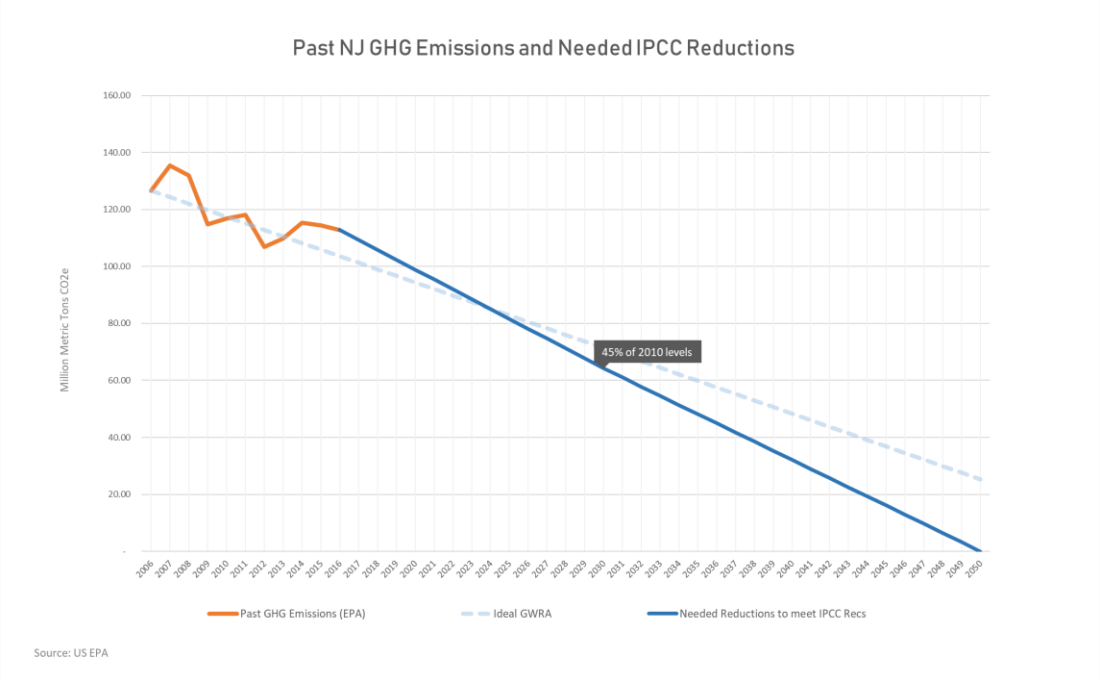
[1] https://www.bloomberg.com/news/articles/2019-06-11/global-emissions-rose-the-most-in-7-years-bp-review-shows

Comparative Trends – all data sources



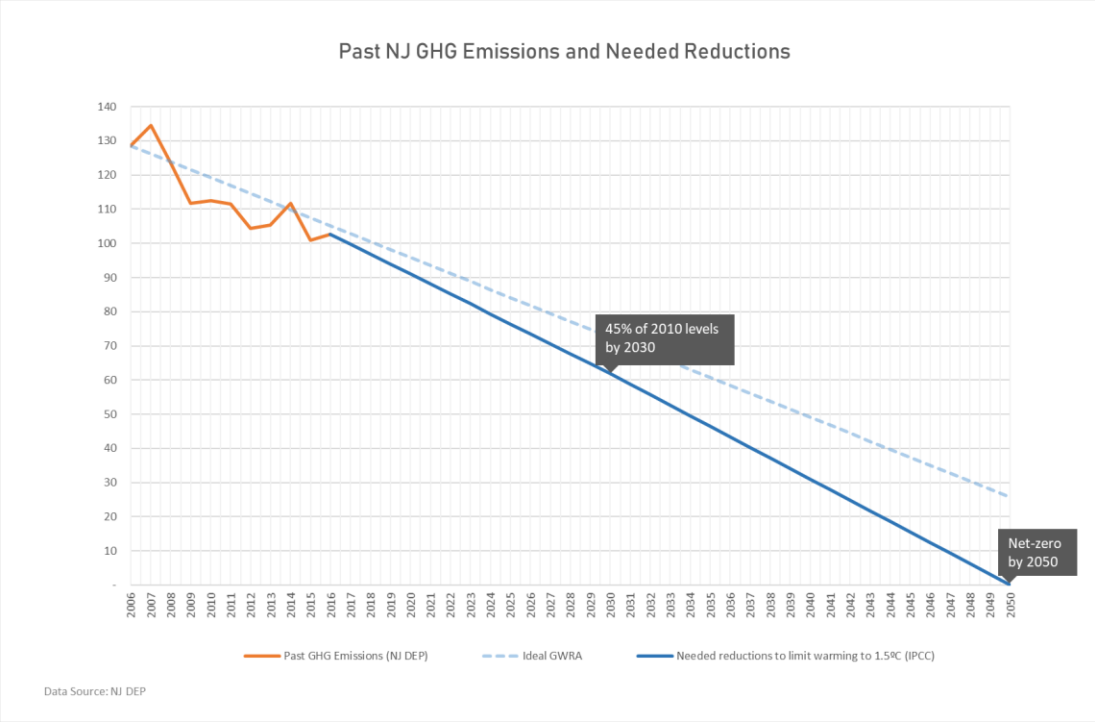
Source: US EPA, EIA and NJ DEP

EPA data



Source: US EPA SIT Modules

DEP data



Source: NJDEP. 2017. *2015 Statewide Greenhouse Gas Emissions Inventory.* https://www.state.nj.us/dep/ages/NJ_GHGinventory2015Update.pdf and Model Pathway to prevent 2 degrees of increase from Intergovernmental Panel on Climate Change, 2018: *Summary for Policymakers. In: Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.* *https://www.ipcc.ch/sr15/chapter/summary-for-policy-makers/*.

In both charts shown above, the solid orange line in graph above represents New Jersey's historic greenhouse gas emissions from 2006-2016.. The blue dotted line represents the 'ideal GWRA' plots the rate of reduction in GHG emissions that would meet the state-level target of set in the Global Warming Response Act (GWRA), or 80% reduction from the 2006 level of GHG emissions by 2050. The dark blue line represents the model pathway recommended by the Intergovernmental Panel on Climate Change (IPCC) as necessary to limit the average global temperature increase to 1.5 degrees Centigrade and thereby avoid the worst effects of climate change.
The recent IPCC report (2018) determined that the reductions required worldwide to stay within this temperature zone would be 45% of 2010 levels by 2030 and net-zero emissions by 2050. The 'ideal IPCC' rate of reduction assumes that New Jersey's share of reductions should be simply proportionate to our current emissions as a fraction the global total (a policy question open to debate).

Although New Jersey's emissions reductions since 2006 to present do not appear to be very far off the target trajectory, there are two important qualifiers to take into consideration. First, and most importantly, that time interval corresponded to a period of rapid transition in New Jersey from coal to natural gas – in many respects the low-hanging fruit when it comes to low-cost and technically feasible reductions in GHG emissions. However, since we cannot get to net zero emissions without eventually eliminating the use of all fossil fuels and switching to 100% renewable energy, the hard part is yet to come. Moreover, since any CO2 emissions now are locked in the atmosphere for generations, more rapid reductions sooner will yield much greater lessening of permanent harm.
The second consideration is that the slope of the desired trajectory of future reductions depends on the estimated starting place, namely the current levels of emissions, and this critical value varies among sources. Previous editions of the Sustainable State of the State Report relied on the U.S. EPA's State Inventory and Projection Tool (https://www.epa.gov/statelocalenergy/state-inventory-and-projection-tool), which contrasts with the assessment based on data from the NJDEP. See the table below for comparative values for 2006-2015 from the two sources.
There are significant differences in the methods and underlying assumptions employed by the two agencies, which merit further investigation. Among these differences: the NJDEP includes emissions from non-fossil fuel "highly warming gases" and a smaller proportion of emissions from aviation and maritime travel originating in the state.

Past NJ GHG emissions (MMTCO2e) from two sources: EPA *vs.* NJDEP.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Past GHG Emissions- Fossil Fuel (EPA)	126.64	135.38	131.93	114.79	116.84	118.12	106.88	109.89	115.44	114.42	112.84
Past GHG Emissions- All	128.60	134.60	123.50	111.70	112.50	111.60	104.40	105.30	111.80	100.90	102.7

(NJDEP)

Dimensions: Biodiversity and Ecosystem Services & Development Patterns

Trend

The amount of land that has been developed has been steadily increasing at the expense of forest, wetlands, and agricultural land. Over the past decade, the rate of development has slowed, as nearly all non-preserved land has been covered by buildings or pavement.

