

ECONOMIC IMPACTS OF THE NEW YORK STATE ENVIRONMENTAL BOND ACT

Report Completed: December 2020



Economic Impacts of the New York State
Environmental Bond Act

EXECUTIVE SUMMARY

The New York State Environmental Bond Act, the largest environmental bond act in State history, would dedicate \$3 billion to help restart the economy while protecting clean water, improving public health, and expanding access to nature. The Bond will address pressing infrastructure and environmental needs while providing much-needed stimulus in the wake of the economic devastation caused by the Covid-19 pandemic.





Economic development depends upon infrastructure investments that meet the needs of the present and the future. In the past ten years, every county in New York State suffered severe storms and flooding that caused economic and other hardships for its residents and businesses. A comprehensive approach to help communities prepare their infrastructure and natural systems before suffering additional damage is critical to supporting New York’s economy and enhancing quality of life. Smart investments can convert a challenge into an opportunity for New York workers and businesses to lead the green economy.

AECOM, working in collaboration with Rebuild by Design, estimated the short-term economic impacts of the New York State Environmental Bond Act and evaluated the long-term benefits of the associated investments. The Bond Act can address pressing infrastructure and environmental needs while providing much-needed stimulus in the wake of the economic devastation caused by the Covid-19 pandemic. The Bond Act’s enabling legislation allocates spending to four key categories of investment: water quality improvement; climate change mitigation; open space land conservation; and flood risk reduction. Accounting for leveraged funding, once approved by voters, the Bond Act is estimated to support \$6.7 billion in project spending and 65,000 jobs (Table 1). Importantly, the legislation requires that the State makes every effort practicable to ensure that 35% of bond funds be targeted to benefit environmental

justice communities. In addition, given New York State’s goal of engaging Minority- and Women-Owned Business Enterprises (MWBEs) in 30% of all state contracts, it is assumed that the New York State Environmental Bond Act will create more opportunities for MWBEs.

Overall, the long-term benefits to be gained by these investments are likely to outweigh the costs of investment. In order to understand the potential long-term benefits of the Environmental Bond Act, AECOM researched benefit-cost analyses for past or planned projects that are comparable to the various types of investments in New York State that would be funded by the Bond Act. From improving resilience and avoiding future costs from severe storms, to creating social and public health benefits for New York residents, applicable research has found that projects associated with the four key categories of spending are shown to be fiscally smart and effective investments.

As governments face budget shortfalls, record unemployment and mounting social, environmental and public health issues, the Environmental Bond Act gives New York an opportunity to address the current economic crisis and mitigate the future challenges posed by climate change, while providing a boost to the State’s economy, creating jobs, protecting the State’s drinking water and other essential natural resources, and improving the lives of New York residents.

Table 1: Economic Impacts of \$3B Bond

	Authorized Bond Funds	With Leveraged Funds
Direct Spending	\$3,000,000,000	\$6,700,000,000
Direct Jobs	16,000	36,000
Indirect Jobs	3,000	8,000
Induced Jobs	9,000	20,000
Total Jobs	28,000	65,000
<i>Jobs per \$1B in Direct Spending</i>	9,300	9,600

Notes: Job counts include straight full time and part time counts. Job estimates are for jobs supported within New York State. Estimates are derived from Emsi multipliers for New York State from quarter 2 of 2019. Figures may not sum due to rounding. This analysis is based on the New York State Environmental Bond Act of 2020. The legislation is expected to be passed in the future and may be subject to language and requirement alterations.

1. Background

NYS Environmental Bond Act of 2020

New York's largest environmental bond act in State history proposes the issuance of \$3 billion in general obligation bonds to pay for environmentally focused projects and support the State's targets to tackle climate change. The Bond Act language outlines four broad categories of projects: water quality improvement; climate change mitigation; open space land conservation; and flood risk reduction. AECOM, working in collaboration with Rebuild by Design, estimated the short-term economic impacts of the New York State Environmental Bond Act (Section 2) and evaluated the long-term benefits of the associated investments (Section 3). For further information on methodology, please see Appendix A.

Amount of Funding

Bond Act Focus

The Bond Act legislation outlines the categories for which the Bond Act funding can be used, each of which are assigned a minimum or maximum allocation of funds. Each category further specifies the minimum and maximum allocation for programs within that category. In order for the full spending to reach the \$3 billion allocated, the final investment by category will be more than the assigned minimums, however, the exact allotment is unknown.

Figure 1 shows the minimum and maximum spending allocations by categories and programs as outlined in the Bond Act legislation.

