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NEW JERSEY ECONOMIC DEVELOPMENT AUTHORITY

July 18, 2018

The Honorable Phil Murphy
Governor, State of New Jersey

Dear Governor Murphy:

The New Jersey Economic Development Authority (EDA) is pleased to submit the enclosed review and analysis of the Grow New Jersey Assistance Program (Grow NJ) and State Economic Redevelopment and Growth Grant Program (ERG), pursuant to P.L. 2013, c.161 – the Economic Opportunity Act. Per statute, the EDA formally engaged the Edward J. Bloustein School of Planning and Public Policy at Rutgers University (Bloustein) in March 2016 to commence an analysis of the Grow NJ and ERG programs, satisfying the legislative directive that the Authority retain "a premier, not-for-profit, non-partisan entity to undertake the review and analysis of the State economic incentive laws."

The Grow NJ and ERG programs were created through P.L. 2013, c.161 to incentivize the creation and retention of jobs in New Jersey (Grow NJ) and enable commercial and residential development that would not be completed under traditional financing mechanisms (ERG), with a particular emphasis on economically distressed areas of the state. The Bloustein analysis reveals the following key observations:

- There has been a significant volume of project approvals under Grow NJ, which are associated with significant volumes of retained and created jobs, but which will also generate a substantial offset to the Corporate Business Tax and Insurance Premium Tax in the years ahead.
- Commercial ERG projects leverage a considerable amount of private investment.
- Given the long lead time associated with Grow NJ and ERG projects, it is too soon to fully evaluate the impact of these programs on the State's economy.
- Projects approved under Grow NJ are generally concentrated in the northern, more populous counties of the State. A significant percentage of project funding in the eight southern counties has been concentrated in Camden.
- Redundancies in the Grow NJ base and bonus award structure are potentially providing more generous incentives than intended by the statute.
- Because certain bonuses have been underutilized, it is not clear that the program has advanced certain policy goals intended by the legislation such as clean energy investment and the creation of incubators.
- There is an opportunity to improve EDA's analysis of proposed incentive projects.

While comprehensive in meeting the statutory directive, the Bloustein analysis was limited to four main objectives, and there are several gaps that merit further exploration. The Economic Opportunity Act was crafted and passed following a severe national recession, and the State was facing significant unemployment and job loss. This report does not analyze economic cycles, and the improved economy presents an opportunity to reexamine award parameters. Other focus areas could include:

- A deeper analysis of the types and quality of jobs created or retained, and whether some or all of the related economic activity would have happened with lower or no incentives.
- A comprehensive best practices review, assessing incentive programs available in other states.
- A review of the overall impact of the reduction in Corporate Business Tax revenues (which would be made up for by higher Gross Income Tax from created or retained jobs) given the constitutional requirement that the Gross Income Tax fund property tax relief while the Corporate Business Tax and Insurance Premium Tax are the primary resources for the General Fund.

As part of your economic development strategy for the State, the EDA will be reviewing best practices related to incentive structure and administration in competitor states. As you have stated, given the increasingly competitive environment, incentives must be part of New Jersey's economic development toolkit, and they must be a tool to accomplish an overarching strategy of sustainable growth

We thank the dedicated team at the Edward J. Bloustein School of Planning and Public Policy at Rutgers University for their efforts related to the Grow NJ and ERG analysis, and we look forward to a continuing dialogue with you and the Legislature as we work to make New Jersey's economy stronger and fairer.

Sincerely,

Tim Sullivan
Chief Executive Officer
New Jersey Economic Development Authority

Review of Grow New Jersey and Economic Redevelopment and Growth Programs

Submitted to:

New Jersey Economic Development Authority

July 2018

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Contents

The Grow New Jersey and Economic Redevelopment and Growth (ERG) Programs were created through the Economic Opportunity Act of 2013 (EOA), with the intent to incentivize the creation and retention of jobs in New Jersey (Grow NJ) and enable commercial and residential development that would not be completed under traditional financing mechanisms (ERG), particularly in economically distressed areas of the state. This report reviews the administration of these incentives to date by the New Jersey Economic Development Authority (NJEDA) and offers a series of recommendations for reconsidering and revising the parameters under which incentive applications are evaluated.

Grow New Jersey

Analysis of the Grow NJ awards approved to date includes the following observations:

- From December 2013 through August 2017, NJEDA approved 227 Grow NJ awards totaling over $4.4 billion in potential tax credits. These represent projects that have been approved to receive tax credits, but have not necessarily been completed and certified to meet their employment requirements that will allow them to receive their annual tax credit allocations.

- These awards are projected to create and/or retain over 59,000 jobs in the state.

- In calendar year 2016, 34 Grow NJ awards had been completed and certified, with 10,738 jobs created or retained, receiving $68.3 million in tax credit distributions in that year. (Full results for 2017 were not available at the time of the analysis.)

- Among the 227 approved projects included in the analysis, 214 awards were calculated on a per-job basis. Award calculations include a per-job base amount determined by project location, and additional per-job bonuses for meeting a selection of additional objectives, including bonuses for businesses in target industries, for projects exceeding the minimum capital investment requirements, for projects paying median salaries in excess of the county median, and others.

- For the 214 awards calculated on a per-job basis, the average program cost per job is $76,500 ($7,650 per job per year over ten years) for newly created jobs and $36,700 for retained jobs ($3,670 per job per year over ten years). The average cost for all jobs is $55,888 ($5,589 per job per year).

- Bonuses accounted for 45.2% of the $3.1 billion in total tax credits 214 awards.

- A subset of 13 awards for projects in Camden City are not subject to the same award calculation parameters as other Grow NJ awards and are not calculated on a per-job basis, per the enabling legislation. These awards total approximately $1.4 billion, at an average cost per job of approximately $340,000 ($34,000 per year per job).

- Awards are generally concentrated in the northern, more populous counties of the state, with 159 (70%) of 227 awards granted in northern counties.[1]

- The highest concentrations of awards are in Hudson County (63 awards) and Camden County (39 awards).

- The distribution of award funds is more even between the northern and southern counties, with 56% of award funds going to northern counties and 44% to southern counties. Awards in Camden County account for 83% of the award funds granted to firms in southern counties. The southern counties account for approximately 23% of total employment in the state; Camden accounts for about 22% of employment in the southern counties.

- Eligible capital investment for all 227 approved Grow NJ projects totaled $3.9 billion. Capital investment associated with the projects approved for credits are nearly evenly split between the northern (52%) and southern (48%) parts of the state.

- Job creation and retention associated with the awards is more skewed, with 79% of the jobs to be created or retained by Grow NJ tax credit recipients located in the northern part of the state.

- Prior to approval, the legislation directs that Grow NJ projects are subject to a benefit-cost analysis to determine whether the ratio of estimated state fiscal benefits (i.e., tax revenues) to the costs of the award for each project is above the minimum threshold of 1.1 for most projects (1.0 for projects in Garden State Growth Zones). Benefit-cost ratios for the 227 projects considered in this report range from 1.0 (100%) to as high as 26.9 (2,687%). The (arithmetic) average benefit-cost ratio for all projects is approximately 5.9; the cumulative average (weighted by award size) is approximately 2.5, but is approximately 5.4 when the Camden alternatives are excluded from the calculation (the arithmetic average is only slightly higher at 6.1). This difference results from the relatively high value of the 13 Camden alternative awards ($1.3 billion in total) and their relatively low benefit-cost ratios, ranging from 1.0 to 2.4 with a weighted average of 1.4.

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[1] The eight southern counties are Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Ocean and Salem.

Grow New Jersey Recommendations

The formula for calculating the size of Grow NJ awards was reviewed, generating the following recommendations:

- Given the Grow NJ program's goals of job creation and retention, we recommend that the alternative approach used in calculating certain awards in the city of Camden (the "Camden alternatives") be revised to tie awards more closely to the employment created by these firms.

- NJEDA should consider eliminating or revising the bonus for Transit-Oriented Development in Urban Transit Hubs and Garden State Growth Zones. This bonus may be redundant in most cases in these jurisdictions, where it accounts for about 21%, or about $250 million of the total award value for projects qualifying for the bonus.

- Similar redundancies exist with the bonuses for large job creation and deep poverty pockets, where firms are rewarded for meeting criteria that have already been rewarded as part of their base award. NJEDA should explore the possibility of reducing such redundancies and overall program costs. One alternative would be to replace high-cost bonus categories with incremental increases in base awards.