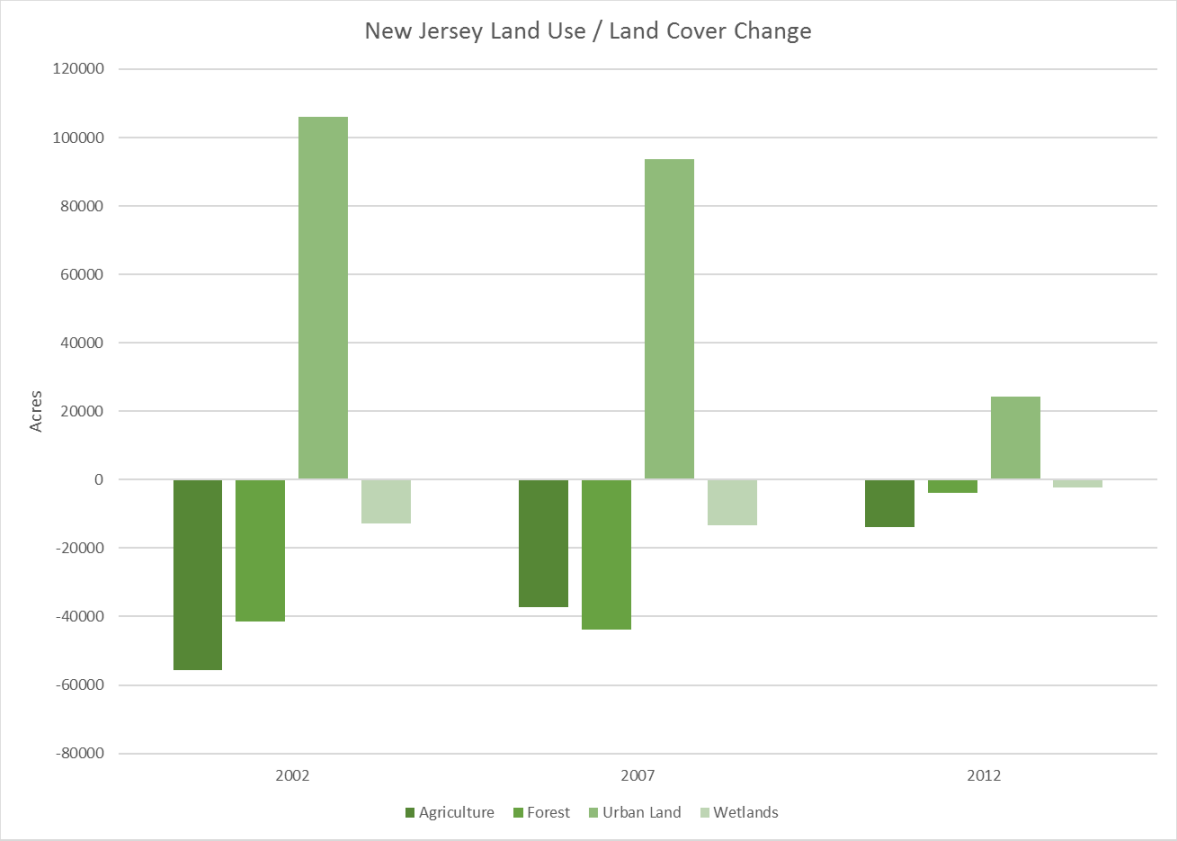
Goal

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.

Indicator	1.2.1 Conversion of Land from Open to Developed

Increasing the number and specificity of the habitats would make this a more powerful indicator.
Note that acreage indicators do not directly track the *quality* of the habitat. Adaptation to the pressures of climate change and other disruptions (invasive species, fragmentation) requires active, adaptive management. The outcomes of management practices will eventually be reflected in the biodiversity and watershed integrity indicators (i.e., water quality and how well species are surviving).

Land Use/Land Cover Change



Source: NJDEP, Bureau of Geographic Information Systems, Digital Downloads, Land Use/Land Cover Level I Data Analysis, 1995/97-2002 and 2007-2012. http://www.nj.gov/dep/gis/digidownload/metadata/lulc12/lulc12statisticstables.htm

Dimension: Water

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.

Trends

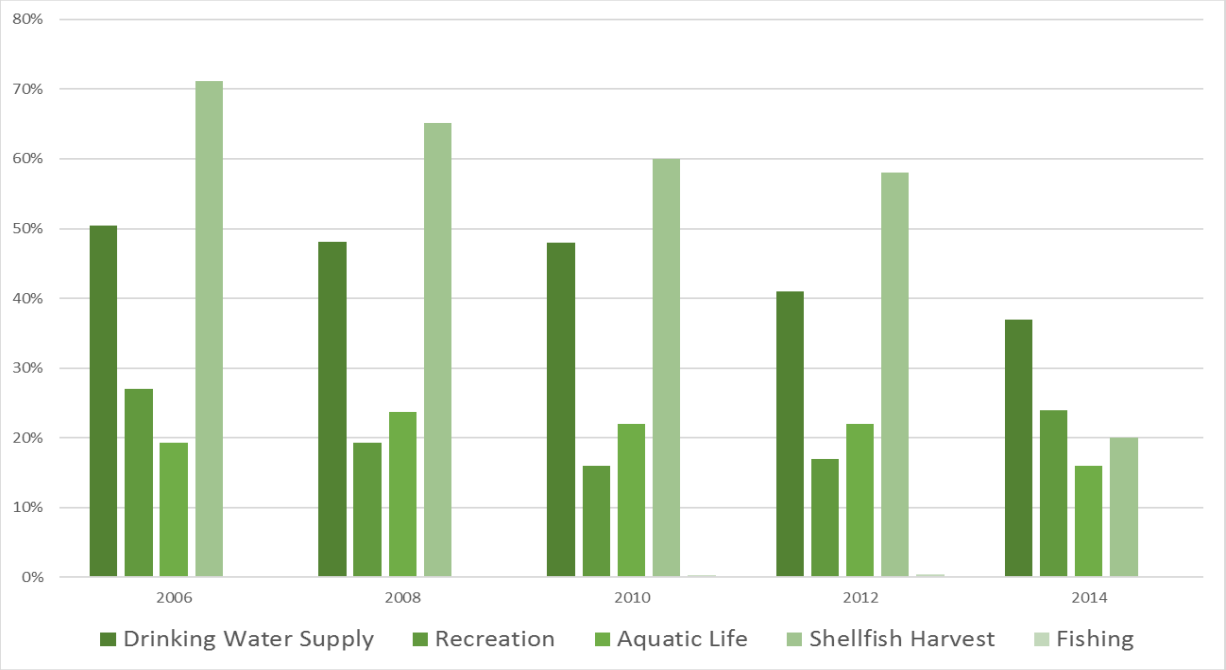
The ability of New Jersey's lakes, rivers and streams to support essential services has declined over the past several decades. For example, just under a quarter of the state's water bodies were found to fully support safe recreation and fewer than 0.5% **were found to be safe for fish consumption.**

While the percentage of community drinking water systems that meet quality standards has fluctuated at a high level, those standards do not cover the many new chemicals and prescription drugs that are appearing in our drinking water

Indicator	**2.2.1 Surface Water Quality**.

There is no statewide source for groundwater quality, which would be an additional indicator needed for a comprehensive indicator. A proxy could be the number of violations per watershed/population, or trend in conditions for contaminants, assessed by the Ambient Ground Water Quality Monitoring Network.