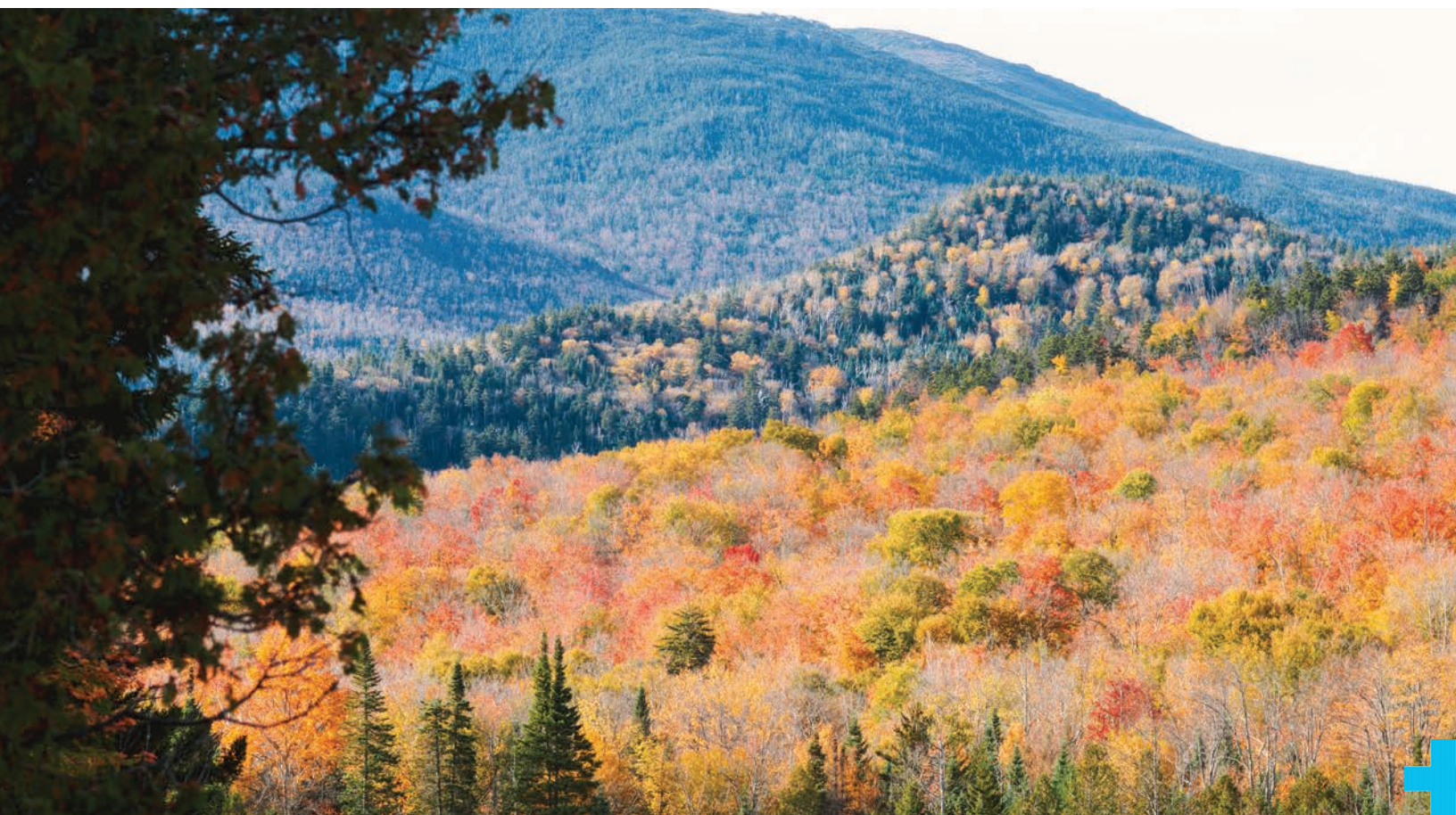
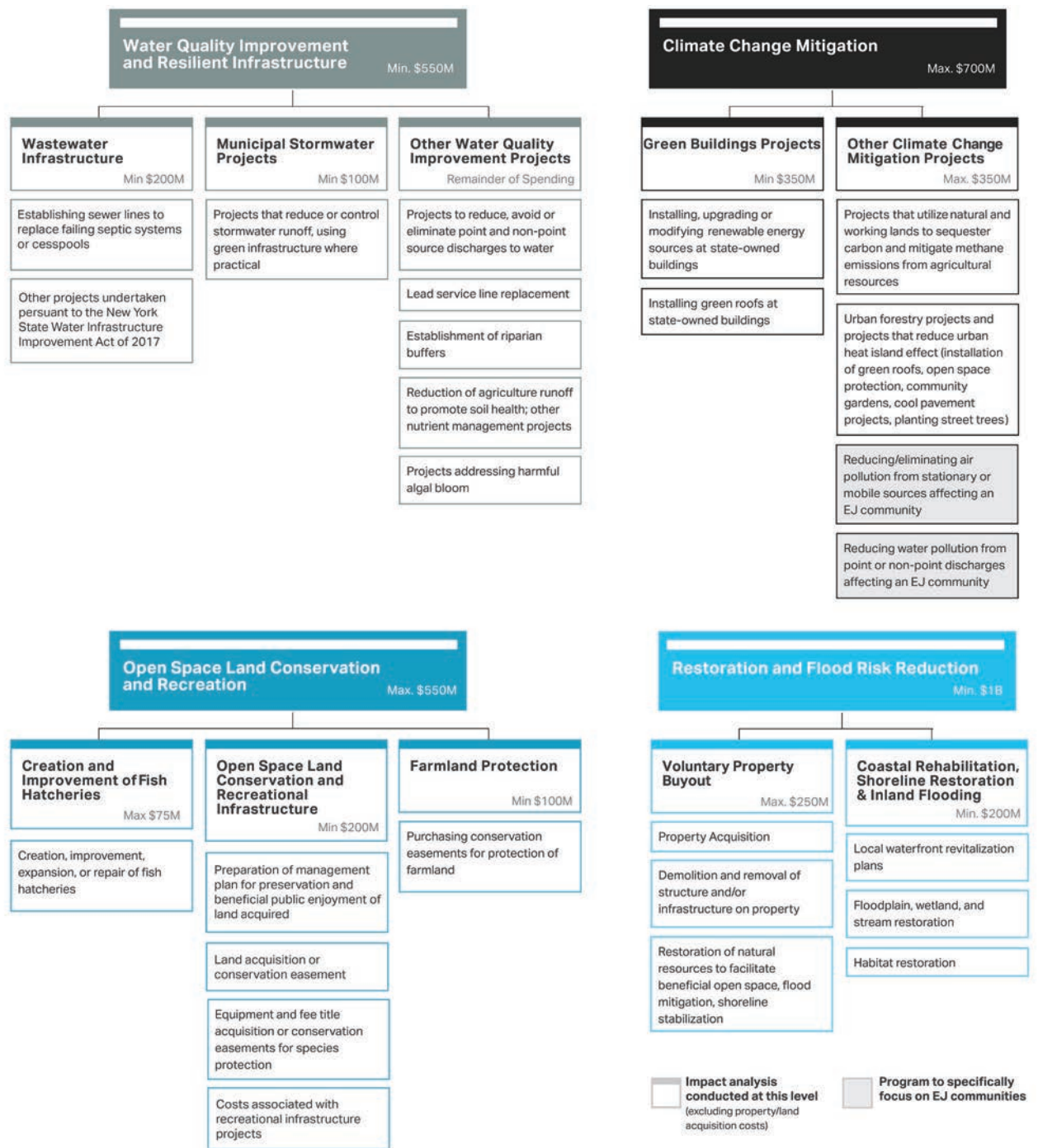
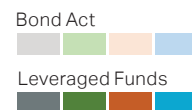
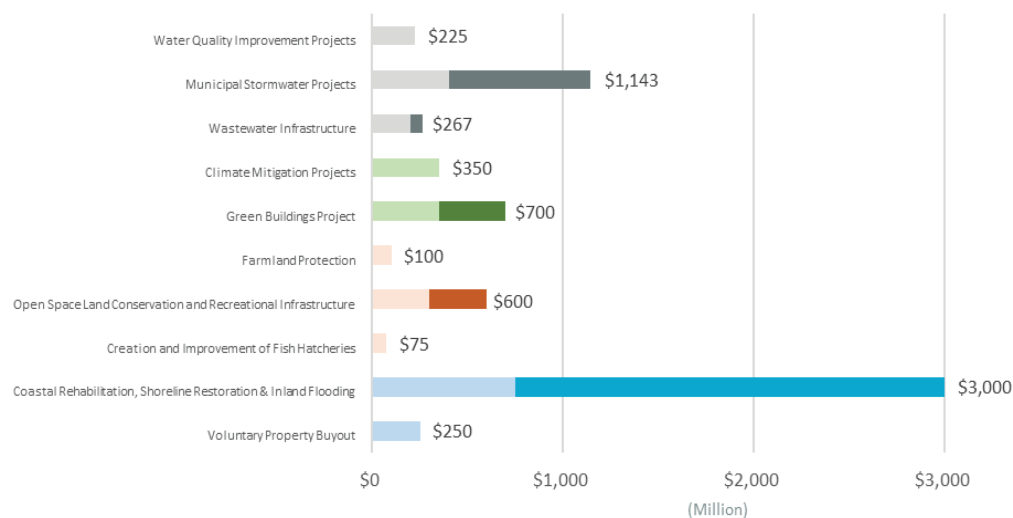


Figure 1: Environmental Bond Act Spending Categories and Programs

Leveraged Funding

The \$3 billion bond is designed to leverage additional matching funds from federal or local governments or philanthropic sources. As such, the total economic impacts account for the direct spending plus the anticipated leveraged funding. The amount of leverage assumed was based on existing programs and is discussed further in Appendix A. Figure 2 shows the total amount of funding is estimated by program with associated leveraged funds in the darker color of each bar. An additional \$3.7 billion is assumed to be leveraged, bringing the total direct investment to \$6.7 billion.

Figure 2: \$3B Environmental Bond Act Spending by Program with Leveraged Funds



Notes: The Bond Act's language grants flexibility around the division of funds by assigning a minimum or maximum allocation to each category and its underlying programs. The above programs and associated spending are based in part on AECOM assumptions. The Bond Act language specifically calls for: a minimum of \$550 million to be spent on Water Quality Improvement and Resilient Infrastructure; a maximum of \$700 million to be spent on climate change mitigation; a maximum of \$550 million to be spent on open space land conservation and recreation; and a minimum of \$1 billion to be spent on restoration and flood risk reduction projects. Within each of these buckets, there are further stipulations. AECOM's assumptions on spending breakdowns by program are discussed in further detail in Appendix A.



2. Economic Impact

Economic impact analysis evaluates how an investment spurs economic activity and job creation in a specific region. As investments are made, their spending ripples through the economy and contributes to value and employment. This ripple effect, also referred to as a multiplier effect, can be quantified in three main categories: direct, indirect, and induced.

- *Direct impacts* result from spending on the initial project. For example, direct job impacts from a waterfront revitalization project might include designers, engineers, and onsite construction workers.
- *Indirect impacts* result from funds going to the suppliers providing materials and equipment for the project, who in turn can grow and hire more workers.
- *Induced impacts* result from direct and indirect workers spending their earnings on goods and services.

To conduct the economic impact analysis, AECOM used the Emsi New York State multipliers to estimate the total economic value created by the different types of projects specified in the Bond Act legislation. Multipliers can be used to understand how a dollar spent in one industry creates value throughout the economy. While value can be measured by various metrics (jobs, earnings, output, value added), the primary metric of interest for this analysis is the number of total jobs (direct, indirect, and induced) created in New York State.¹

The industry multipliers were based on 2019 quarter 2 data. In order to use these multipliers to determine the total job impacts of the NYS Environmental Bond Act, AECOM made assumptions related to: 1) the dollar figure of investment by program and the amount of funding that could be leveraged; and 2) the anticipated industries directly executing the program spending. Details on these assumptions and the methodology used can be found in Appendix A.

Overall, the analysis estimates the Environmental Bond Act would support 65,000 jobs in New York State with anticipated leveraged funds, of which 28,000 jobs are estimated to be supported solely by the \$3 billion in Bond Act spending.

Economic Impact Analysis Results

Water Quality Improvement and Resilient Infrastructure

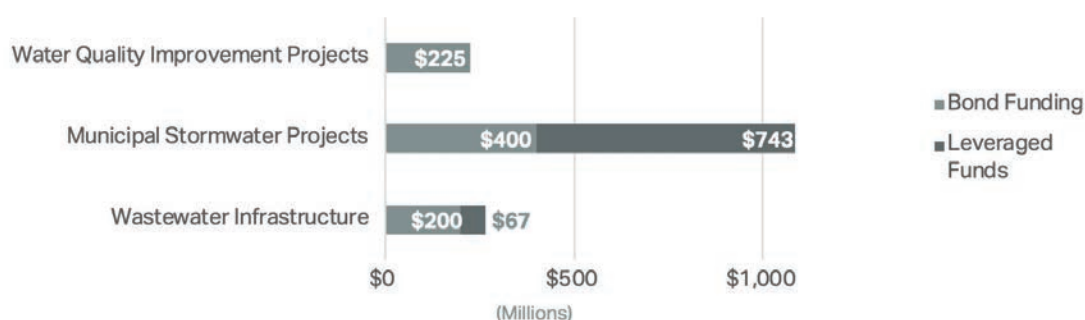
Based on the Bond Act language, water quality improvement and resilient infrastructure should receive a minimum of \$550 million. This analysis assumes that \$825 million will go towards this spending category with an additional \$800 million in leveraged funds. The leverage assumption is based on existing federal water infrastructure grants and previous water improvement funds sponsored by New York State (see Appendix A).