- NJEDA should consider revising rarely or never-used bonus categories. These bonuses – for example, for projects generating onsite solar energy to fill at least 50% of the project's energy needs, or for projects locating in large vacant commercial buildings – may not be structured in a way that encourages significant levels of adoption. Revisions such as lowering the required solar generating capacity required to qualify for the bonus might be more effective in achieving the objective of solar installation (though also cost more in additional bonuses if more projects adopt solar without a change to the amount of the bonus).

- Until a recent update to the Municipal Revitalization Index (MRI), the bonus category for projects in municipalities with high MRI scores was reliant on MRIs calculated based on 2007 data. These and other data used for project assessments and award calculations should, to the degree possible, incorporate the most up-to-date data.

The benefit-cost framework and the benefit-cost model used in determining award eligibility were reviewed in detail.

- We recommend considering a higher approval threshold for the benefit-cost test to acknowledge the possibility that firms may have moved to or remained in the state even in the absence of the award. A higher benefit-cost approval threshold would either reduce the number of awards granted or effectively impose lower caps on calculated awards.

- Review of the benefit-cost calculations used in award determinations for both Grow and ERG projects revealed several areas in which we believe the benefit-cost analysis methodology should be revised.

  The technical aspects of these changes are explained in detail in the text. While some of the proposed changes would reduce the calculated benefits for certain projects, others could result in increases in calculated benefits or reductions in calculated costs. The recommendations include:

  o Using state-level economic multipliers rather than county-level in calculating project benefits. While county-level multipliers can in some cases result in more conservative benefit estimates, the use of these multipliers can distort estimates of economic impacts in certain contexts. Whether this change results in an increase or decrease in the calculated benefits for any given project will depend on the county and industry of the project.

  o Eliminating local property taxes from the calculation of benefits in cases where capital improvements are property tax exempt. This will result in a reduction in the benefit-cost ratios calculated for those projects.

  o Replacing per-job profits estimates in the estimation of Corporation Business Taxes (CBT) with the most recent data on compensation and operating surplus from the U.S. Bureau of Economic Analysis. This will provide a more direct approach to estimating taxable corporate income, based on consistently measured, regularly updated data. NJEDA now solicits documentation of past corporate tax payments (in New Jersey or other states) directly from the applicant, and uses this information as the basis for estimating future CBT obligations. The new approach we recommend can be used as a point of comparison to further verify the estimates based on past payments.

Economic Redevelopment and Growth

Analysis of the ERG awards approved to date includes the following observations:

- From January 2014 through April 2018, NJEDA has approved 50 ERG commercial (10), residential (38) and parking (2) awards totaling approximately $1 billion.

- Approved commercial awards total $340.2 million, representing approximately 21% of the eligible capital investment for these projects.

- Awards approved for commercial projects range from $1.3 million to $223.3 million, accounting for between 9.5% and 36.4% of total project costs.

- One single multi-phase project – a $1 billion mixed-use waterfront project in Sayreville – accounts for 62% of the total approved commercial awards (no credits have yet been issued as the project has not yet commenced).

- Approved awards for residential projects total approximately $649.1 million, representing approximately 29% of total eligible capital investment.

- The 38 residential awards are distributed across 14 municipalities in ten counties and range in size from $2.7 million to $40 million.

- Approximately 48% of the 7,814 residential units to be created by approved ERG-assisted projects are slated to be affordable units.

- In 2016, a total of approximately $8 million in credits was issued for five projects. (Full results for 2017 were not available at the time of the analysis.)

Economic Redevelopment and Growth Recommendations

- Commercial ERG projects are assessed using a benefit-cost framework similar to that used for Grow NJ awards. In the case of certain types of commercial development, inclusion of state tax revenues in the analysis of prospective benefits may not be appropriate, as development in areas outside the incentivized locations may have been pursued absent the award. In such cases, state tax revenues do not necessarily represent a net return to the state. NJEDA should consider additional alternative metrics for evaluating the viability and benefit of commercial projects.

- Another metric of analysis used in assessing the financing needs of commercial projects is the internal rate of return (IRR) on equity for the project developer. It is not clear that the increase in IRR conditioned on the ERG awards is a transparent and meaningful measure of project viability, though it appears to be used for this purpose in project evaluations. NJEDA should provide more information about how the IRR calculation informs the

evaluation for each project.

- The geographic distribution of funding for residential ERG projects is highly concentrated in a small number of cities due to legislated funding allocations and program rules. Adopting a more comprehensive rubric of criteria for determining residential funding priorities could allow for distribution of funds to a broader range of areas in need of redevelopment in a manner consistent with NJEDA's residential project financing objectives.

- Several awards made under the auspices of the residential ERG program are not residential developments (e.g., $25 million for development of athletic facilities at Rutgers University). While such awards are consistent with legislative funding allocations under the program, future programs should seek to clearly delineate and evaluate projects by type, as potential differences in evaluation parameters, project goals, economic outcomes and program purposes suggest that a separate classification and/or approach is warranted.

- NJEDA should clarify the rules and data reporting regarding the affordable housing requirement. The rules appear to offer bonus financing for projects that reserve 10% of units for low- and moderate-income families, while at the same time stipulating that, unless otherwise exempt, projects must include at least 20% affordable units. If the development of affordable housing is considered a key objective of the program, additional financing for projects that surpass the minimum 20% requirement would be a reasonable stipulation, but it is not clear whether the funding is being allocated in this way.

INTRODUCTION

The purpose of this report is to provide an analysis of the Grow New Jersey (Grow NJ) and ERG (Economic Redevelopment and Growth) tax incentive programs established by the Economic Opportunity Act of 2013 (EOA) and administered by the New Jersey Economic Development Authority (NJEDA).[2]

The report has four main objectives as initially determined in agreement with NJEDA in March 2016:

1) To review and present the distribution of awards by geography, award type, size and other parameters.

2) To evaluate and analyze the general qualifying parameters – base awards and bonus categories – of the awards, and offer observations and/or recommendations regarding their efficiency and effectiveness.

3) To examine the parameters of the benefit-cost model used by EDA for evaluating award applications and make recommendations for revisions where indicated.

4) To review and evaluate the economic impact estimates used in assessing the benefits for ERG projects and compare them to results of an alternative state model.

The first section of the report covers the Grow New Jersey program. The section begins with a brief review of the Grow NJ program and its parameters. This is followed by a review of the Grow NJ tax credit awards approved to date, including breakdowns by geography, award size and employment. A review of Grow NJ bonus categories is provided, including observations and recommendations regarding costs and use of bonuses. This is followed by a discussion of the benefit-cost test and associated model used in analyzing Grow NJ awards and ERG awards for commercial projects. (An appendix provides a detailed analysis of the benefit-cost model and recommendations for revisions, with examples demonstrating the effect of proposed changes to the modeling process.) The final section of the report examines the Economic Redevelopment and Growth program, including the geographic distribution of awards made for commercial and residential projects, project evaluation criteria, and the estimated employment impacts associated with capital investment for the residential projects.

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[2] This report covers Grow New Jersey and ERG awards approved following passage of the NJ Economic Opportunity Act (NJEOA) in 2013. Prior to that, the Grow New Jersey Program was administered pursuant to the Grow New Jersey Assistance Act of 2011," P.L. 2011, c. 149, enacted on January 5, 2012. Under this iteration of the Grow New Jersey Program (referred to as "Legacy Grow New Jersey"), EDA approved 18 projects for $529,731,293 based on the estimated creation of 2,523 new jobs and 6,685 retained jobs. The Economic Redevelopment and Growth (ERG) Program was first administered pursuant to the New Jersey Economic Stimulus Act of 2009, P.L. 2009, c. 90., enacted in July 2009. Under this iteration of the ERG Program (referred to as "Legacy ERG"), EDA approved 16 projects for $551,640,889 based on total eligible capital investment of over $4,009,319,678.

GROW NJ PROGRAM DESCRIPTION

SUMMARY

This section provides a detailed description of the Grow NJ program. Because project completion and certification has not yet reached a significant level, it is difficult to judge the overall program results based only on the projects that have already created jobs and received tax credits. As more projects reach completion, future analysis can determine if employment objectives and projects are meeting program requirements. Findings from a review of the program include the following:

- Urban-focused base awards account for approximately half of the potential job creation/retention of the Grow NJ program and about 70% of the total dollar value of awards.

- Awards to firms remaining in the state were concentrated among those retaining 200 jobs or fewer (84 of 131 awards), accounting for approximately 7,328 jobs.