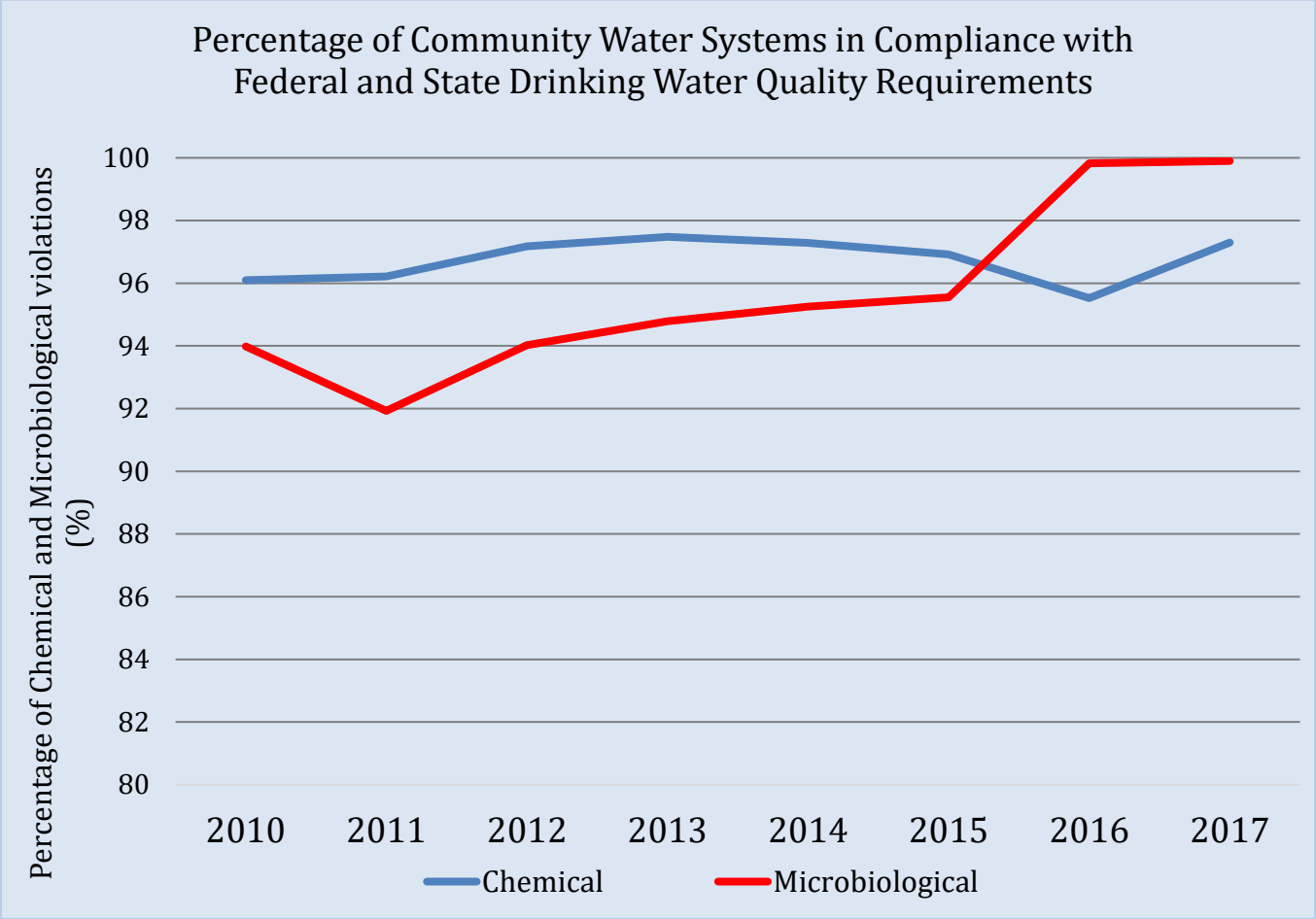
Percentage of State Waters that Fully Support Designated Uses



Source: NJDEP. 2014. 2012 New Jersey Integrated Water Quality Monitoring and Assessment Report (Submitted to USEPA: July 30, 2014; Approved: September 25, 2014).
http://www.nj.gov/dep/wms/bears/docs/2012_integrated_report.pdf; https://www.state.nj.us/dep/wms/bears/2014_integrated_report.htm

Indicator	1.1.1 Public Water Supply Compliance

Although the standards for known contaminants are met consistently, there are many potential contaminants that are unknown or untested for, such as traces of pharmaceuticals or suspected endocrine disrupters. A comprehensive statewide indicator would have to incorporate water quality data for well water, however, comprehensive private well testing data is not publically available. There are no readily available statewide data on the quality of water as it comes from the tap (another indicator) 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.



Source: New Jersey Department of Environmental Protection (DEP) Division of Water Supply and Geoscience, Link: https://www.state.nj.us/dep/watersupply/dwc_systems.html

Dimension: Air Quality

Goal

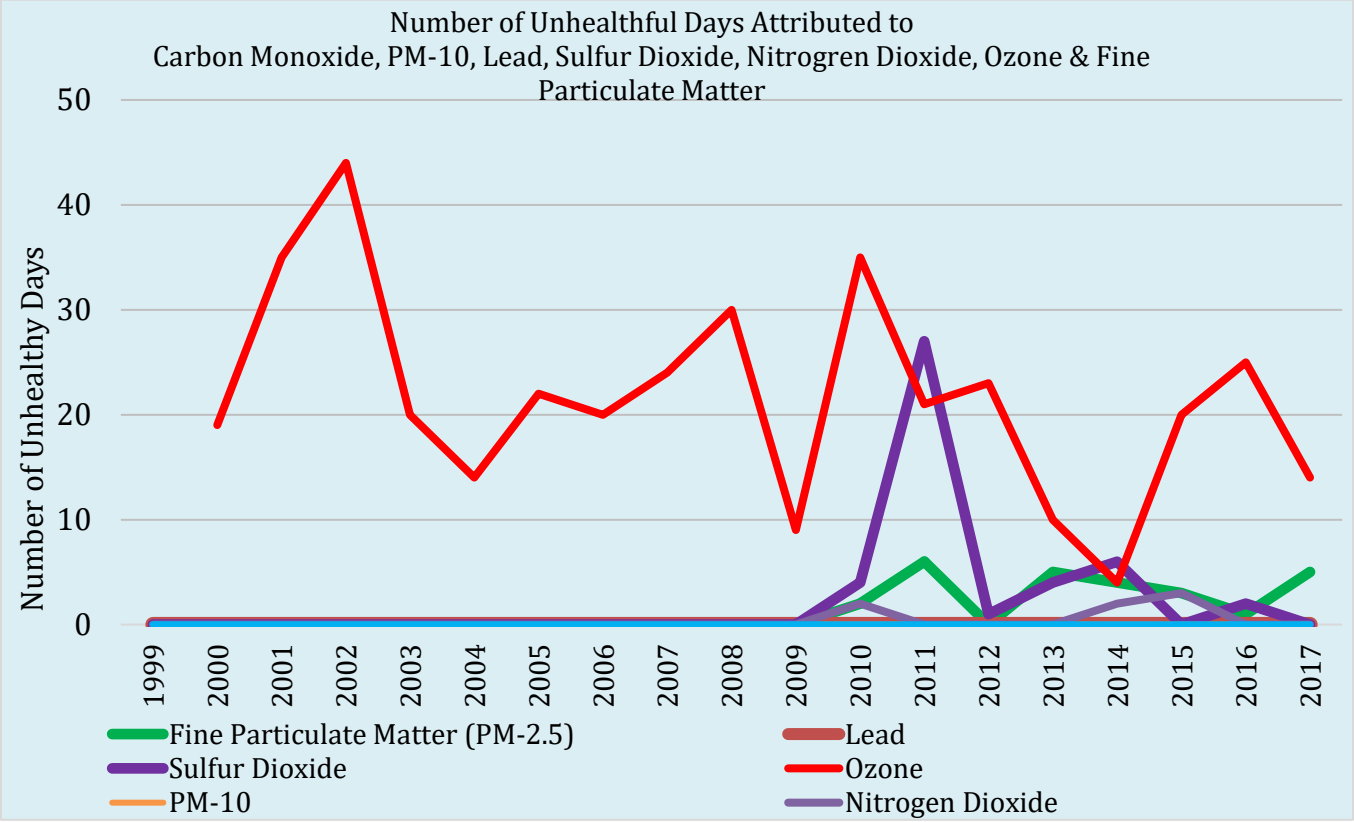
We want indoor and outdoor air quality to be healthy for people and the environment with no significant threats posed to vulnerable populations such as children, the elderly, and low-income and minority communities. Greenhouse gas (GHG) emissions are also a form of air pollution that must be curtailed.

Trend

While some improvement has occurred over the past decade, air pollution is very unevenly distributed in the state, leaving certain neighborhoods and vulnerable populations regularly exposed to dangerous levels of fine particulate matter and ozone.

Indicator	4.1.1 Unhealthful Air Quality Days

Figure 4.1.1.1 Number of Unhealthy Air Days



Source: NJ Department of Health, NJ State Health Assessment Data, Environmental Public Health Tracking Indicator Report, Ozone, Fine Particulate Matter, and Air Quality. https://www26.state.nj.us/doh-shad/indicator/CatEPHT.html

Source: NJ Department of Environmental Protection, 2015 Air Quality Index Report, http://njaqinow.net/App_Files/15rpt.htm and data from Olga Boyko, Division of Air Quality, Bureau of Air Monitoring (Olga.Boyko@dep.nj.gov). http://njaqinow.net/App_Files/2016/AQI%202