The Bond Act specifies that among these funds, a minimum of \$200 million be made available for wastewater infrastructure projects and a minimum of \$100 million for

municipal stormwater projects. The analysis uses allocations of \$200 and \$400 million respectively.

A third program, designated as water quality improvement projects, are also specified as projects that qualify. These projects include, but are not limited to, lake water treatment, lead pipe replacement, and mitigating harmful algae blooms. The legislation has not assigned a minimum or maximum, but the analysis allocates \$225 million to cover these various miscellaneous water quality improvement projects. Figure 3 outlines the assumed spending for each program category in addition to assumed leveraged funds.

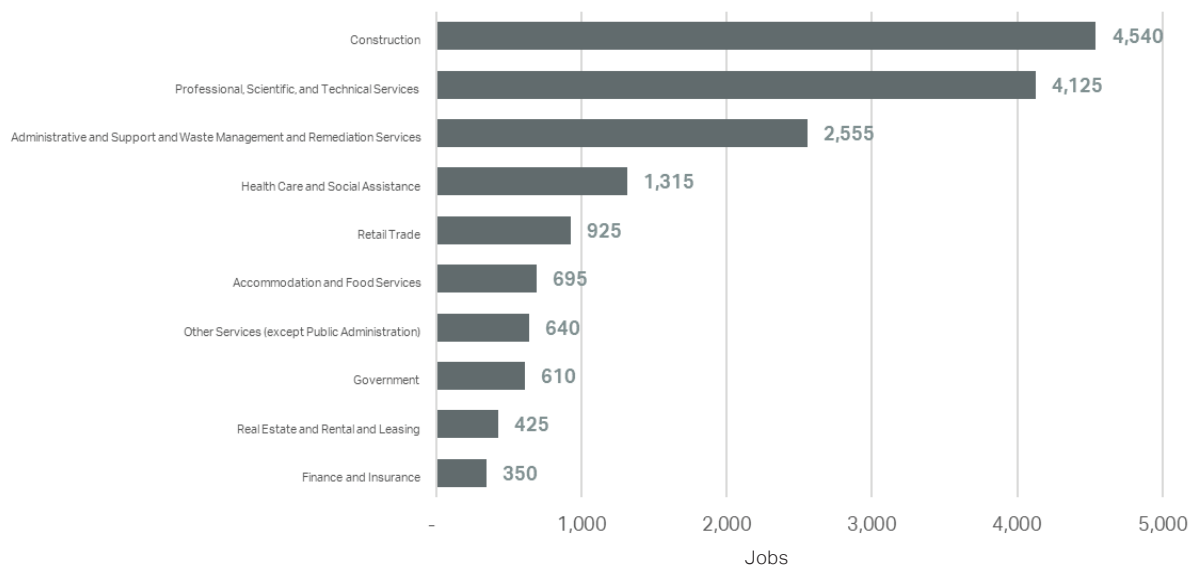
Figure 3: Water Quality Improvement Program Spending with Leveraged Funds



It is assumed that an additional \$800 million will be leveraged, bringing the total for water quality improvement and resilient infrastructure program spending to approximately \$1.6 billion. It is anticipated that this spending would support nearly 18,000 jobs, of which 10,000 are direct.

The top three sectors benefiting are construction, professional, scientific and technical services, and administrative and support/waste management and remediation services. Figure 4 shows total jobs created by sector. Details on industries directly impacted by project spending can be found in Appendix A.

Figure 4: Job Impacts by Sector, Water Quality Improvement Program Spending



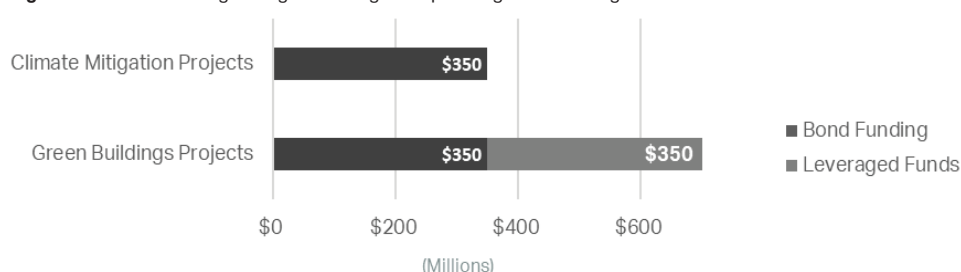
Climate Change Mitigation

In the legislation, projects with the purpose of mitigating the effects of climate change are allocated to receive a maximum of \$700 million. \$350 million is designated for green buildings projects, such as retrofitting state-owned buildings to increase energy efficiency. The analysis assumes that the total category spending would be maximized and therefore is allocated \$700 million with an additional \$350 million in leveraged funding.

Since the legislation provides no additional direction for the remaining funds, it is assumed that the remaining

\$350 million will be allocated to the other climate change mitigation projects that are detailed in the Bond Act. These include projects such as carbon sequestration or methane emissions mitigation efforts and projects that reduce urban heat island effect, such as urban forestry projects, green roof constructions, open space protection, cool pavement projects, and community cooling centers. It is also expected that these funds go towards investments that reduce or eliminate air and water pollution, particularly within environmental justice communities. Figure 5 displays spending by project program as well as assumed leveraged funds.

Figure 5: Climate Change Mitigation Program Spending with Leveraged Funds



By including leveraged funds, project spending on climate change mitigation projects totals approximately \$1.05 billion, with \$700 million going toward industries delivering the green building projects. An additional \$350 million is allocated to the industries impacted by the other various climate change mitigation projects. Based on

these assumptions, total spending on these projects would support about 11,500 jobs, about 7,000 of which are direct. Again, the sector with the greatest benefit is construction, followed by professional, scientific and technical services, and agriculture, forestry, fishing and hunting.

Figure 6: Job Impacts by Sector, Climate Change Mitigation Program Spending

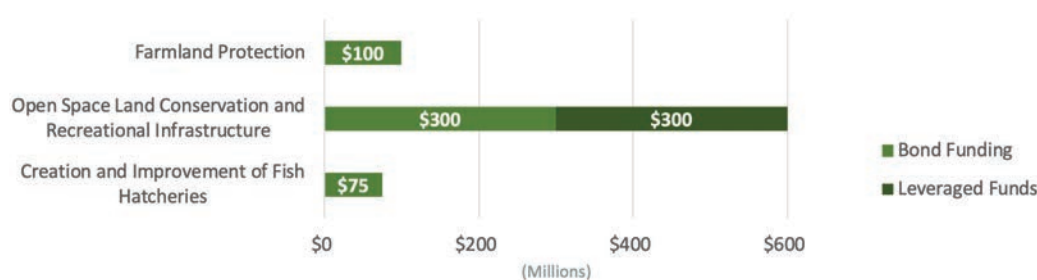


Open Space Land Conservation and Recreation

The Bond Act legislation specifies that funds for the protection or restoration of open land for purposes of habitat protection or recreation would receive a maximum of \$550 million. This analysis assumes that the total amount spent would be slightly less at \$475 million. Within this category, a maximum of \$75 million is allocated to the creation and improvement of NY State fisheries, a minimum of \$200 million is required for acquiring and restoring open land and improving recreation opportunities, and a minimum of \$100 million is made available specifically for acquiring land that would help to protect farmland.

While fisheries and farmland programs are allocated the amounts specified in the Bond Act, the analysis allocates more than the minimum allotment for the open space land conservation and recreational infrastructure program at \$300 million. It also assumes that this program would leverage matching grants based on federal programs that provide 50% contributions to open land conservation and recreation projects, as well as the track record of the land trust and conservation community in raising private funds.