- In total, the 11,535 new jobs planned by in-state firms receiving Grow NJ awards represent 40% of the 28,670 total new jobs to be created by 227 Grow NJ awards covered by this report.

- Of the 227 total awards, 210 are valued at less than $40 million, the cutoff after which awards are subject to adjustment based on the funding gap between the New Jersey project site and an alternative site out of state. Of the 17 awards over $40 million, 12 are Camden alternatives and thus not subject to that limitation.

The Grow NJ program was intended by the EOA to incentivize companies to locate or remain in areas of the state identified as "Qualified Incentive Areas," including Urban Transit Hubs, Garden State Growth Zones, Distressed Municipalities, and other designated areas prioritized for development. Applicants must meet minimum employment, capital investment and green building requirements and other thresholds to qualify for the incentives, and proposed projects must pass a benefit-cost test. The company CEO must also attest that the award constitutes a "material factor" in the firm's decision to remain/locate in New Jersey.

The value of the incentive offered is in most cases calculated based on the number of jobs created and/or retained in the state by the company. Incentives are granted in the form of transferrable credits against the corporation business tax and insurance premiums tax. For each job created and/or retained each year, the award consists of a base amount determined by the project's location in a Qualified Incentive Area and in some cases its size, along with additional per-job bonuses for projects meeting a variety of criteria. The base awards range from $500 to $5,000 per new or retained job, depending on the location/project type. These base awards are summarized in Table 1, excerpted from the NJEDA program materials.

Table 1
Grow NJ Base Award Categories and Caps

Project Type	Base Amount Per New or Retained FT Job, Per Year	Gross Amount Cap Per New or Retained FT Job, Per Year	Maximum Cap To be Applied by the Business Annually
GSGZ Project	$5,000	$15,000	$30,000,000 ($35,000,000 - GSGZ-Camden/Atlantic City GSGZs)
Mega Project*	$5,000	$15,000	$30,000,000
Garden State Create Zone (NJ Doctoral University)	$5,000	$12,000	$10,000,000
Urban Transit Hub Municipality	$5,000	$12,000	$10,000,000
Distressed Municipality	$4,000	$11,000	$8,000,000
Priority Area	$3,000	$10,500	$4,000,000 * Not more than 90% of business withholdings
Other Eligible Area	$500	$6,000	$2,500,000 * Not more than 90% of business withholdings

Mega projects are projects in certain industries meeting a defined set of higher investment and employment thresholds.

Garden State Growth Zones (GSGZ) are considered among the state's most economically distressed municipalities, and are comprised of the four municipalities with the lowest median family incomes in the state according to the U.S. Census Bureau's 2009 American Community Survey – Camden, Trenton, Passaic and Paterson – as well as Atlantic City. Urban Transit Hub municipalities are municipalities with Urban Transit Hubs as defined under the original UTH legislation in 2007, and in which at least 30% of the total property value is tax exempt. There are 13 Urban Transit Hub municipalities, including three of the GSGZs (Camden, Trenton and Paterson), as well as Newark, Hoboken, Jersey City and others. The 65 distressed municipalities include all the GSGZs and Urban Transit Hub municipalities, as well as other primarily urban areas that qualify for state aid or have otherwise been identified as facing fiscal distress. Priority areas and other eligible areas are largely metropolitan and suburban areas not located in distressed municipalities. Mega projects are projects in specified locations (including Urban Transit Hubs, GSGZs, port districts and aviation districts) and industries (e.g., medical research and development) that involve large-scale investment and/or employment. Appendix I provides more detailed information on base award categories and bonus criteria.

Bonus criteria include businesses in certain targeted industries, transit-oriented development, capital investment in industrial sites that exceeds the minimum requirements by

20% or more, solar energy generation, and others. Most awards are calculated over a ten- year horizon, and firms can claim one-tenth of the total award as a credit against their Corporate Business Tax and Insurance Premiums Tax obligations. The credits are not refundable, but are transferrable at a price no less than 75% of their value.

Certain minimum requirements are relaxed and award incentives increased for projects in Garden State Growth Zones (Atlantic City, Camden, Passaic, Paterson and Trenton) and in any area of eight South Jersey counties: Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Ocean and Salem. Projects in these areas have their minimum employment requirements reduced by one quarter and their capital investment requirements reduced by one-third. For projects in these areas, awards for new and retained jobs are equal to 100% of the calculated per-job amount. For projects outside these areas, the award per retained job is equal to the lesser of 50% of the calculated amount for new jobs or the capital investment divided by 10 divided by the total number of new and retained jobs. In addition, projects meeting a set of new employment and capital investment thresholds in Camden are eligible for awards calculated on the basis of their capital investment, rather than on a per- job basis.

Award applications are initially analyzed to determine whether there is in fact a cost differential between the proposed New Jersey site and an alternative project site outside the state. In most cases, projects that demonstrate that costs in New Jersey would be significantly higher than in the alternative location are then evaluated using a cost-benefit model developed by an outside contractor (Jones Lange LaSalle) for NJEDA. The model weighs the future fiscal benefits of the project in terms of state and local tax revenues generated by the project (business taxes and the income taxes generated by the jobs created/retained by the project) over a designated time horizon against the annual value of the tax credit. For award applications approved for $40 million ($4 million per year) or more, EDA determines an award amount between the calculated per-job award and the amount required to make up the cost differential between the New Jersey site and the alternative site. Approved awards remain active for four years. If a project has not been completed and received certification of its employment within four years of approval, the award is cancelled.

This review comprises a total of 227 awards approved for 224 companies between December 2013 and August 2017.[3] The total cost of these awards is estimated at approximately $4.4 billion, and they are estimated to retain or create approximately 59,200 jobs, generally over a ten-year period for most awards, and facilitate capital investment of $3.9 billion. It should be noted that the awards described in this section and the subsequent analysis represent the currently active awards *approved* over the December 2013-August 2017 period. As of 2016, 34 of these awards – or about 15% – had been completed and certified, with tax credits issued. Because project completion and certification has not yet reached a significant level, it is difficult to judge the overall program results based only on projects that have already created jobs and received tax credits. As such, the description and analysis of awards in terms of geographic distribution, jobs created or retained, costs per job, and other parameters includes *all approved* awards. As the completion of projects approved from 2016 and 2017 is tracked, it will become clearer whether the program is achieving its employment objectives and the extent to which projects are meeting their program requirements.

Distribution of Awards by Base Award and Geography

Table 2 provides a summary of awards by Base Award type (i.e., qualified incentive area or mega project), with Camden Alternatives shown separately. Three maps (Figures 1-3) show the distribution of awards, award amounts, and associated employment by location. Table 3 provides the geographic distribution by county.[4]

Table 2 Grow New Jersey Awards by Base Grant Category						
Qualified Incentive Area	Projects	New Jobs	Retained Jobs	Total Jobs	Total Eligible Capital Investment ($)	Total Awards ($)
Distressed Municipality	57	4,873	4,917	9,790	588,557,204	475,494,970
GSGZ	28	1,430	2,088	3,518	173,739,859	423,172,275
HUB	56	9,009	3,495	12,504	474,918,347	865,747,730
Mega Project	15	6,607	5,666	12,273	674,026,953	838,498,530
Priority Area	58	5,333	11,840	17,173	615,131,216	485,379,480
Camden Alternatives	13	1,418	2,511	3,929	1,414,638,907	1,338,271,020
Total	227	28,670	30,517	59,187	3,941,012,486	4,426,564,005

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[3] There were two companies that received more than one award. There were also four multi-site awards for individual companies with different per-job calculations for each site; multiple sites for a single award were generally counted as single awards, but were separated out where necessary for calculations.

[4] Appendix table A-1 in Appendix II provides the award distribution by municipality and county as depicted in Figures 1-3.

The largest numbers of awards are in the Urban Transit Hub, Distressed Municipality and Priority Areas, with between 56 and 58 awards each. While these awards totaled slightly below $500 million for the Distressed Municipalities and Priority Areas, they totaled over $865 million for the Urban Transit Hubs. The highest level of job creation/retention is in the Priority Areas – over 17,000 jobs – with the lowest found in the Garden State Growth Zones and Camden Alternatives (which are technically in Garden State Growth Zones, but presented here separately for purposes of comparison). Over twice as many of the jobs associated with the projects in Priority Areas are retained jobs, while over twice as many in the Urban Transit Hubs are new jobs. The division is roughly equal for Distressed Municipalities. Notably, the "Other Eligible Area" base award of $500 has not yet been used by any project. This may indicate that the award level is not sufficient to attract relocating businesses.