Dimension: Waste

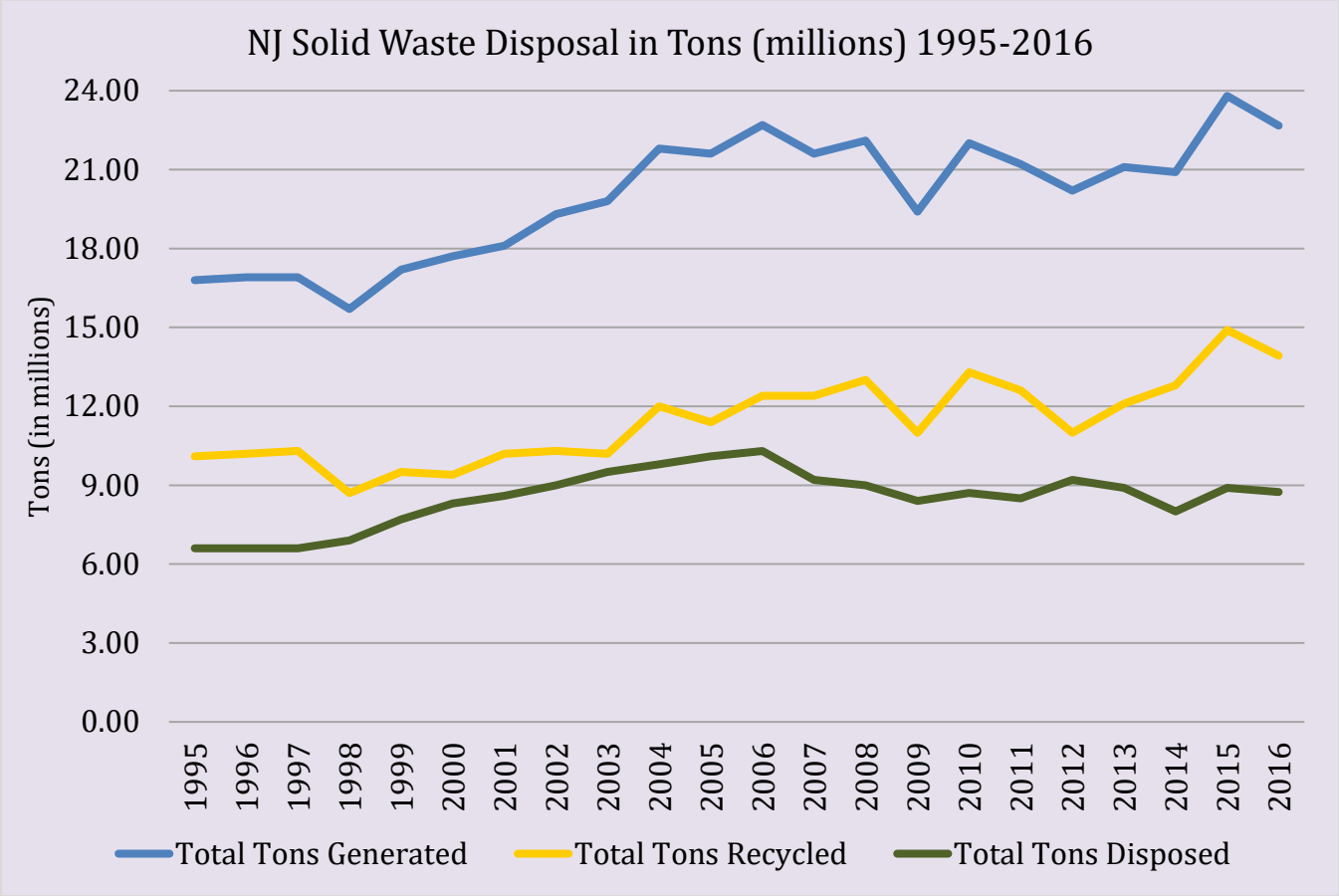
Goal

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.

Trend

In the past few years, a crisis in the recycling market has lead to increased diversion of waste to incinerators and landfills. Meanwhile, over the past 10 years, the total amount of municipal solid waste generated per year has not decreased as needed.

Indicator	14.1.1 Solid Waste Generation



Source: NJ DEP Recycling Information. New Jersey Generation, Disposal and Recycling Statistics (in tons)
Link for Data Reports: https://www.state.nj.us/dep/dshw/recycling/stats.htm

Dimension: Housing

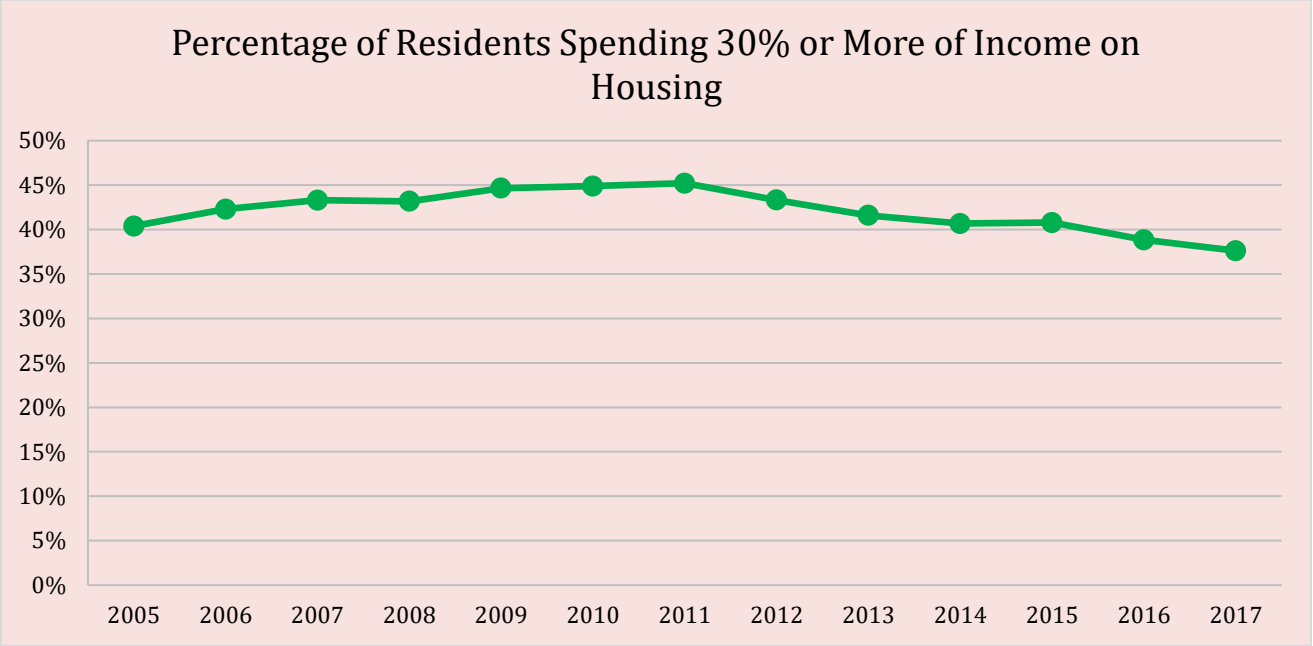
Goal

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.

Trend

Over the past decade, the fraction of households spending a burdensome amount (30% or more) of their income on housing has come down slightly, but it still represents over two-fifths of the population.

Indicator	10.1.1 Lack of Affordable Housing



Source: TENURE BY HOUSING COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME IN THE PAST 12 MONTHS Universe: Occupied housing units (Table B25106)

https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_11_1YR_B25106&prodType=table#none

(When using Link add New Jersey to geography and then click go).