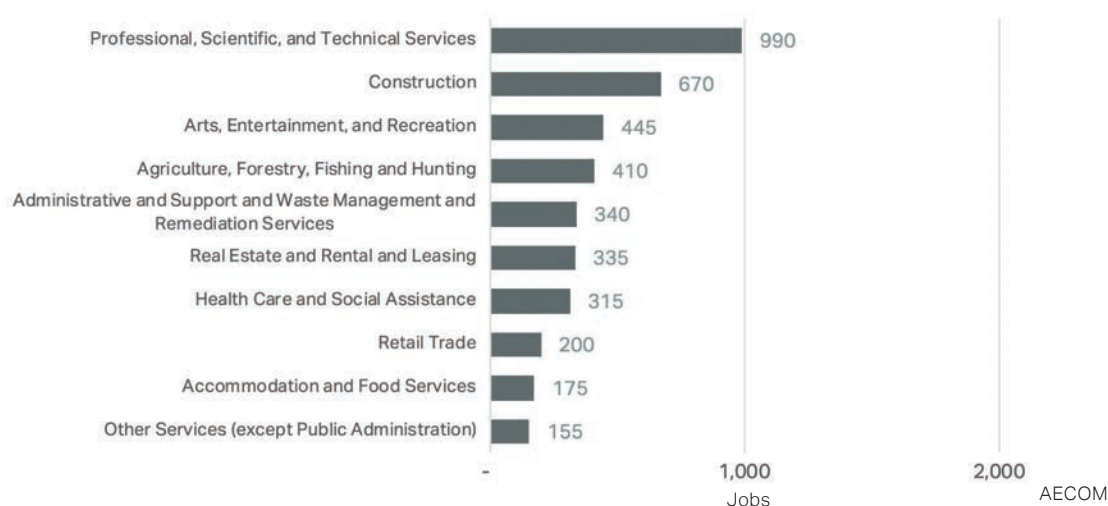
Figure 7: Open Space Land Conservation and Recreation Program Spending with Leveraged Funds



A portion of funds for the open space conservation and farmland protection programs are assumed to be used for costs associated with land purchases. This may include direct purchases of land or the purchase of conservation easements which are commonly used as a means to uphold agreements with landowners to not sell their land for development. Spending on land purchases are not included in the economic impact modeling as it represents a transfer of value and does not result in additional economic activity (apart from associated real estate or finance services). While lower job impacts are estimated for open space land conservation as a result of spending on land purchases, the long-term economic benefits of improving

outdoor recreation opportunities and the additional co-benefits of open space conservation are not captured in the short-term impact model. These are discussed further in Section 3. Likewise, the long-term economic benefits of improving outdoor recreation opportunities and additional co-benefits of open space conservation are not captured in the short-term impact model. The \$775 million in project spending is estimated to support 4,600 jobs, of which 2,500 are direct. Over one-fifth of total jobs supported would be in the professional, scientific and technical services sector which is the third highest paying sector in New York State based on data on median hourly wages from 2019.

Figure 8: Job Impacts by Sector, Open Space Land Conservation and Recreation Program Spending

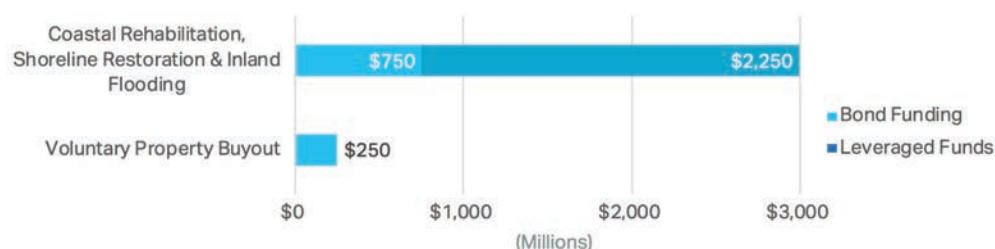


Restoration and Flood Risk Reduction

A minimum of \$1 billion is allocated to programs that address the increasing inland and coastal flooding risk New York State faces through projects that restore coastal areas, shorelines and wetlands and through a voluntary buyout program. This analysis assumes that the amount spent on this category remains at the minimum of \$1 billion.

Of the \$1 billion allocated, it is specified that no more than \$250 million would be designated for a voluntary property buyout program. As the broader category of Restoration and Flood Risk Reduction must receive \$1 billion of funds, the analysis allocates the remainder of that amount to these programs, or \$750 million in bond funding. It is assumed that the coastal rehabilitation program would generate an additional \$2.25 billion in project spending due to significant anticipated leveraged funding. Refer to Appendix A for sources used for leveraged funding assumptions.

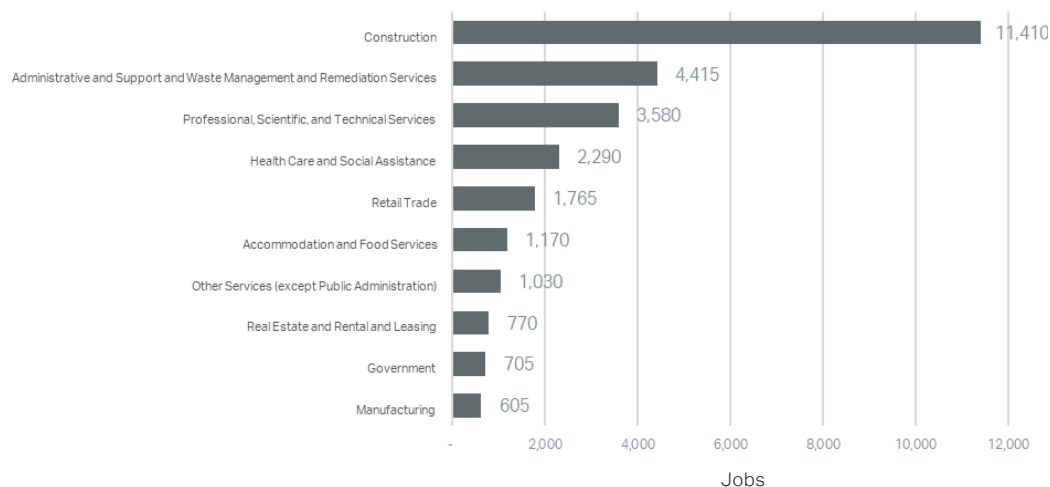
Figure 9: Restoration and Flood Risk Reduction Program Spending with Leveraged Funds



With leveraged funds included, the total spending on the restoration and flood risk reduction program amounts to \$3.25 billion. Of the four spending categories, this is expected to have the largest economic impact with the creation of 30,600 jobs, of which 17,000 are direct.

The largest share of jobs created would be within the construction sector, followed by administrative and support and waste management services, and professional, scientific, and technical services.

Figure 10: Job Impacts by Sector, Restoration and Flood Risk Reduction Program Spending





3. Long-term Value of Investments in Climate Change Adaptation and Environmental Preservation

In addition to immediate job benefits, the programs funded by the Bond Act are anticipated to contribute to long-term economic, environmental, and social value in New York State. The benefits of investments in flood risk reduction and coastal restoration, land conservation, climate change mitigation and water quality improvement, are well documented. Key findings from literature review are summarized below.

Water Quality Improvement and Resilient Infrastructure

Water quality improvement projects proposed in the Bond Act relate to wastewater infrastructure, municipal stormwater projects, and other water quality improvement projects. This category of spending will be important in confronting a looming water infrastructure funding gap which is more likely to be closed if New York State can further leverage additional dollars.² As drinking water and wastewater infrastructure continues to age, replacing these systems will provide a more cost effective and efficient means of managing such a vital resource. Preventing disruptions to water services also mitigates potential costs for water reliant industries which risk significant business losses from unreliable access to water and wastewater services.³ The Bond Act specifically calls for wastewater projects to use green infrastructure where possible. In addition to creating more efficient means of managing water run-off, green stormwater infrastructure improves outdoor air quality, reduces noise pollution and heat stress, increases vacant land reactivation and property values, and reduces greenhouse gases, flooding, and urban

heat island temperatures.⁴ For instance, in New York City, a green and gray stormwater infrastructure strategy was estimated to reduce combined sewer overflow and reduce costs while providing more community benefits relative to gray infrastructure.⁵ Additionally, stormwater retrofit projects can improve water quality, support ecological restoration and aquifer recharge.⁶

Climate Change Mitigation

The broad range of projects that can be funded by the climate change mitigation category spending includes reducing reliance on inefficient energy sources, carbon sequestration initiatives through urban forestry projects or other initiatives, and targeting pollution sources, particularly those affecting environmental justice communities. These projects have the potential to create economic impact through job creation in addition to a wide variety of co-benefits such as reduced energy costs and power outages, public health and quality of life improvements, decreased reliance on imported energy, and reduced greenhouse gas emissions.⁷

At least half of all funds allocated to this category are designated for a program to improve energy efficiency in state-owned buildings through retrofits and the installation of green roofs. This initiative has the potential to create short and long-term economic impact through job creation and saved costs on energy consumption in addition to the environmental benefits of reduced carbon emissions. Numerous studies provide evidence that achieving building



energy efficiency is profitable due to resulting savings.⁸ New York's Empire State Building is a prime example of such benefits – renovations and extensive retrofitting over the last decade has resulted in a 40% reduction in emissions and \$4 million annual savings on electricity which will ultimately cover the costs of the retrofit project twice over.⁹