Including Camden alternatives, the urban-focused base awards (GSGZs, HUBs and distressed areas) account for approximately 50% of the potential job creation/retention of the Grow NJ program and about 70% of the total value of awards. The more suburban and metropolitan focused priority areas accounted for approximately 29% of the potential job creation/retention and about 10% of the total awards. Mega projects, which are mixed in their geographic distribution, accounted for 21% of the potential new/retained jobs and 19% of the total value of approved awards.

Figure 1
Geographic Distribution of Grow New Jersey Projects

Projects

Projects

	1
	2
	3 - 4
	5 - 8
	9 - 15
	16 - 30
	31 - 41

SUSSEX
PASSAIC
BERGEN
WARREN
MORRIS
ESSEX
HUDSON
UNION
HUNTERDON
SOMERSET
MIDDLESEX
MERCER
MONMOUTH
BURLINGTON
OCEAN
CAMDEN
GLOUCESTER
SALEM
ATLANTIC
CUMBERLAND
CAPE MAY
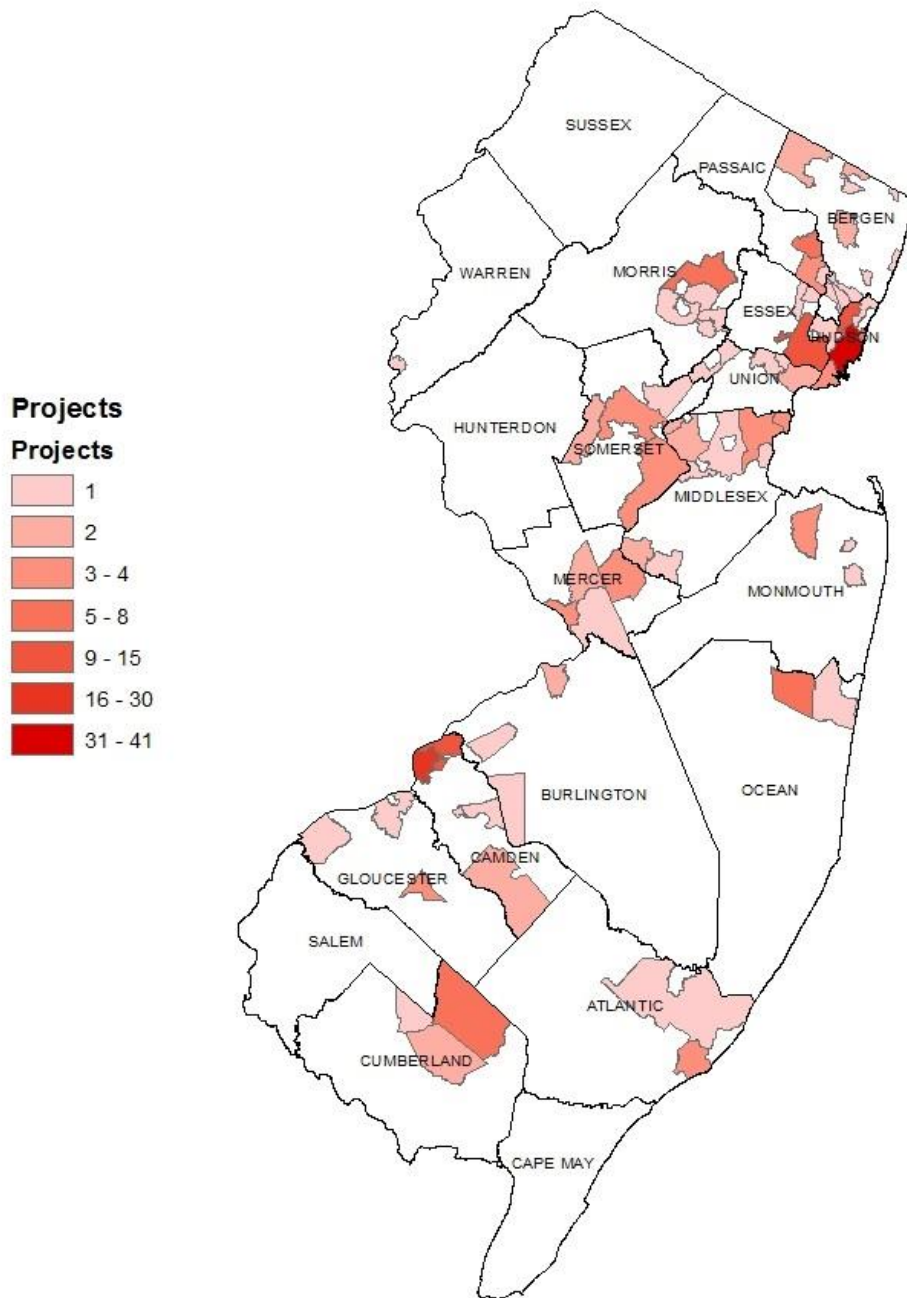
Figure 2
Geographic Distribution of Grow New Jersey Award Funds

Total Awards

Award_Amount

	495,720 - 8,137,500
	8,577,500 - 20,425,000
	21,965,000 - 40,000,000
	45,160,000 - 75,887,080
	116,565,000 - 202,502,060
	953,189,620 - 1,508,823,520

SUSSEX

PASSAIC

BERGEN

WARREN

MORRIS

ESSEX

HUDSON

UNION

HUNTERDON

SOMERSET

MIDDLESEX

MERCER

MONMOUTH

BURLINGTON

OCEAN

CAMDEN

GLOUCESTER

SALEM

ATLANTIC

CUMBERLAND

CAPE MAY
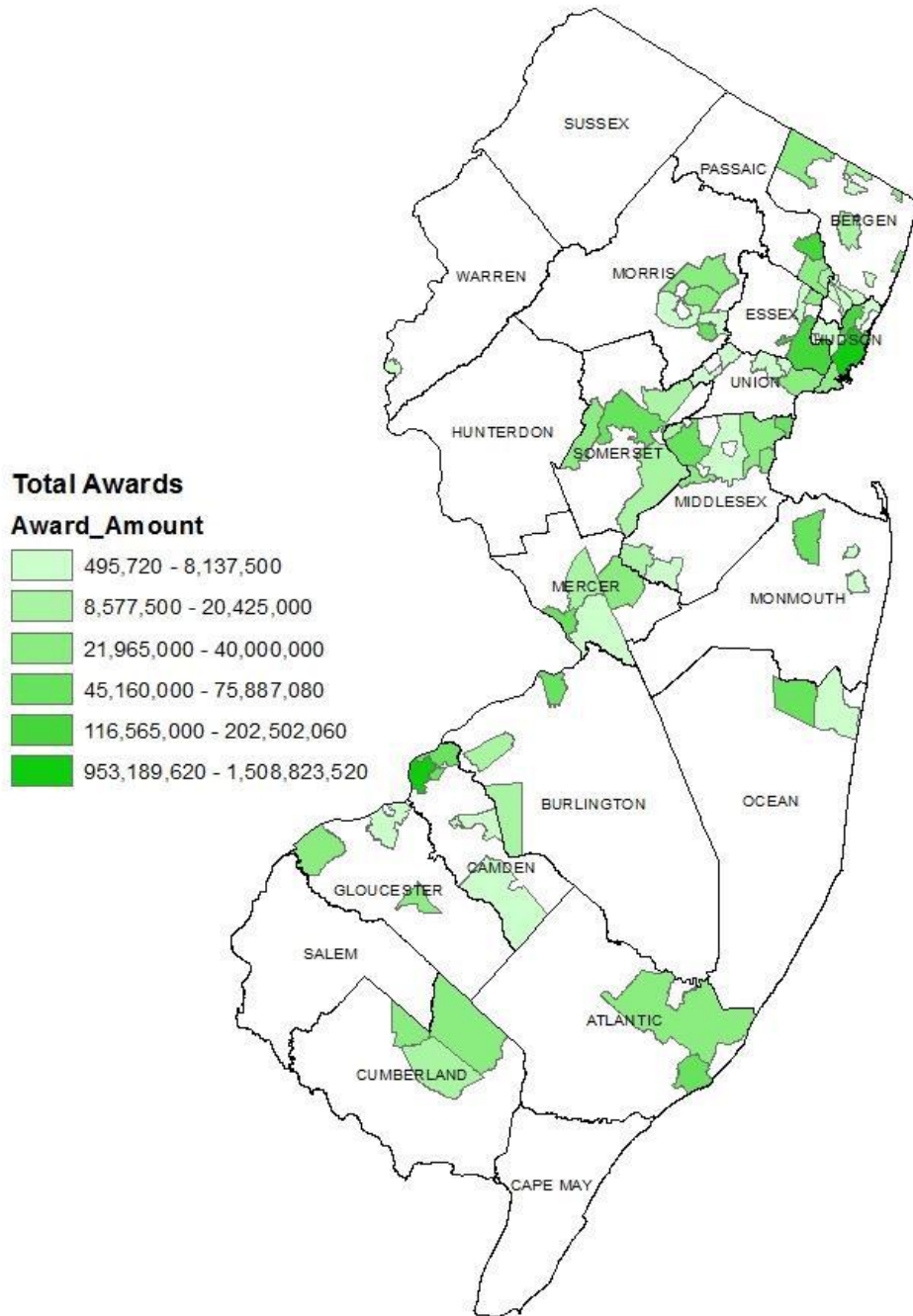
Figure 3
Geographic Distribution of Grow NJ-Related Jobs