Dimension: Social Capital / Social Well-being

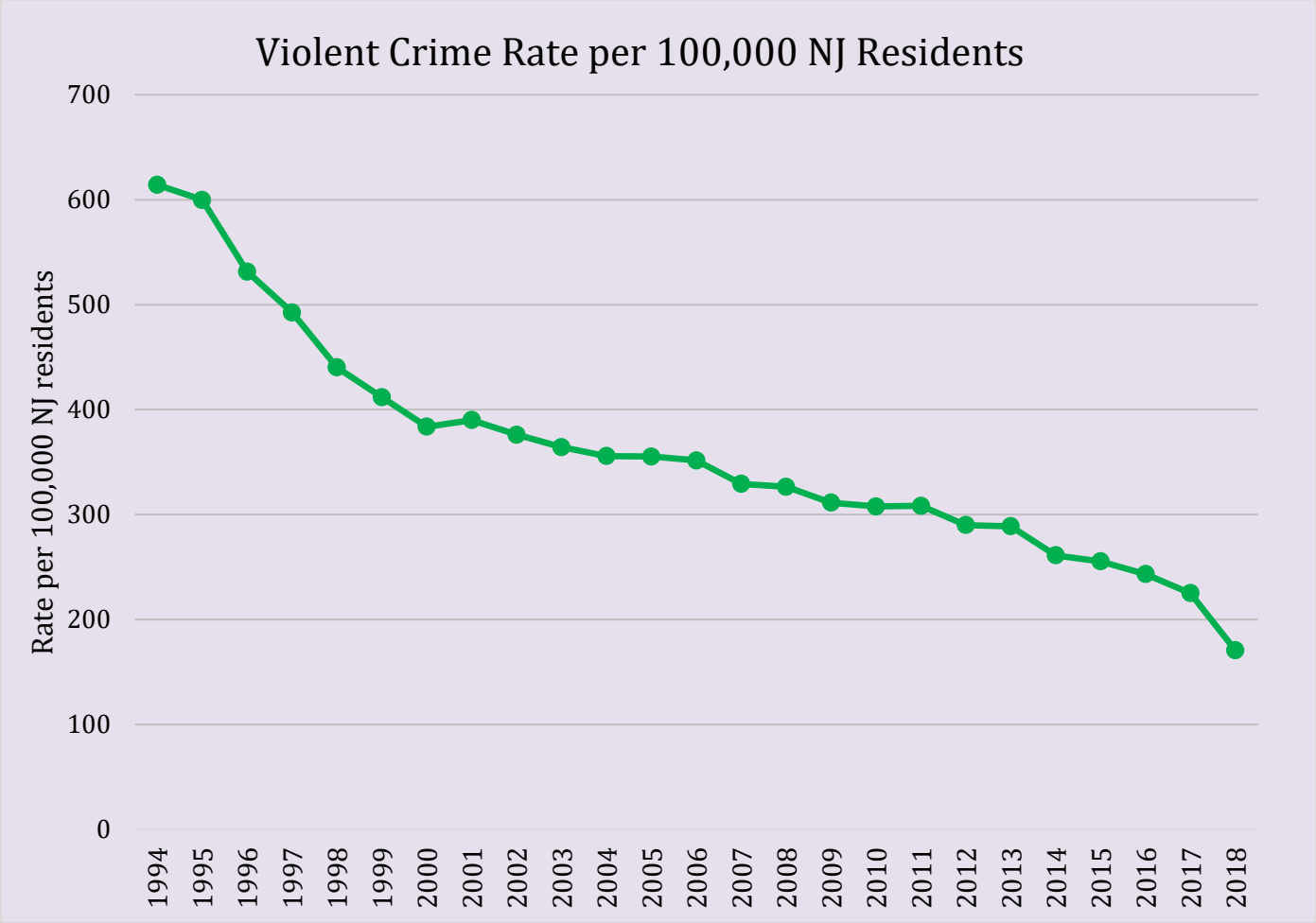
Goal

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.

Trend

The rate of violent crime reported in New Jersey is 8th lowest in the nation and has been steadily declining. However, this statistic conceals the wide range of local variation in public safety. Rates of incarceration have also come down significantly.

Indicator	7.1.1 Violent Crime



Source: State of New Jersey, Division of State Police, "Uniform Crime Report State of New Jersey 2018."https://www.njsp.org/ucr/uniform-crime-reports.shtml

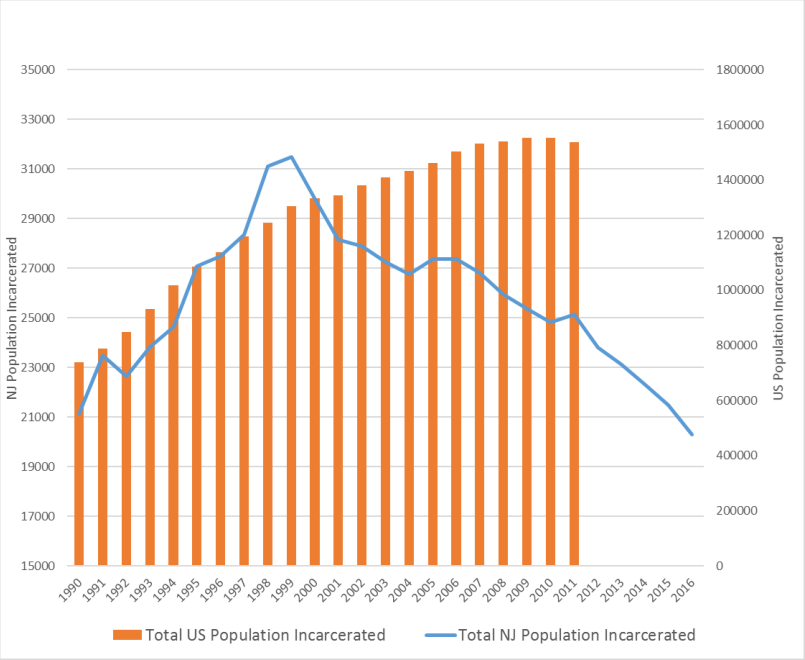
Link for 2017 and 2018 data: https://www.njsp.org/ucr/current-crime-data1.shtml?agree=0

Indicator	7.1.2 Incarcerated Population

The proportion of the population of NJ in prison began to outstrip the national trend in 1997, peaking in 1999. The state thereafter led the nation in the rate of decrease of the total incarcerated population. The total US population in prison began to decrease over a decade later in 2010.

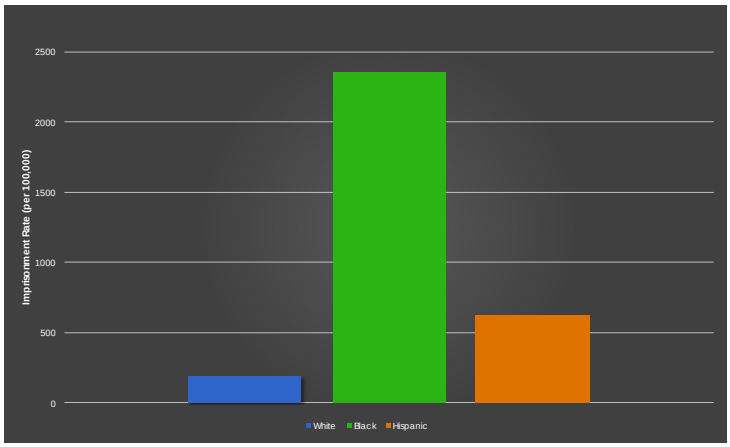
The second figure below demonstrates the striking racial imbalance in prison populations in New Jersey. The disparity is even more striking in light of the fact that Black and Hispanic populations comprise only a fraction (not much more than one-tenth) the size of the white population. Social inclusion cannot be achieved if safe communities are attained by excluding particular social segments.

Total NJ and US Population Incarcerated



Source: The Sentencing Project; Bureau of Justice Statistics, Prison Population 1980-2011 Map
http://www.sentencingproject.org/map/map.cfm

Imprisonment Rate (per 100,000 population) by Race



Source: The Sentencing Project; Bureau of Justice Statistics, Prison Population 1980-2011 Map
http://www.sentencingproject.org/map/map.cfm

Dimension: Economy

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.

Trend

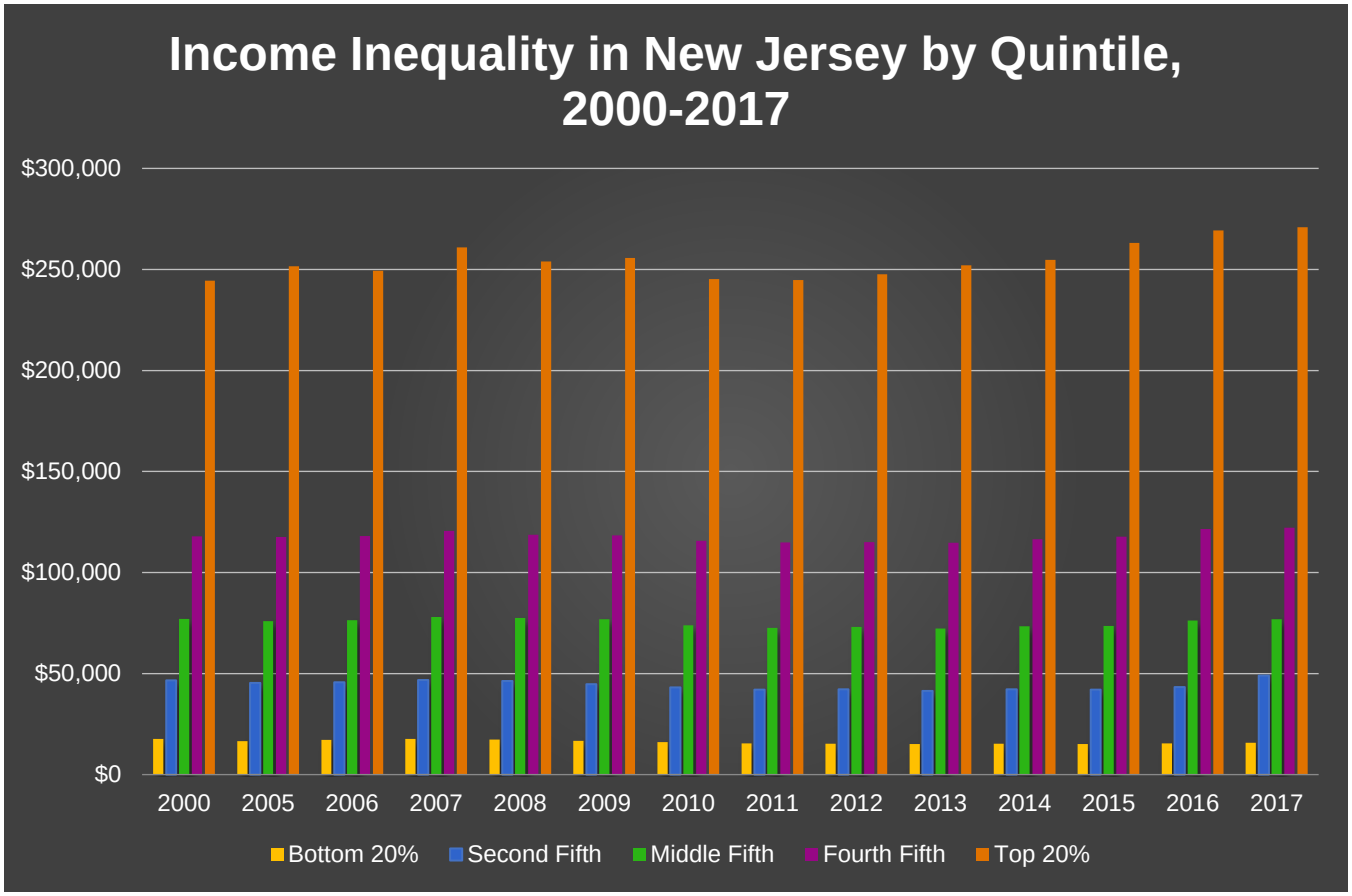
Since the recession, there has been a near steady trend towards increasing income inequality. While the incomes of the wealthiest 20% have grown steadily, the poverty rate is higher, leaving more than 30% of the population unable to meet basic