Urban forestry projects have the potential to restore and improve ecosystems in cities which is shown to naturally reduce air temperature as well as stormwater runoff, resulting in significant savings for municipalities.¹⁰ The existence of green spaces in cities is also widely shown to improve air quality which can play a role in improving public health¹¹, while a more equitable distribution of green spaces in urban environments can potentially reduce socioeconomic health inequalities.¹²

Open Space Land Conservation and Recreation

Investing in the protection of open space returns benefits associated with restoring ecosystems, protecting endangered species and natural assets, and growing New York's recreational and agricultural economies. Land conservation effectively curbs low-density sprawl, using free-market tools to buy development rights on some land that could be used to increase density in other areas. Acquiring land for the purpose of conservation often leads to projects involving the restoration of land and ecosystems, which has been shown to create short-term jobs.¹³ Dedicating newly acquired open land to specific uses such as recreation or agriculture can ensure a continuation of economic, public health, and ecological service impacts in the long-term. The New York State Park System has been shown to support nearly 45,000 jobs for New Yorkers while also attracting visitors from out of state who contribute to local economies by spending money in communities surrounding parks.¹⁴ Farmland preservation meanwhile can help sustain the agriculture industry by enabling farmers to continue farming and even expand their operations.¹⁵

Additional economic benefits of protecting open land come from the natural goods and services that they can provide. These include natural lands and bodies of water which can manage stormwater and protect water quality and food production.¹⁶ For example, an analysis by the Trust for Public Land found that New York's Nassau and Suffolk Counties saved nearly \$24 million annually on stormwater management costs as a result of their parks and protected open space which capture precipitation and slow runoff.¹⁷

Restoration and Flood Risk Reduction

The potential damage from future flooding can be reduced significantly if risk reduction measures are implemented now. The degree to which local governments will incur future costs as a result of flooding will be influenced not only by climate change and the increasing likelihood of flooding but by the existence of unprotected development in flood prone areas and quality of existing infrastructure. New York State's Environmental Bond Act allocates funds specifically to projects that responsibly revitalize and protect waterfronts while also clearing and restoring land that is less likely to be protected by flood mitigation efforts. This type of nature-based adaptation of coastal areas and wetlands has been shown to provide an important first-line defense against flooding while also providing significant co-benefits, such as the protection of ecosystems and habitats and the creation of open land that can be used for recreation. Research on the costs of adaptation efforts has found significant evidence that nature-based solutions such as wetlands restoration, particularly in areas at highest risk of flooding, can be highly cost effective.¹⁸ This is largely a result of highly dynamic ecosystems being able to regenerate following damage, whereas built structures face the risk of needing routine maintenance.

Improving the resilience of built structures, however, is necessary and can still prove to be beneficial to communities. Restoration and flood risk reduction projects are essential in creating a comprehensive approach to combatting the effects of climate change. Many of these projects address and mitigate flooding risks while also creating additional environmental benefits such as resource conservation or social benefits by implementing accompanying education and public awareness initiatives.¹⁹

4. New York State Environmental Bond as Economic Recovery

The New York State Environmental Bond Act can address pressing infrastructure and environmental needs while providing much-needed stimulus in the wake of the economic devastation caused by the Covid-19 pandemic. Overall, infrastructure investment has been shown to support more jobs than other forms of stimulus, such as tax cuts. When measured on a national level, infrastructure spending has been estimated to create 22% more jobs than an equal increase in household purchasing power through tax reduction policies.²⁰ As governments face budget shortfalls, record unemployment and mounting social, environmental and public health issues, it is important that any form of government spending simultaneously addresses these challenges. Infrastructure projects that have the potential to create jobs and boost the economy while creating other positive social and environmental impacts should be prioritized.

Recent studies raise the question of how governments can push forward and achieve a transformational economic recovery. The current situation presents an opportunity for policy makers to rebuild an economy that prioritizes and protects the climate, while addressing longstanding public health inequities resulting from years of environmental injustice.²¹ Researchers have found that long-term exposure to air pollution is associated with a large increase in the Covid-19 mortality rate, which suggests communities that are already bearing the brunt of poorly regulated environments are disproportionately affected by the virus.²²

Other nations around the world have proposed and passed legislation that creates a nature-focused stimulus. For example, Germany's plan to spend €700 million euros to support forest conservation. New Zealand's \$1.1 billion program to restore wetlands and improve outdoor recreation opportunities is predicted to generate 11,000 jobs.²³ None of the \$3 trillion in stimulus spending in the U.S. has been designated as "green recovery".²⁴ However, the U.S. does have a history of incorporating nature-based spending in its past economic recovery efforts. As part of the 2009 American Recover and Reinvestment Act, \$167 million was spent to restore coastal habitats, which created an average of 17,000 jobs per billion of dollars spent. Even during the Great Depression, the U.S. government employed 3 million people as part of a Civilian Conservation Corps, planting more than 3 billion trees and building flood barriers and outdoor recreation facilities.²⁵

State and local governments are already spearheading their own environment-focused recovery efforts. A growing demand for green space, particularly in urban environments, has led cities such as Paris, Jakarta and Mexico City to redesign walking and cycling infrastructure and launch tree planting campaigns to improve air quality.²⁶ Some U.S. states are beginning to invest in forest restoration efforts as fire seasons continue to worsen in the Western U.S.

Researchers are evaluating the potential economic and environmental impacts of different types of green stimulus spending. Key factors to consider in evaluating a possible economic stimulus package relate to the speed and ease of implementation, the ability to leverage additional out-of-state funds, and the quantity and quality of the supported jobs, among other factors. Green investments can meet these criteria through clean infrastructure investment, energy efficiency and building retrofit projects, and investment in ecosystem resilience and restoration of habitats.²⁷

Even though the legislation behind the New York State Environmental Bond Act materialized before the Covid-19 pandemic, investing in the types of projects outlined by the Bond Act is even more critical, with greater potential to create economic impact while shifting New York's economy further towards one that enhances its resilience, mitigates climate change, and improves the health of its residents.



5. Conclusion

Economic recovery spending is most impactful if it can deliver immediate as well as longer term benefits. Due to the economic challenges caused by Covid-19, stimulus that creates jobs and bolsters industries has become even more critical. The NYS Environmental Bond Act has the potential to fund projects that are easily implemented in the short-term, such as the retrofitting of state-owned buildings with more efficient utility systems, as well as projects that will offer long-term benefits, such as mitigating the effects of storms and lowering carbon in the atmosphere. While not quantified here, such benefits could include reduced costs related to severe weather and energy consumption, as well as lower health care costs from cleaner air and improved access to outdoor recreation. In addition, these investments could increase property tax revenue and tourism spending in the state. This study estimates the short-term impact could support 65,000 jobs in New York State with direct and leveraged funding. With the New York State Environmental Bond Act, New York State could lead economic recovery efforts with investments that provide immediate job creation and long-term value to its people, environment, and economy.





Detailed Methodology for Economic Impact Analysis

APPENDIX A

Estimating Economic Impacts: Methodology

The economic impacts are calculated using an input-output model. Commonly used in economic impact studies, the input-output model describes the interrelationships between sectors. For every dollar spent, a multiplier can be applied to calculate the effect that dollar has in creating value in the form of jobs, earnings and output in the other industries it flows through. While value can be described in terms of various metrics such as earnings and output, the primary metric of interest for this analysis is the number of total jobs (direct, indirect, and induced) created in New York State.

The multipliers used to develop this model are for New York State and were developed by Emsi using an input-output model informed by industry data, gravitational flows, and commuting patterns, among other sources.²⁸ The multipliers are from quarter 2, 2019. Additional economic impacts outside of New York State were not estimated.

To conduct the economic impact analysis, AECOM made assumptions related to: 1) the dollar figure of investment by program from the \$3 billion in bond funding and the amount of funding that could be leveraged from match programs and 2) the industries that would be needed for the execution of a project within that spending category. This appendix discusses these assumptions and presents a short discussion on the key limitations of economic impact analysis.

Limitations of Economic Impact Analysis

Co-benefits

Economic impact measures the economic activity generated by the investment of the \$3 billion and additional leveraged funds. It does not quantify projects' additional long-term benefits or cost savings, which are discussed qualitatively.

Opportunity Costs

All investment choices have an opportunity cost – the funds used to pay for these programs cannot be spent elsewhere. While this analysis does not account for opportunity costs, infrastructure investments have been shown to be an effective use of public spending when compared to other types of investments as this type of programmatic funding is often found to have positive returns and can be particularly effective for stimulus investments.

Gross Jobs vs Net Jobs

Net jobs refer to the number of jobs that would not exist but for the passing of this Bond Act. There are a certain number of jobs that would be created due to other projects or initiatives. Gross jobs summarize net jobs plus the number of jobs that would have been created regardless of whether the Bond Act was enacted. The results are quantified in terms of gross number of jobs supported and are not net positive jobs, given the challenge of comparing these results to the economic impact of a counterfactual scenario in which the \$3 billion in bond debt is spent on other initiatives or not issued.