Employment

nj_munis
Total_Jobs

- 14 - 350
- 411 - 949
- 1,135 - 2,317
- 2,985 - 5,340
- 13,361

SUSSEX

PASSAIC

BERGEN

WARREN

MORRIS

ESSEX

HUDSON

UNION

HUNTERDON

SOMERSET

MIDDLESEX

MERCER

MONMOUTH

BURLINGTON

OCEAN

CAMDEN

GLOUCESTER

SALEM

ATLANTIC

CUMBERLAND

CAPE MAY

County	Number of Projects	Award Amount ($)	New Jobs	Retained At Risk Jobs	Total Jobs	Total Eligible Capital Investment ($)
Table 3						
Distribution of Grow NJ Awards by County						
Atlantic	5	85,609,015	656	210	866	77,046,684
Bergen	14	134,500,470	906	3,586	4,492	183,550,690
Burlington	4	73,972,030	841	715	1,556	70,424,229
Camden*	39	1,595,456,600	2,592	4,416	7,008	1,527,572,693
Cumberland	9	72,191,600	449	859	1,308	107,871,478
Essex	12	218,418,310	1,631	1,714	3,345	249,817,210
Essex/Passaic**	1	18,648,000	150	200	350	23,221,782
Gloucester	5	48,677,500	362	446	808	77,298,222
Hudson	63	1,262,463,170	12,371	6,905	19,276	667,005,420
Mercer	10	109,791,500	768	1,229	1,997	60,265,296
Middlesex	15	223,179,820	2,839	1,464	4,303	277,784,199
Middlesex/Somerset**	1	11,486,250	50	241	291	17,500,000
Monmouth	5	62,823,340	823	846	1,669	60,924,787
Morris	9	127,774,610	1,507	2,129	3,636	150,896,118
Ocean	6	53,484,020	515	566	1,081	23,884,110
Passaic	11	147,167,500	515	801	1,316	52,391,883
Passaic/Essex**	1	16,937,500	271	0	271	55,158,000
Somerset	9	110,797,470	858	3,486	4,344	171,356,002
Somerset/Bergen**	1	10,254,300	60	464	524	73,910,484
Union	6	41,881,000	492	240	732	12,333,199
Warren	1	1,050,000	14	0	14	800,000
Total	**227**	**4,426,564,005**	**28,670**	**30,517**	**59,187**	**3,941,012,486**

* Includes Camden alternatives. ****** Projects with sites in multiple counties.

Awards were most heavily concentrated in Hudson County, particularly Jersey City, accounting for nearly 30% of the total number of awards and award dollars, over 40% of the associated new jobs and over 20% of the retained jobs. The second highest concentration in terms of number of projects was in Camden County, which had 39, or about 17% of the total, representing 36% of the total award dollars. This total includes the 13 "Camden alternatives" - projects not subject to the usual per-job award calculation, but eligible to receive awards that can equal the total of their planned capital investment in Camden City. Eligible capital investment for these projects totals $1.4 billion. This accounts for Camden County's relatively low share of total Grow NJ new (9%) and retained (14.5%) employment relative to its share of total awards, award dollars and capital investment.

Of note in Table 3, as well as in Figures 1-3, are the lack of awards in certain areas of the state. This is not necessarily problematic; however, as the program's award parameters specifically provide additional benefits to firms locating in the eight South Jersey counties, it is notable that there have to date been no approved projects in Salem or Cape May Counties.

In terms of size, the average number of retained jobs for the 131 firms that received incentives to remain in the state (rather than firms new to the state) – the average number of retained jobs was 233 with a median of 123. As shown in Figure 4 and Table 3, the highest concentration of firms remaining in the state were those retaining up to 100 jobs (55 firms), accounting for approximately 3,044 jobs, or about 10% of the total 30,517 retained jobs. An additional 14% of retained jobs (4,284 jobs) are with 30 firms with between 101 and 200 retained jobs each. Twenty-six firms with between 201 and 400 retained jobs each account for 7,466 retained jobs, or 24.5% of the total. An additional 15 firms retaining between 401 and 600 jobs each in the state account for an additional 24.5% (7,462) of the retained jobs. The five firms with the largest retention level (from 901 to 2,650 jobs) account for 8,261 retained jobs, or 27% of the total.

Figure 4
Distribution of Grow NJ Projects by Number of Retained Jobs
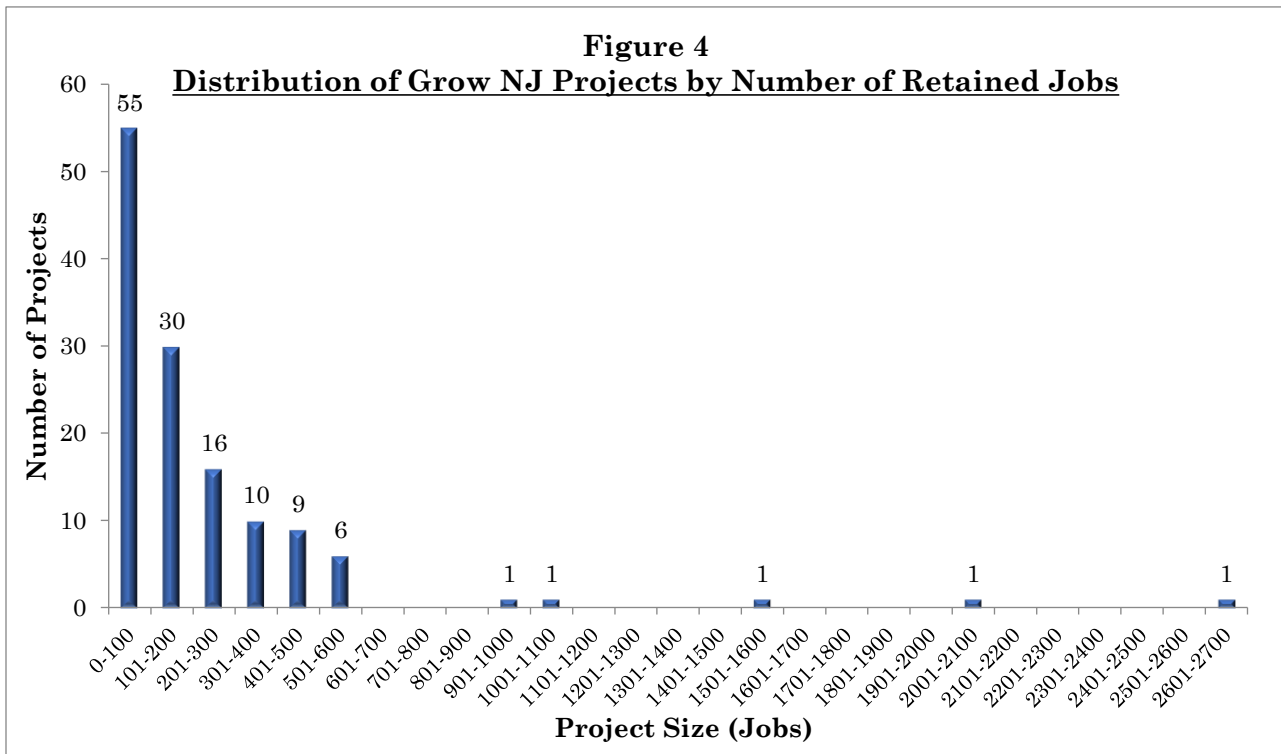
The 131 Grow NJ projects with retained in-state jobs represent over $3.03 billion of the total $4.4 billion in awarded credits. Of these firms, 104 also plan expansions ranging from eight to 1,000 jobs. These expansions would total about 11,500 jobs, increasing the in- state employment of those firms by approximately 54%. The 27 firms with only retained jobs have total employment of approximately 9,300 jobs, with firms ranging in size from 30 to nearly 2,100 employees, and account for approximately $510.7 million in total awards.