needs in 2016.

Meanwhile, the general dynamism of the economy has decreased as rates of business starts and failures have continued a long downward trend, suggesting that the economy has become less entrepreneurial.

Indicator	9.4.1 Distribution of Income

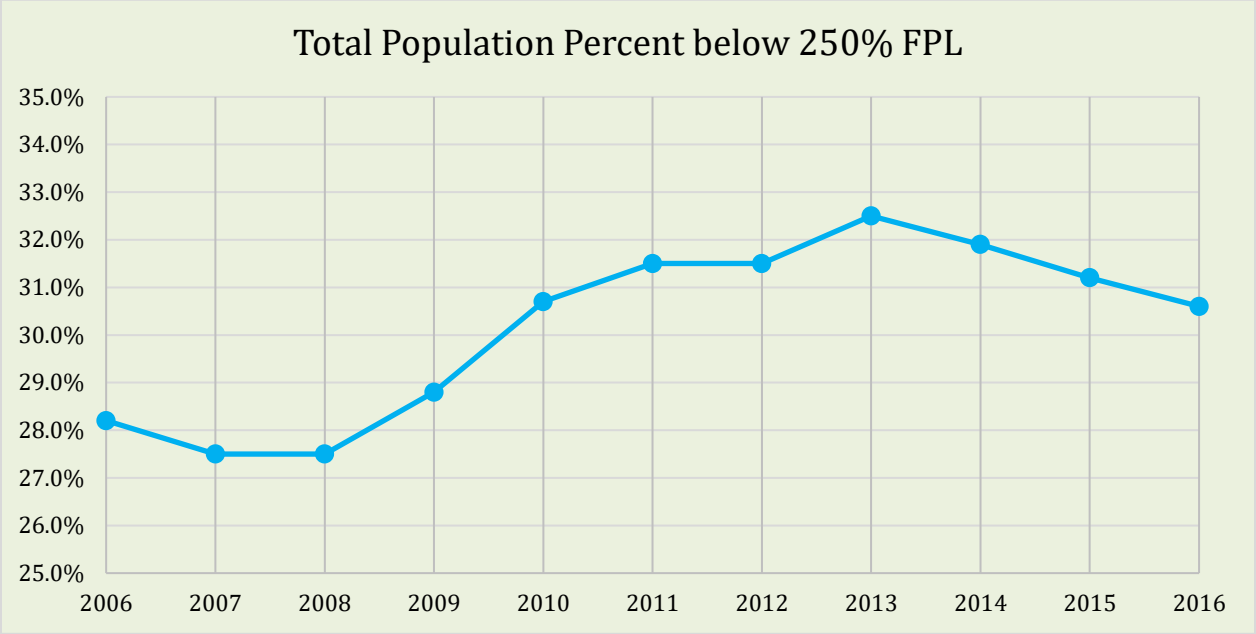
Figure 9.4.1.1 Income Inequality in New Jersey by Quintile, 2000-2017



Source: United States Census Bureau, American Fact Finder. Median Household Income of Quintiles Table B19081
Link for Data: https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_B19081&prodType=table

Indicator	9.3.2 Poverty

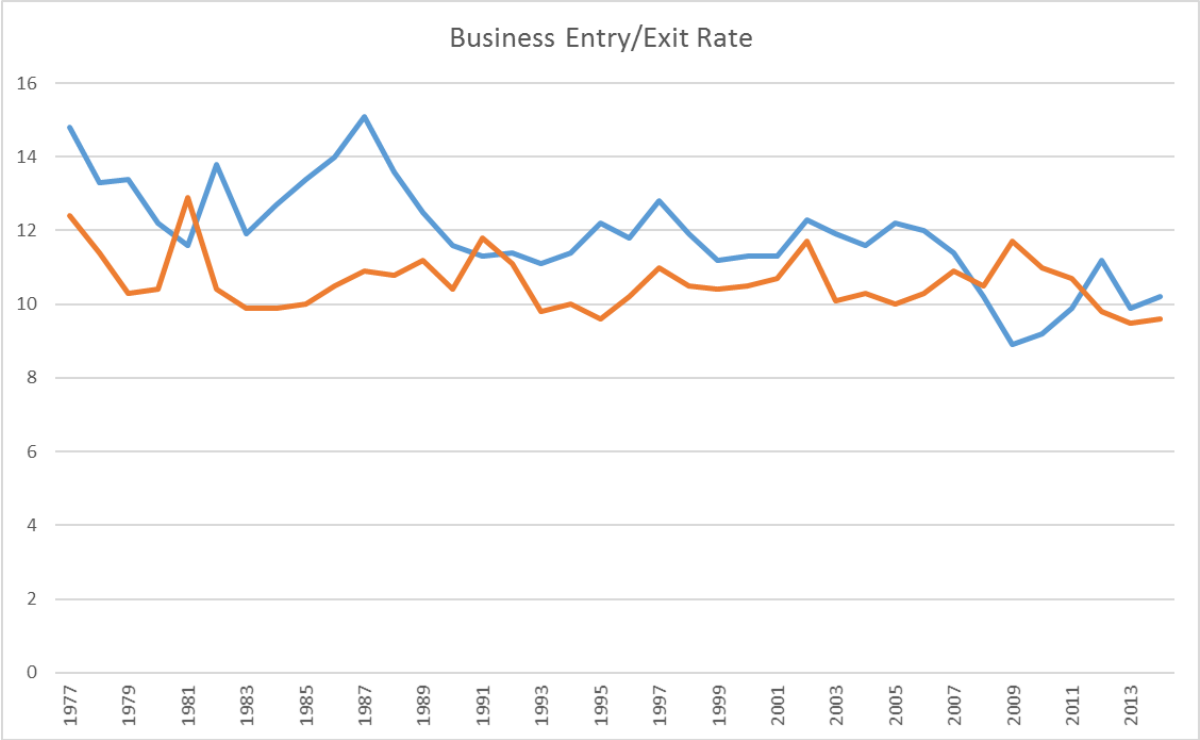
People begin to suffer significant deprivation when their income is well above the official Federal Poverty Level. For New Jersey, where the cost of living is among the highest in the nation, the state-specific “Real Cost of Living” (RCL) has been calculated at 250% of the FPL on the basis of a widely used “self-sufficiency standard.” For a given household composition, this figure includes only basic needs in housing, food, health care, transportation, child care, taxes and other essentials, with no savings or luxuries (Legal Services of New Jersey. 2014. *What is Poverty?*).