Quality of Jobs

The jobs created as indicated by the multipliers are not of equal quality. Some jobs created may be higher paying than others. For example, a project that involves landscaping for the purpose of restoring natural lands is likely to create more jobs that have relatively lower wages. A project that develops a new wastewater treatment facility is more likely to spend funds on machinery and equipment than on labor, employing fewer workers with more technical expertise and higher wages. These examples illustrate an important limitation of economic impact analysis.

Timeframe

The timing and duration of a job are difficult to estimate as the speed at which certain projects are carried out varies and depends on the type of project. Some projects, such as retrofitting energy systems in existing buildings, can be implemented more quickly than projects that require more extensive planning. Timeframe of the estimated job impacts and duration of jobs is not accounted for in the analysis.

Covid-19

The multipliers used for this analysis are from 2019. Therefore, the impacts that Covid-19 has had or may have on regional economies are not accounted for in the results.



Program to Industry Crosswalk Assumptions

As our economic impact model is an analysis of future spending, how funds are allocated to various programs, projects and industries is based on a series of assumptions informed by research and spending data from similar types of projects. In order to build the model, we researched projects associated with similar funding programs, and analyzed their budgets or other economic analyses in order to determine the relevant industries that would be implementing the projects. We also used this research to make an informed estimate of what proportion of program spending would be funneled into each industry. The sections below describe our assumptions and the sources we used to inform our hypothetical industry breakdowns.

Across all programs, we assume that at least 5% of spending will be used for the purpose of administering the programs. This is accounted for by allocating 5% of each program's spending to the industry State Government, Excluding Education and Hospitals. An additional 5% is allocated to Local Government, Excluding Education and Hospitals for the municipal stormwater program, assuming that those projects will primarily be managed by local governments.

Nearly all the funding generated by the Bond Act is included in the economic impact analysis. The only exception is for spending on the acquisition of land through the property buyout program and open space conservation initiatives. As land acquisition involves the transfer of funds between an individual and the State, it cannot be assumed to create additional economic outputs that can be accounted for in the model.²⁹

Restoration and Flood Risk Reduction

Voluntary Property Buyout

The voluntary property buyout program in the Bond Act includes any costs associated with the acquisition of real property based on pre-flood fair market value, the demolition and removal of structures on the property, and the restoration of land for the purpose of facilitating open space that stabilizes the shoreline and/or mitigates flooding. We base our assumptions of program spending primarily on data from the New York Rising Buyout and Acquisition Program, a similar voluntary buyout program administered by the Governor's Office of Storm Recovery in response to damage caused by Superstorm Sandy in 2012. The allocation of program funds by industry are detailed in Table 2.

Table 2: Voluntary property buyout NAICS industry assumptions

NAICS Description	NAICS Code	Industry Breakdown
Property buyout	Property Acquisition	75%
Site Preparation Contractors	238910	10%
Other Heavy and Civil Engineering Construction	237990	5%
Remediation Services	562910	5%
State Government, Excluding Education and Hospitals	902999	5%

We allocate 75% of the voluntary property buyout funds to the costs associated with the purchasing of property as this is similar to the proportion of funds spent on buyouts for the NY Rising Property Buyout Program and the New Jersey Blue Acres Program. Because this type of transaction only involves the transfer of property between the property owner and the State, we do not include these costs as an input in our economic impact model. According to the GOSR's Fifth Anniversary Report, the State spent approximately \$250 million to purchase 650 properties, averaging about \$385,000 per property.³⁰ Analysis of spending for NYC's comparable Build It Back program suggests that, on average properties purchased in the

flood buyout program were valued at around \$200,000.³¹ Assuming each property owner is also offered an additional incentive of 20% of their home value, the amount transferred to property owners accounts for about 70% of total amount spent per property. This amount nearly aligns with costs of New Jersey's Blue Acres property buyout program which allocates about 75% of spending on property acquisition, including soft costs such as real estate, legal, insurance and other fees.³²

Remaining program funds would be spent on services needed to clear and restore the land. 10% of total program spending goes toward Site Preparation Contractors. Remaining spending is divided between Remediation Services and Other Heavy and Civil Engineering Construction as demolition of existing structures may require specialized remediation services and civil engineering to restore land to its natural state for the purpose of facilitating beneficial open space, flood mitigation, and/or shoreline stabilization.

Coastal Rehabilitation, Shoreline Restoration and Inland Flooding

The remainder of the \$1 billion allocated to restoration and flood risk reduction covers a variety of projects dedicated to coastal rehabilitation, shoreline restoration and inland flooding. These projects include, but are not limited to, waterfront revitalization projects and wetland, stream, floodplain and habitat restoration. In order to come up with a hypothetical breakdown of industry spending for such a broad spending program, we collected data on project expenditures and their associated industries. This data came from various economic impact studies on past environmental restoration projects which were aggregated in order to determine the proportion of project spending that went towards a specific industry.^{33, 34}

Table 3: Coastal rehabilitation, shoreline restoration and inland flooding NAICS industry assumptions

NAICS Description	NAICS Code	Industry Breakdown
Other Heavy and Civil Engineering Construction	237990	75%
Environmental Consulting Services	541620	10%
Landscaping Services	561730	10%
State Government, Excluding Education and Hospitals	902999	5%

Other Heavy and Civil Engineering Construction receives the majority of funding as firms in this industry are needed for many of the projects involved in land restoration or waterfront revitalization, such as the construction of flood control structures, seawalls, sediment control systems, recreational spaces, open space improvements and dredging. Environmental Consulting Services accounts for spending on services necessary for the planning of conservation projects, which often require technical expertise to perform initial assessments, land surveys, and project planning. Landscaping Services accounts for projects that involve the revegetation of land for purposes of restoration. This can include planting to restore native species of vegetation or landscaping to prevent erosion.

Open Space Land Conservation and Recreation

Creation and Improvement of Fish Hatcheries

The industry breakdown for fish hatchery construction and improvement projects is largely based on spending data from previous NYS-funded fish hatchery improvement projects from 2015-2017.³⁵ Each listed expenditure was assigned to a relevant industry and aggregated to create a total industry breakdown to inform hypothetical economic impact of future hatchery infrastructure projects. Fish hatchery improvement projects often include building and landscaping projects which involve spending on commercial and civil engineering construction and landscaping services, as well as the purchase and installation of new equipment, such as tanks, which requires work of plumbing contractors. In addition to these industries, we included Agriculture, Forestry, Fishing and Hunting and Environmental Consulting Services as impacted industries to account for spending that flows directly into improving the capacity of fish hatcheries and any spending on research or planning necessary for the preservation and restoration of various fish species. The allocation of spending by industry is provided in Table 4.

Table 4: Creation and improvement of fish hatcheries NAICS industry assumptions

NAICS Description	NAICS Code	Industry Breakdown
Agriculture, Forestry, Fishing and Hunting	11	30%
Commercial and Institutional Building Construction	236220	25%
Landscaping Services	561730	5%
Environmental Consulting Services	541620	10%
Other Heavy and Civil Engineering Construction	237990	20%
Plumbing, Heating, and Air-Conditioning Contractors	238220	5%
State Government, Excluding Education and Hospitals	902999	5%

Open Space Land Conservation and Recreational Infrastructure

The spending breakdown for the conservation of open space is informed by grant spending data from the NYS Conservation Partnership Program (NYSCPP), a partnership between the NYS Department of Environmental Conservation and the Land Trust Alliance.³⁶ Since 2003, the NYSCPP has allocated millions of dollars to New York land trusts throughout the state for the purpose of acquiring land as well as taking on conservation and land improvement projects. We use the breakdown of spending by grant category to create our hypothetical spending allocation as well as selection of the relevant NAICS code. The allocation by industry is provided in Table 5.

We assume that 50% of spending will go towards costs associated with land acquisition. This portion of spending is not included in the economic impact as it is a transaction between the landowner and State. Remaining program spending is assumed to go towards costs associated with the restoration of open land, land appraisal, and land management. Industries involved with this spending include Environmental Consulting Services, Nature Parks and Other Similar Institutions, Civil Engineering Construction, Remediation Services, and Other Heavy and Civil Engineering Construction.

Table 5: Open space land conservation and recreational infrastructure NAICS industry assumptions

NAICS Description	NAICS Code	Industry Breakdown
Land acquisition	Property Acquisition	50%
Environmental Consulting Services	541620	15%
Nature Parks and Other Similar Institutions	712190	10%
Offices of Real Estate Appraisers	531320	5%
Other Heavy and Civil Engineering Construction	237990	5%
Remediation Services	562910	5%
Site Preparation Contractors	238910	5%
State Government, Excluding Education and Hospitals	902999	5%

Farmland Protection

Conserving land for the purpose of protecting farmland has a similar industry breakdown to general open land conservation projects except for its specific impact on the agriculture industry. Grants for the purpose of protecting farmland often fund conservation easements to help the landowner avoid pressures to sell the land for development. These grants can provide financial support that allows farm owners to continue farming or expand their business. According to a survey from the New York Farmland Protection Program, nearly a third of all farms receiving

grants were able to expand their farmland to increase operations.³⁷ This informs our decision to contribute 30% of farmland protection funding to the sector Agriculture, Forestry, Fishing and Hunting.