In total, the 11,535 new jobs planned by in-state firms receiving Grow NJ awards represent 40% of the 28,670 total new jobs to be created by 227 Grow NJ awards covered by this report. The distribution by employment size of Grow NJ projects new to the state (i.e.,

those with new, but no retained jobs) are shown in Figure 5. These 96 projects, if fully realized, would represent approximately 17,135 new jobs in the state. The average employment size for these establishments is approximately 178 jobs – somewhat smaller than the average for retained jobs – with projects ranging from as few as 14 to as many as 2,150 jobs, with a median of 100.

Figure 5
Distribution of New-to-State Grow NJ Awards by Project Size
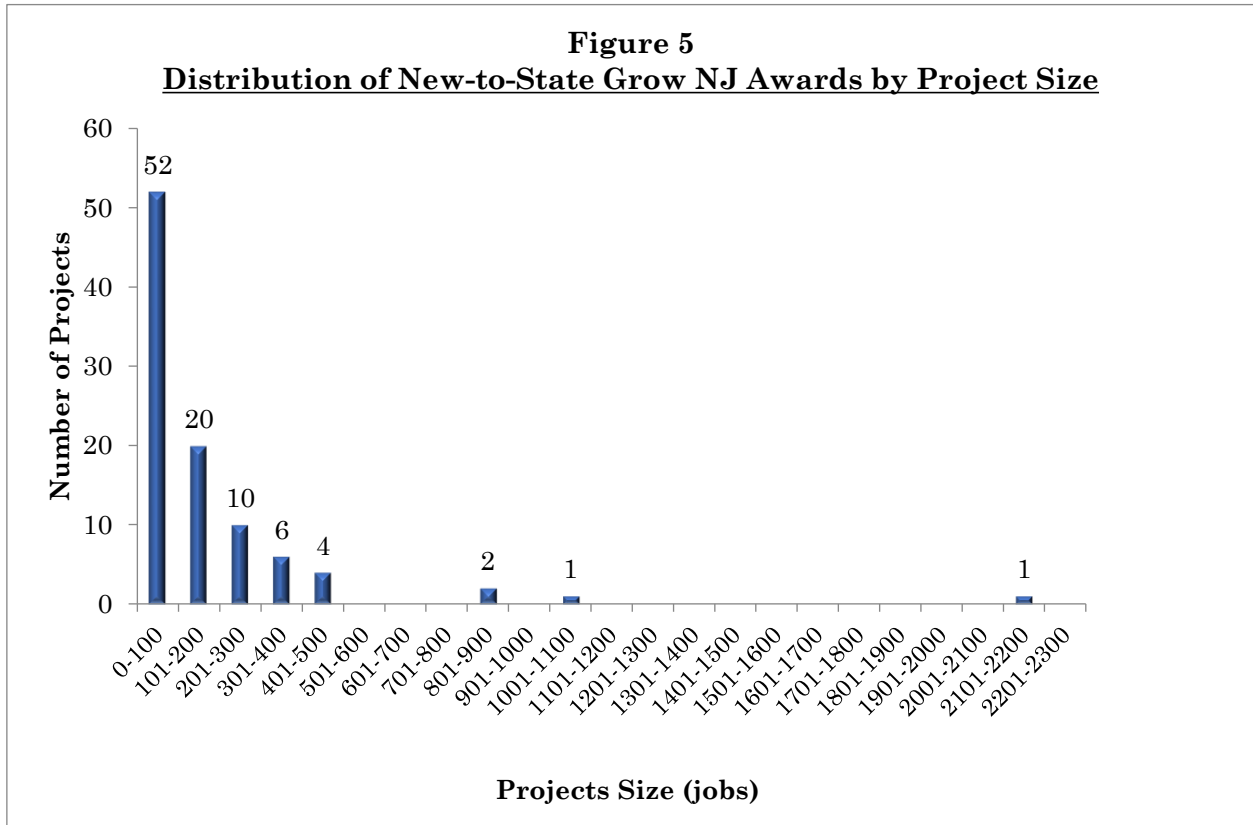
Distribution of Awards by Award Size

　　Figure 6 provides the distribution of all Grow NJ awards by award amount; Table 4 provides the descriptive statistics for all awards, and separate statistics for Camden Alternatives and awards calculated according to the standard per-job calculation. Total awards ranged in size from just under $500,000 to as high as $260 million, with an average of $19.5 million and a median of $8.8 million. The high average relative to the median indicates the influence of the small number of very large awards, including the 13 Camden alternatives, which had an average award size of nearly $103 million (Table 4). Of the 227 total awards, 210 are less than or equal to $40 million, the cutoff after which awards are limited based on the funding gap between the New Jersey project site and an alternative site out of state. Of the 17 awards of $40 million or over, 12 are Camden alternatives and thus not subject to that limitation.

Figure 6
Distribution of Grow NJ Awards by Award Size
(includes Camden alternatives)
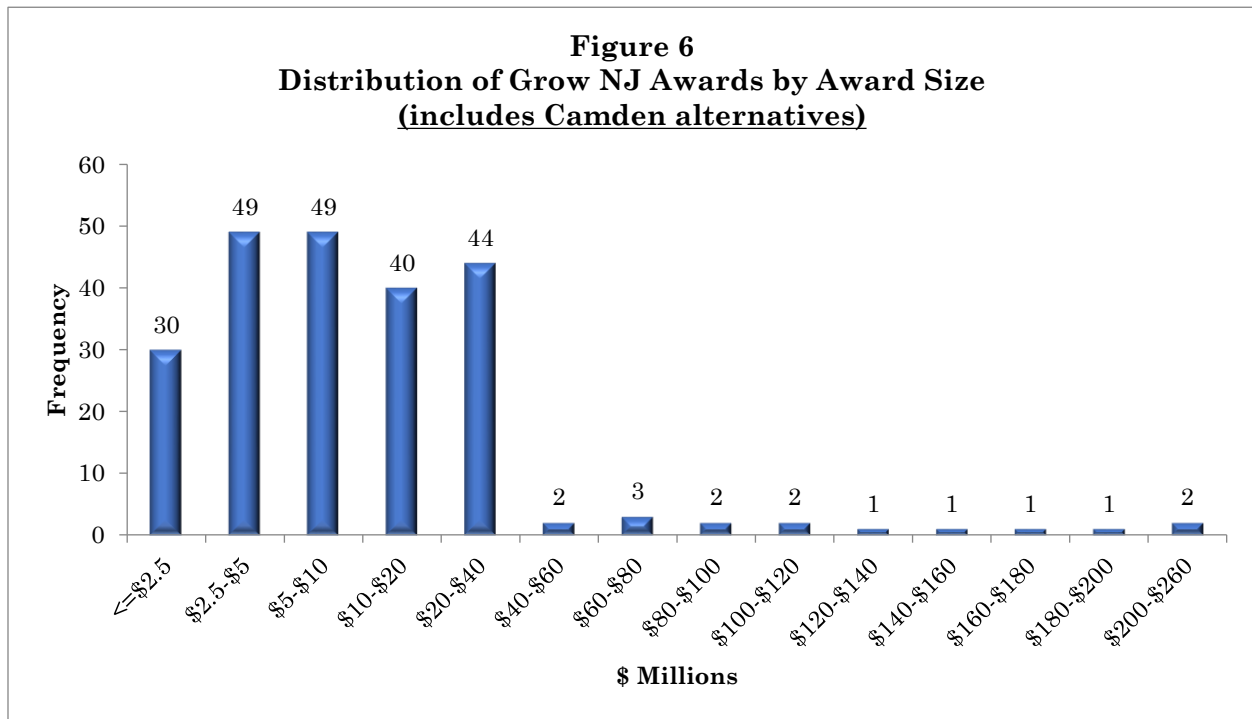
Table 4			
Grow NJ Award Size Statistics			
	Standard	**Camden Alternatives**	**All Projects**
# of Projects	214	13	227
Average	$14,431,276	$102,943,925	19,500,282
Median	$8,097,500	$86,239,720	$8,775,000
Minimum	$495,720	$11,147,360	$495,720
Maximum	$224,835,000	$260,000,000	$260,000,000

Distribution of Awards by Capital Expenditure

Figure 7 shows the geographic distribution of capital expenditures associated with Grow NJ projects. Total capital expenditures for all projects is estimated at $3.9 billion. High levels of capital investment can have significant one-time (i.e., not ongoing) economic impacts, though these are generally small relative to the ongoing annual impacts included in the benefit-cost analysis for each project. In addition, property taxes on the capital improvements (calculated at 3% of construction value in the benefit-cost model) can constitute a significant element of the ongoing annual benefits.[5]

Project capital expenditures range in size from under $300,000 to as high as $116 million for projects with job-based award calculations and as high as $260 million for one of the Camden alternative projects. As shown on the map in Figure 7 and in Table 3, the pattern of capital investment generally mirrors that of awards and award dollars, with significant concentrations in Camden (39% of the total) and Hudson (17% of the total), and relatively high shares in Middlesex (7%), Essex (6%) and Bergen (5%).