Source: American Community Survey, PUMS Data Analysis, New Jersey 2006 to 2016

Link for Dahttps://www.lsnj.org/NJPovertybyArea.aspx#/geography/state

Indicator	9.2.1 Business Starts and Failures



Source: Longitudinal Business Database 1977-2012. https://www.census.gov/ces/dataproducts/datasets/lbd.html

Source: Bureau of Labor Statistics https://www.census.gov/ces/dataproducts/bds/data_estab.html

Dimension: Education and Human Development

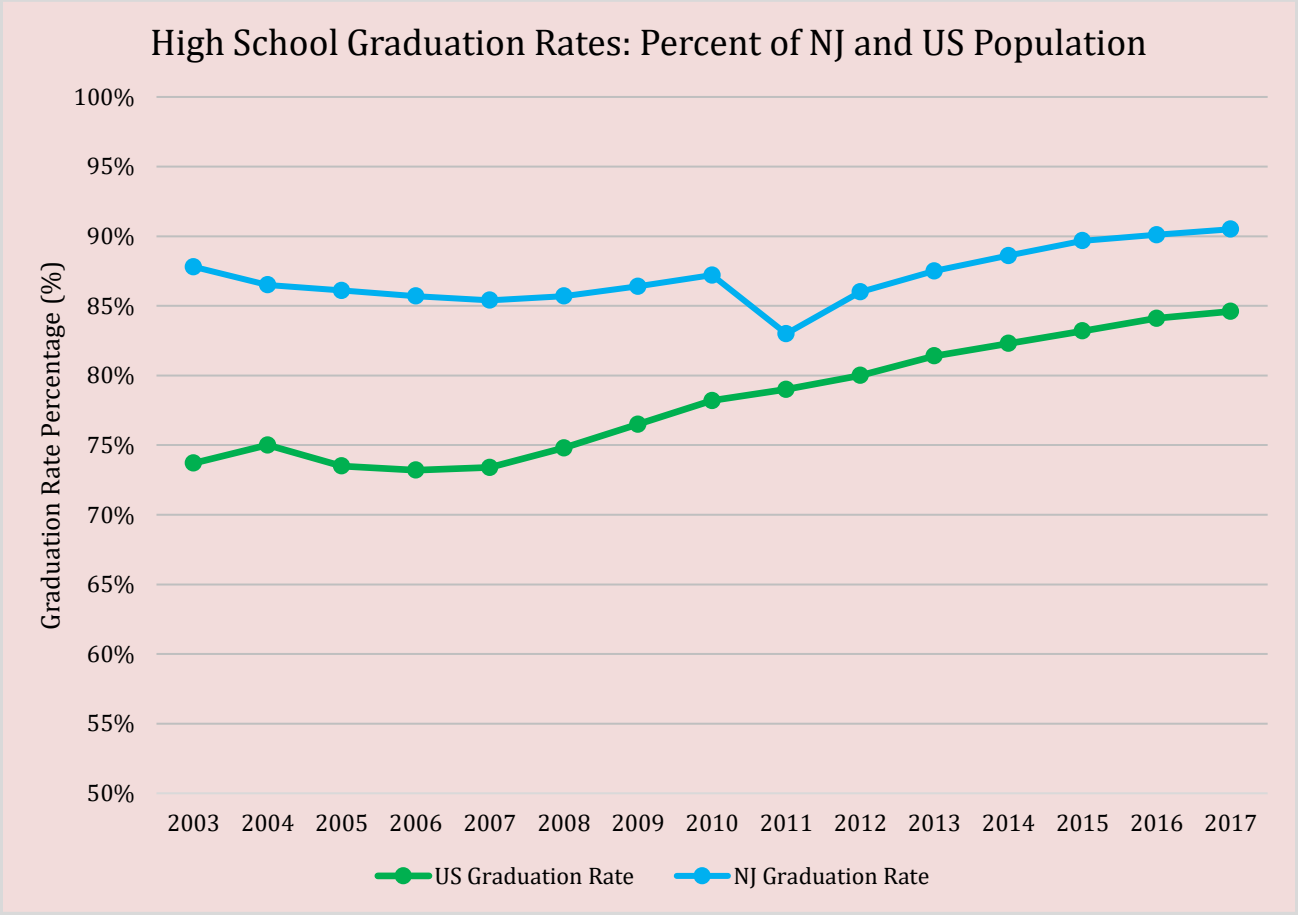
Goal

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

Trend

The percentage of students successfully completing high school within four years of entry is high and increasing. There are significant, but decreasing, gaps in the rates among White, Black, Hispanic, and Asian students.

Indicator	6.1.4 High School Graduation Rates

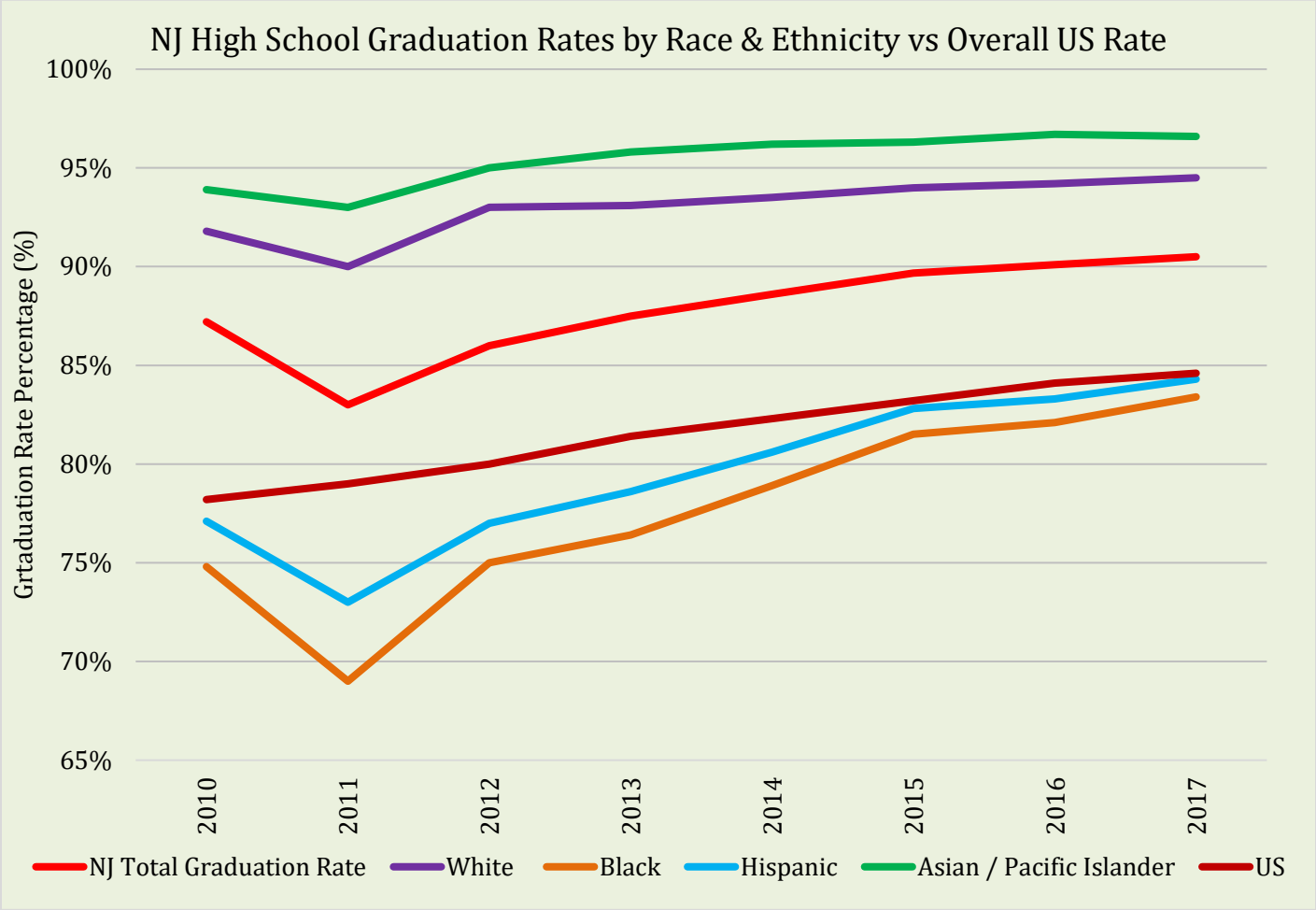


Source: National Center for Education Statistics, Common Core of Data, public high school 4-year adjusted cohort graduation rate (ACGR).

Link for 2016-2017 data : https://nces.ed.gov/ccd/tables/ACGR_RE_and_characteristics_2016-17.asp

*In the 2011 school year, the ACGR replaced the AFGR (averaged freshman graduation rate) as the nationwide way for reporting graduation rates. While it is not a complete departure from the AFGR method, direct comparisons should not be made; the data were included here as an informal comparison. The ACGR is thought to provide greater accuracy and thus accountability for states.

Indicator	6.2.2 Disparities in High School Graduation Rates



Source: National Center for Education Statistics, Common Core of Data, Public high school 4-year adjusted cohort graduation rate (ACGR).