Land acquisition spending is again not included in the economic impact model. We assume that spending on any restoration of farmland will go toward Other Heavy and Civil Engineering Construction. The allocation of spending by industry for the farmland protection program is provided in Table 6.

Table 6: Farmland protection NAICS industry assumptions

NAICS Description	NAICS Code	Industry Breakdown
Land acquisition	Property Acquisition	50%
Agriculture, Forestry, Fishing and Hunting	11	30%
Other Heavy and Civil Engineering Construction	237990	15%
State Government, Excluding Education and Hospitals	902999	5%

Climate Change Mitigation

Green Buildings Projects

The industry breakdown for the green buildings program is based on data from New York State energy efficiency programs from 2010-2020. NYS Open Data maintains an active database of all energy efficiency projects within government facilities.³⁸ These projects involve industries essential in retrofitting state-run buildings with more efficient utility systems such as electricity, heating, cooling and water systems. The data does not include projects for green roof installation, so the industry Roofing Contractors was added to account for spending on any roofing projects.

Table 7: Green buildings projects NAICS industry assumptions

NAICS Description	NAICS Code	Industry Breakdown
Commercial and Institutional Building Construction	236220	20%
Building Inspection Services	541350	10%
Electrical Contractors and Other Wiring Installation Contractors	238210	20%
Plumbing, Heating, and Air-Conditioning Contractors	238220	30%
Other Scientific and Technical Consulting Services	541690	10%
Roofing Contractors	238160	5%
State Government, Excluding Education and Hospitals	902999	5%

Other Climate Change Mitigation Projects

This program is for the remainder of spending in the “Climate Change Mitigation Projects” category, excluding the amount dedicated to Green Buildings Projects. This covers a wide variety of projects including carbon sequestration, urban forestry and green infrastructure projects. The spending breakdown for these projects is based on data from UCLA’s Luskin Center for Innovation study of California’s climate

investments.³⁹ While spending will likely vary for projects in New York State, the California UCLA study provides a useful basis for our assumptions as many of their detailed projects involve climate change mitigation with a focus in urban, environmental communities, a key goal of this program. The industry breakdown is provided in Table 8.

Table 8: Other climate mitigation projects NAICS industry assumptions

NAICS Description	NAICS Code	Industry Breakdown
Environment, Conservation and Wildlife Organizations	813312	15%
Environmental Consulting Services	541620	10%
Residential Remodelers	236118	10%
Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	541715	10%
Forest Nurseries and Gathering of Forest Products	113210	15%
Highway, Street, and Bridge Construction	237310	5%
Electrical Contractors and Other Wiring Installation Contractors	238210	5%
Plumbing, Heating, and Air-Conditioning Contractors	238220	10%
Landscaping Services	561730	15%
State Government, Excluding Education and Hospitals	902999	5%

Water Quality Improvement and Resilient Infrastructure

Stormwater Infrastructure

Industry breakdown for stormwater infrastructure projects is based on project spending for a NYS local water sewer improvement project.⁴⁰ A spending breakdown for Westhampton, NY 2017 sewer district project which was funded by NYS Water Quality Improvement Project Program includes construction, engineering and soft costs. We allocate all soft costs, which include survey costs, to Environmental Consulting Services. The allocation of spending by industry is provided in Table 9.

Table 9: Stormwater infrastructure NAICS industry assumptions

NAICS Description	NAICS Code	Industry Breakdown
Engineering Services	541330	10%
Water and Sewer Line and Related Structures Construction	237110	80%
Environmental Consulting Services	541620	5%
State Government, Excluding Education and Hospitals	902999	5%

Municipal Stormwater Projects

The municipal stormwater program includes costs associated with grants to municipalities for projects that reduce or control stormwater runoff, using green infrastructure when possible. The industry breakdown for this program is based on research around best management practices for municipal stormwater systems such as bioretention, raingardens, forest buffers and wetlands. The allocation of spending by industry is provided in Table 10.

Table 10: Municipal stormwater projects NAICS industry assumptions

NAICS Description	NAICS Code	Industry Breakdown
Site Preparation Contractors	238910	15%
Landscaping Services	561730	15%
Water and Sewer Line and Related Structures Construction	237110	30%
Environmental Consulting Services	541620	30%
Local Government, Excluding Education and Hospitals	903999	5%
State Government, Excluding Education and Hospitals	902999	5%

Site preparation contractors are impacted as formation costs are required for installation of structures such as bioretention basins or wetlands, while landscaping services are necessary for planting vegetation used in green infrastructure.⁴¹ The Environmental Consulting Services is also included as a significant amount of expertise is needed for execution of green stormwater management projects as they require careful monitoring of existing drainage systems and project planning. In particular, the expertise necessary to implement newer, green infrastructure can be beyond the capacity of traditional municipal stormwater planners, thus requiring consulting services from specialized industries.⁴² Administrative costs are in this case divided between state and local government, as this program emphasizes projects that are more likely to be carried out by municipal governments.

Other Water Quality Improvement Projects

The remainder of funding allocated to water quality improvement projects can cover a broad range of projects and sectors, including but not limited to, lake treatment systems, replacing lead pipes, water and soil monitoring for agricultural purposes, erosion abatement projects to protect farmland, and projects that address harmful algal blooms. It is assumed that most of the spending goes towards water and sewer line construction. Additional spending is assumed to go towards environmental consulting services, site preparation contractors, and civil engineering. The allocation of spending by industry is provided in Table 11.

Table 11: Other water quality improvement projects NAICS industry assumptions

NAICS Description	NAICS Code	Industry Breakdown
Water and Sewer Line and Related Structures Construction	237110	30%
Other Heavy and Civil Engineering Construction	237990	25%
Site Preparation Contractors	238910	20%
Environmental Consulting Services	541620	20%
State Government, Excluding Education and Hospitals	902999	5%

Detailed Leveraged Funding Assumptions

The NYS Environmental Bond Act will likely result in additional leveraged funding from a variety of sources - such as federal, state, and/or philanthropic.

Table 12 outlines the assumed amount of bond and leveraged funds by program that were then assigned industry breakdowns to determine economic impacts.

Table 12: Assumed leveraged funding by program

Program	Bond Funding (as % of total project funding)	Assumed Leveraged Funding (as % of total project funding)	Header Total Project Funding
Voluntary Property Buyout	100%	0%	100%
Coastal Rehabilitation, Shoreline Restoration & Inland Flooding	25%	75%	100%
Creation and Improvement of Fish Hatcheries	100%	0%	100%
Open Space Land Conservation/Recreation Infrastructure and Recreational Infrastructure	50%	50%	100%
Farmland Protection	100%	0%	100%
Green Buildings Projects	50%	50%	100%
Other Climate Change Mitigation Projects	100%	0%	100%
Wastewater Infrastructure	75%	25%	100%
Municipal Stormwater	35%	65%	100%
Other Water Quality Improvement Projects	100%	0%	100%



Waste Quality Improvement

The NY Clean Water State Revolving fund is an example of an existing program for financing for wastewater and water quality projects for municipalities in New York. Projects can receive up to 80% in federal funding.⁴³ NY's Water Infrastructure Improvement Act (WIIA) provides between 25% and 60% of State funds for municipal water infrastructure projects.⁴⁴

Climate Change Mitigation

In the past, the WaterSMART Water and Energy Efficiency Grants program from the Bureau of Reclamation provided a 50% federal match for energy efficiency projects. The State Energy Program, previously run by the Department of Energy, also provided around 80% of project costs.⁴⁵ New York State also has provided funds for local governments through the Climate Smart Communities Projects of which they will provide up to 50% of total project cost.⁴⁶

Open Space Land Conservation and Recreation

The National Park Service Land and Water Conservation fund is authorized to provide 50/50 matching grants to States to plan, acquire and develop public lands.⁴⁷ Grants administered by the NY Department of Environmental Conservation, such as the NYS Conservation Partnership Program Grants (NYSCPP), have required grantees to match 25% the grant with non-State funds.⁴⁸ Another federal program, the Agricultural Conservation Easement Program (ACEP), provides 50-75% of costs for agricultural conservation easements.⁴⁹

Restoration and Flood Risk Reduction

While the specific property buyout program is assumed to have no match, projects that mitigate flooding are expected to leverage a significant amount of federal funds based on existing federal flood mitigation grant programs. Projects funded by the Water Resources Development Act can receive up to 75% of total cost of the project.⁵⁰ Other federal assistant programs related to flooding prevention and coastal restoration such as NOAA's Coastal Resilience fund and FEMA's Flood Mitigation Assistance (FMA) program provide 50-75% of project costs.^{51,52}