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[5] GSGZs were given the option of creating municipal-level property tax exemptions for up to 20 years. At present, Camden provides a property tax exemption for the first 10 years after project completion, followed by an increase of 10% of the value each year for the subsequent 10 years.

Figure 7
Geographic Distribution of Grow NJ Capital Expenditures

Capital Expenditures

Capex

	645,000 - 8,433,040
	12,485,000 - 28,549,682
	40,584,984 - 76,021,228
	98,010,484 - 141,210,102
	250,260,564 - 381,466,550
	1,462,576,900
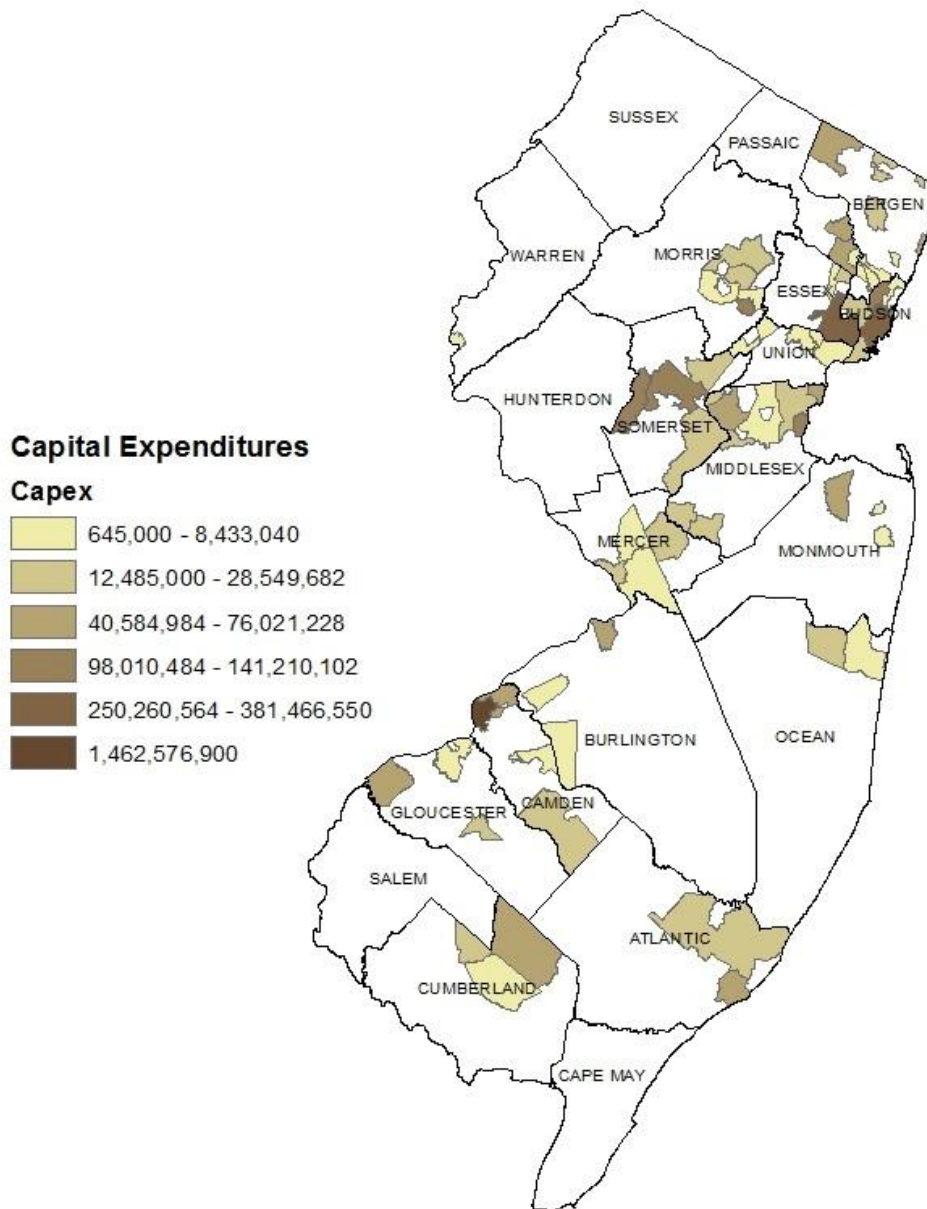
Table 5 lists projects for which NJEDA reported issuing credits in 2016.[6] The 34 projects were issued $68.3 million in credits and reported 5,341 new jobs and 5,397 retained jobs, in line with the 5,361 new jobs and 5,433 retained jobs expected based on their applications and their total approved awards of $708.3 million. These 34 projects are among 112 projects that were approved through January 2016, with most (103) projected to be completed in or later than 2016. All in, the 112 projects are projected to create 16,317 new jobs and retain 15,384 existing jobs, and were approved for credits totaling $1.9 billion. Thus, the $68.3 million for the 34 awards represents about 36% of the credits that would be issued annually were all the projects approved by 2016 to reach completion. Many of these may have already been completed and credits issued, though complete data on certified credits for 2017 is not yet available. The credits issued were highly concentrated in Hudson County, and Jersey City in particular, with nearly $42 million credits issued in the city. Projects in Camden County also received certified tax credits of about $9 million.

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[6] In 2015, approximately $12.6 million in credits were issued to 13 of the firms receiving them in 2016.

Project	Municipality	County	Jobs Reported		Certified Credit Amount
			New	Retained	
Barrette Outdoor Living	Galloway	Atlantic	232	-	$2,436,000
SUEZ Water Management	Paramus	Bergen	0	279	$523,125
Contemporary Graphics and Bindery, Inc. and Affiliates	Camden	Camden	56	170	$3,410,000
Cooper Health System	Camden	Camden	89	353	$4,444,000
Plastics Consulting and Manufacturing Company, Inc.	Camden	Camden	8	20	$392,000
WebiMax LLC	Camden	Camden	8	50	$493,000
Audio and Video Labs, Inc.	Pennsauken	Camden	27	-	$147,550
Northeast Precast	Millville	Cumberland	50	87	$782,663
Univision Communications Inc. and Subsidiaries	Vineland	Cumberland	99	-	$350,000
Liscio's Italian Bakery	Glassboro	Gloucester	76	176	$1,351,500
Showman Fabricators, Inc.	Bayonne	Hudson	95	-	$877,500
Charles Komar & Sons	Jersey City	Hudson	451	-	$3,472,000
Eltman Law, P.C.	Jersey City	Hudson	64	-	$448,000
First Data Corp. 39th fl	Jersey City	Hudson	100	-	$825,000
First Data Corporation	Jersey City	Hudson	74	-	$592,000
Forbes Media LLC & Forbes Media Holdings LLC	Jersey City	Hudson	344	-	$2,472,250
Insight Catastrophe Group, LLC	Jersey City	Hudson	27	-	$208,000
JPMorgan Chase Bank	Jersey City	Hudson	1000	2,612	$22,483,500
Northern Leasing Systems, Inc.	Jersey City	Hudson	107	-	$713,000
Principis Capital LLC	Jersey City	Hudson	38	0	$285,000
RBC Capital Markets, LLC	Jersey City	Hudson	837	-	$7,323,750
VF Sportswear	Jersey City	Hudson	150	-	$1,087,500
World Business Lenders, LLC	Jersey City	Hudson	221	-	$1,657,500
Jacmel Jewlery, Inc.	Secaucus	Hudson	73	-	$292,000
Rent the Runway	Secaucus	Hudson	360	93	$1,455,750
Solvay USA, Inc. (1)	West Windsor	Mercer	0	338	$738,000
Wenner Bread Products, Inc.	New Brunswick	Middlesex	275	-	$3,036,000
Interpool, Inc. d/b/a TRAC Intermodal (1)	Plainsboro	Middlesex	57	310	$848,000
Sandoz Inc	Plainsboro	Middlesex	130	292	$918,000
Gaming Laboratories International, LLC	Lakewood	Ocean	31	243	$915,000
Jimmy's Cookies	Clifton	Passaic	98	43	$753,750
Sandy Alexander	Clifton	Passaic	52	216	$1,134,000
Patella Construction Corp.	Passaic City	Passaic	76	-	$1,045,000
D' Artagnan, Inc.	Union Twp	Union	36	115	$367,837
34 Projects			**5,341**	**5,397**	**$68,278,175**

Table 5
Grow New Jersey Credits Issued in 2016

SUMMARY

This section provides an overview of the potential job creation and retention produced through the NJ Grow program and the cost associated with attracting jobs (firms) to or keeping jobs in the state. Findings include:

- The potential employment to be created or retained by Grow New Jersey-assisted projects if all 227 approved projects were completed and certified at their full employment levels would be over 59,000 jobs.