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Link for 2017 and 2018 data: https://www.njsp.org/ucr/current-crime-data1.shtml?agree=0

Dimension: Health

Goal

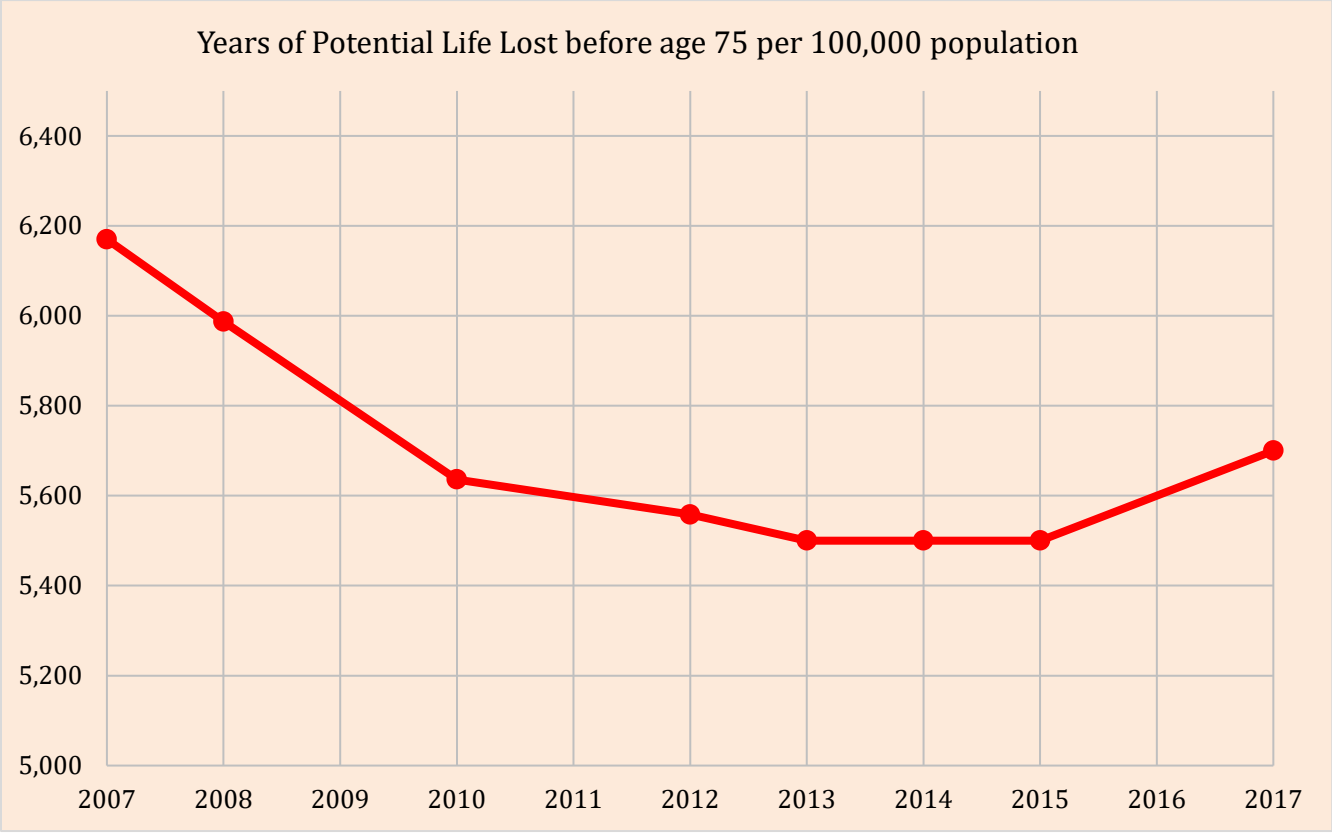
We want a future where all the people of New Jersey enjoy good health and a good quality of life, with minimal loss of life and function due to preventable disease, and where these standards are supported by access to affordable, high-quality healthcare.

Trend

After decades of progress, the rate of preventable premature deaths has begun to creep upwards. Similarly, although the gap among racial groups has narrowed, it remains persistently high. And, where you live still strongly predicts how long you live.

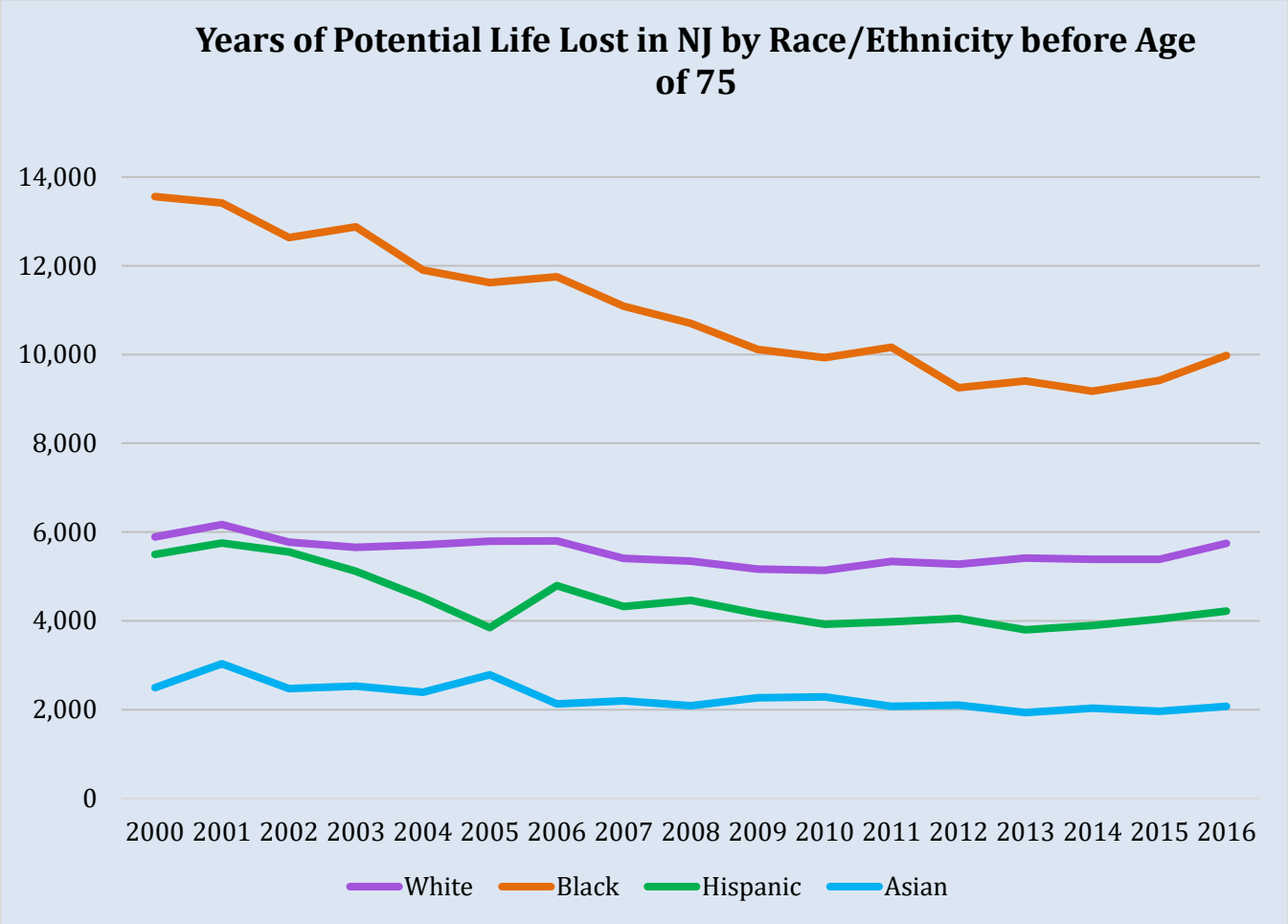
Indicator 5.1.4	Premature Death

“Year of Potential Life Lost (YPLL) is a measure of the number of years not lived by each individual who died before reaching a predetermined age, such as 65. This measure weights deaths at younger ages more heavily than deaths at older ages; the younger the age at death, the greater the number of years of potential life lost due to preventable causes. YPLL is a significant indicator because it tends to emphasize the deaths of younger individuals, whereas mortality rates tend to have illnesses that affect the elderly as a focus. It is also useful because it is more sensitive to policy change than mortality rate, in that mortality rate changes slowly and small changes in healthcare or gun violence can incur immediate changes in years lost for that year making it a more useful instrument for longitudinal studies and measuring policy impact.” (NJ Department of Health, NJ State Health Assessment Data, Environmental Public Health Tracking Indicator Report, 2014).



RWJ County Health Ranking and Roadmaps. Premature death Years of potential life lost before age 75 per 100,000 population (age-adjusted). http://www.countyhealthrankings.org/app/new-jersey/2019/measure/outcomes/1/data. National Center for Health Statistics - Mortality Files

Indicator 5.2.3	Disparities in Premature Death



Source: NJ Department of Health, NJ State Health Assessment Data, Environmental Public Health Tracking Indicator Report, Data List for Years of Potential Life Lost (YPLL) Before 75 Years of Age, by Race/Ethnicity, New Jersey, 1998-2016, Link: https://www-doh.state.nj.us/doh-shad/indicator/view/YPLL75.RaceEth.ht