References

1. Emsi, "What is a Multiplier?". Accessed July 2020.
2. NRDC, "Go Back to the Well: States and the Federal Government are Neglecting a Key Funding Source for Water Infrastructure", May 2018.
3. Value of Water Campaign, The Economic Benefits of Investing in Water Infrastructure, 2017.
4. Center for Neighborhood Technology, Green Infrastructure Benefits, 2020.
5. New York City Department of Environmental Protection, New York City Green Infrastructure Plan, 2010.
6. Rebuild by Design, Living with the Bay Project Benefit Cost Analysis, 2017
7. Rebuild by Design, Hunts Point Benefit Cost Analysis, 2017.
8. Rocky Mountain Institute, Guide to Building the Case for Deep Energy Retrofits, 2012.
9. Kaplan, Sarah. "Empire State of Green." The Washington Post, May 29, 2020.
10. de Groot et al. "Benefits of restoring ecosystem services in urban areas." Current Opinion in Environmental Sustainability, Volume 14, June 2015, Pages 101-108
11. Ibid.
12. Richard Mitchell and Frank Popham, "Effect of Exposure to Natural Environment on Health Inequalities: an Observational Population Study," The Lancet 372, no. 9650 (2008): pp. 1655-1660
13. Restoration Returns, US Fish & Wildlife Service, 2009.
14. Economic Benefits of the New York State Park System, Political Economy Research Institute, August 2017.
15. The Trust for Public Land, The Economic Benefits of New York's Environmental Protection Fund, January 2012
16. Ibid.
17. <http://cloud.tpl.org/pubs/ccpe--nassau-county-park-benefits.pdf>
18. Borja G. Reguero et al., "Comparing the Cost Effectiveness of Nature-Based and Coastal Adaptation: A Case Study from the Gulf Coast of the United States," Plos One 13, no. 4 (2018), <https://doi.org/10.1371/journal.pone.0192132>.
19. Rebuild by Design, Living with the Bay Project Benefit Cost Analysis, April 2017.
20. Political Economy Research Institute, Infrastructure Investments and the US Economy, 2009.
21. Resources Legacy Fund, Recovery with Resilience: Public Investments for a Sustainable, Equitable Future, August 2020.
22. Xiao Wu et al., "Exposure to Air Pollution and COVID-19 Mortality in the United States: A Nationwide Cross-Sectional Study," 2020, <https://doi.org/10.1101/2020.04.05.20054502>.
23. World Resources Institute, Nature is an Economic Winner for Covid-19 Recovery, 2020.
24. Vivid Economics 7 Finance for Biodiversity, Green Stimulus Index. 2020.
25. World Resources Institute, Nature is an Economic Winner for Covid-19 Recovery, 2020.
26. Ibid.
27. Hepburn et al., "Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change?" Oxford University Press, (2020)
28. Emsi, "What is a Multiplier?". Accessed July 2020.
29. The Trust for Public Land, The economic benefits of Great Outdoors Colorado and the Conservation Trust Fund, 2018.
30. NYS Governor's Office of Storm Recovery, Fifth Anniversary Report, 2017
31. DNAINfo, City Had Millions to Buy Out Sandy-Damaged Homes, But Most Didn't Want It, October 2017.

32. Correspondence with Blue Acres Director
33. UCLA Luskin Center for Innovation, Employment Benefits from California Climate Investments and Co-investments, 2018.
34. Restoration Returns, US Fish & Wildlife Service, 2009.
35. NY Works Hatchery Projects, NYS Conservation Fund Advisory Board Meeting Minutes, pgs. 20-25
36. Land Trust Alliance, NYSCPP Grantee Summaries 2003-2019, 2019.
37. The Trust for Public Land, The Economic Benefits of New York's Environmental Protection Fund, 2012.
38. NYS Open Data, NYS Energy Efficiency Projects, 2010-2019.
39. UCLA Luskin Center for Innovation, Employment Benefits from California Climate Investments and Co-investments, Appendices 22, 23, 26. 2018.
40. Westhampton Beach, NY Sewer District, Capital Costs Opinion, 2017.
41. Lake Superior Streams, Bioretention Basins, Accessed July 2020.
42. Environmental Finance Center at Sacramento State, Estimating Benefits and Costs of Stormwater Management, 2019.
43. NY Environmental Facilities Corporation, Clean Water State Revolving Fund Overview, Accessed July 2020.
44. Environmental Facilities Corporation, Water Infrastructure Improvement Act Overview, Accessed July 2020.
45. Department of Energy Office of Energy Efficiency and Renewable Energy (EERE), Funding Opportunity Announcement, 2016.
46. Laws of New York, Consolidated Laws, Environmental Conservation / Article 54: Environmental Protection Act, Title 15: Climate Smart Community Projects, Accessed July 2020.
47. National Park Service, State and Local Assistance Program Division, Accessed July 2020.
48. NYS Department of Environmental Conservation, NYS Conservation Partnership Program, Accessed July 2020.
49. US Department of Agriculture, Natural Resources Conservation Service, Agriculture Conservation Easement Program. Accessed August 2020.
50. Congressional Research Services, Federally Supported Water Supply and Wastewater Treatment Programs, 2019.
51. Congressional Research Services, Flood Resilience and Risk Reduction: Federal Assistance Programs, 2019.
52. FEMA, Flood Mitigation Assistance (FMA) Grant Program Fact Sheet, 2019.

Disclaimer

GENERAL LIMITING CONDITIONS

AECOM devoted effort consistent with (i) the level of diligence ordinarily exercised by competent professionals practicing in the area under the same or similar circumstances, and (ii) the time and budget available for its work, to ensure that the data contained in this report is accurate as of the date of its preparation. This study is based on estimates, assumptions and other information developed by AECOM from its independent research effort, general knowledge of the industry, and information provided by and consultations with the client and the client's representatives. No responsibility is assumed for inaccuracies in reporting by the Client, the Client's agents and representatives, or any third-party data source used in preparing or presenting this study. AECOM assumes no duty to update the information contained herein unless it is separately retained to do so pursuant to a written agreement signed by AECOM and the Client.

AECOM's findings represent its professional judgment. Neither AECOM nor its parent corporation, nor their respective affiliates, makes any warranty, expressed or implied, with respect to any information or methods disclosed in this document. Any recipient of this document other than the Client, by their acceptance or use of this document, releases AECOM, its parent corporation, and its and their affiliates from any liability for direct, indirect, consequential or special loss or damage whether arising in contract, warranty (express or implied), tort or otherwise, and irrespective of fault, negligence and strict liability.

This report may not to be used in conjunction with any public or private offering of securities, debt, equity, or other similar purpose where it may be relied upon to any degree by any person other than the Client. This study may not be used for purposes other than those for which it was prepared or for which prior written consent has been obtained from AECOM.

Possession of this study does not carry with it the right of publication or the right to use the name of "AECOM" in any manner without the prior written consent of AECOM. No party may abstract, excerpt or summarize this report without the prior written consent of AECOM. AECOM has served solely in the capacity of consultant and has not rendered any expert opinions in connection with the subject matter hereof. Any changes made to the study, or any use of the study not specifically identified in the agreement between the Client and AECOM or otherwise expressly approved in writing by AECOM, shall be at the sole risk of the party making such changes or adopting such use.

This document was prepared solely for the use by the Client. No party may rely on this report except the Client or a party so authorized by AECOM in writing (including, without limitation, in the form of a reliance letter). Any party who is entitled to rely on this document may do so only on the document in its entirety and not on any excerpt or summary. Entitlement to rely upon this document is conditioned upon the entitled party accepting full responsibility and not holding AECOM liable in any way for any impacts on the forecasts or the earnings from (project name) resulting from changes in "external" factors such as changes in government policy, in the pricing of commodities and materials, price levels generally, competitive alternatives to the project, the behavior of consumers or competitors and changes in the owners' policies affecting the operation of their projects.

This document may include "forward-looking statements". These statements relate to AECOM's expectations, beliefs, intentions or strategies regarding the future. These statements may be identified by the use of words like "anticipate," "believe," "estimate," "expect," "intend," "may," "plan," "project," "will," "should," "seek," and similar expressions. The forward-looking statements reflect AECOM's views and assumptions with respect to future events as of the date of this study and are subject to future economic conditions, and other risks and uncertainties. Actual and future results and trends could differ materially from those set forth in such statements due to various factors, including, without limitation, those discussed in this study. These factors are beyond AECOM's ability to control or predict. Accordingly, AECOM makes no warranty or representation that any of the projected values or results contained in this study will actually be achieved.

CONTACT INFORMATION:

info@rebuildbydesign.org

or Garrett.Harper@aecom.com



ECONOMIC IMPACTS OF THE
NEW YORK STATE
ENVIRONMENTAL BOND ACT

Report Completed: December 2020