- As of 2016, completed and certified Grow NJ projects have attracted or retained nearly 11,000 jobs in the state.

- In some counties, the number of potential jobs to be created and/or retained is notable in comparison to the employment change over the past seven years as New Jersey emerged from the Great Recession. In Hudson County, the 63 Grow NJ projects are expected to result in the creation of 12,371 new jobs and the retention of 6,905 existing jobs, which is equivalent to roughly 74% of the non-retail employment growth in the county from 2010 through 2017.

- In Camden County, the 7,008 jobs to be potentially created or retained by Grow NJ projects (including 781 certified new and/or retained Grow NJ jobs in 2016) are equivalent to about 53% of the total non-retail employment change from 2010 to 2017.

- The average costs per job for most Grow NJ awards (excluding Camden alternatives) is generally consistent with national benchmarks, with the average $7,650 per new job per year near the upper bound of estimates and the average annual cost of $3,670 per retained Grow NJ job in line with some national benchmarks.

- Among the Camden alternatives, the annual costs per job range from just under $20,000 per year to over $65,000 per year, with an average of about $34,000 (the award amount for new and retained jobs is the same in Garden State Growth Zone municipalities), or 4.5 times the average award per new job for awards calculated on a per-job basis.

As in the case of many tax incentives, the primary goal of the Grow New Jersey Assistance Program is to attract and retain businesses and jobs. As the enabling legislation states, "The purpose of the program is to encourage economic development and job creation and to preserve jobs that currently exist in New Jersey but which are in danger of being relocated outside of the State." A positive aspect of the program's structure, as with the structure of its predecessor – the Business Employment Incentive Program – is that in most cases the size of the tax credit award is calculated directly as a function of the number of jobs created or retained by the awardee, and in most cases the award calculation is twice as large for newly created jobs in the state versus existing jobs retained in the state. In addition, firms are required to maintain at least 80% of the employment indicated in the award agreement

each year, or the tax credit is not issued for that year.

To provide context for the job creation/retention figures discussed in the preceding section, it is helpful to look at the magnitude of job growth in New Jersey in recent years. From December 2010 (marking roughly the end of the employment declines resulting from the 2007-2009 recession) to December 2017, New Jersey added approximately 316,500 private-sector jobs – an average of just over 45,000 jobs per year, representing a compound annual growth rate of about 1.35%. This was slower than the national rate of private sector job growth of just over 2% annually for the same period. If fully implemented, the 59,000 jobs to be created and/or retained through Grow NJ projects would be equivalent to a relatively strong private-sector job growth year for New Jersey. (It should be noted however, that for projects in which firms relocated within the state, the retained jobs, while new to the counties and/or municipalities, would not represent new employment gains in the state.) The strongest year for New Jersey since 2010 was 2016, when the state added 63,000 private sector jobs. It is worth noting that 10,700 Grow NJ jobs were certified in 2016. If those firms had left or not come to the state (and the jobs created and/or retained were not replaced), the 2016 employment level would be lower by nearly 11,000 jobs.

A similar comparison of potential Grow NJ-assisted employment creation and retention to recent actual employment change is also useful at the county level. Table 6 provides the total actual private-sector non-retail employment levels and change by county for 2010-2017.[7] These are the annual average county employment data reported by the U.S. Bureau of Labor Statistics for 2010 and 2017, and the change between the two periods. Table 7 provides the total new and retained Grow NJ jobs that *would be created* in each county if all 227 approved Grow NJ awards were certified at their full employment levels. There have to date been no approved projects in Salem or Cape May Counties, which had among the highest unemployment rates in the state in 2016 (in Cape May this is largely due to the seasonal nature of the tourism industry). There have been at least four awards approved in each of the other South Jersey counties, with the vast majority of activity concentrated in Camden County.

In some counties, the number of jobs to be created and/or retained is notable in comparison to the employment change over the past seven years as New Jersey emerged from the Great Recession. For example, in Hudson County, the 63 Grow NJ projects are expected to result in the creation of 12,371 new jobs and the retention of 6,905 existing jobs. This total of over 19,000 jobs is equivalent to roughly 74% of the non-retail employment growth in the county from 2010 through 2017 (note that some of the employment in the county represents the 6,646 new/retained Grow NJ jobs certified in 2016). In Camden County, the 7,008 jobs to be potentially created or retained by Grow NJ projects (including 781 certified new and/or retained Grow NJ jobs in 2016) are equivalent to about 53% of the total non-retail employment change from 2010 to 2017.

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[7] Retail projects are not eligible for Grow New Jersey credits; Grow NJ employment estimates are thus compared to non-retail private-sector employment change.

Table 6 Actual NJ County Private-Sector, Non-Retail Employment Change, 2010-2017				
County	2010	2017	Change	Average Annual Change
Atlantic	96,586	87,594	-8,992	-1,499
Bergen	324,567	346,713	22,146	3,691
Burlington	137,839	154,567	16,728	2,788
Camden	137,697	150,923	13,226	2,204
Cape May	24,787	26,670	1,883	314
Cumberland	37,613	40,895	3,282	547
Essex	235,191	244,597	9,406	1,568
Gloucester	62,327	70,733	8,406	1,401
Hudson	167,722	193,764	26,042	4,340
Hunterdon	31,420	33,416	1,996	333
Mercer	139,088	157,771	18,683	3,114
Middlesex	282,335	325,886	43,551	7,259
Monmouth	167,559	188,534	20,975	3,496
Morris	208,762	230,540	21,778	3,630
Ocean	94,341	112,381	18,040	3,007
Passaic	116,335	115,002	-1,333	-222
Salem	15,082	15,053	-29	-5
Somerset	128,585	150,346	21,761	3,627
Sussex	24,895	25,442	547	91
Union	161,503	162,041	538	90
Warren	23,162	22,402	-760	-127

Source: Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics.

Table 7 Total Potential Grow NJ Jobs by County	
County	Potential Grow NJ Jobs
Atlantic	866
Bergen	4,839
Burlington	1,556
Camden	7,008
Cape May	-
Cumberland	1,308
Essex	3,545
Gloucester	808
Hudson	19,276
Hunterdon	-
Mercer	1,997
Middlesex	4,544
Monmouth	1,669
Morris	3,636
Ocean	1,081
Passaic	1,737
Salem	-
Somerset	4,571
Sussex	-
Union	732
Warren	14

Costs per Job

Of the 227 Grow NJ awards considered in this report, 214 (made to 211 companies) were calculated using the per-job formula accounting for location-based base awards and bonuses, subject to certain limitations.[8] In total, based on their agreements and award calculations, these 214 projects were projected to create 27,252 new jobs in the state, and to preserve 28,006 existing jobs at risk of leaving the state. Based on the total approved awards of $3.1 billion for these projects and the award formula, the average cost per newly created job for these awards is approximately $7,650 per year, or $76,500 over the ten-year period of most awards. Per-new-job costs ranged from as low as $486 per year in the case of a project with an award limited by program rules, to as high as $15,000 per year – the maximum allowed. Costs per retained job ranged from $556 to $15,000, with an average of $3,670 per year. The average annual cost per job for all new and retained jobs for the 214 projects would be approximately $5,589. These estimates assume that award levels are not reduced or otherwise modified based on employment levels or other factors.

Table 8 provides the annual cost per new and retained job by county, not including the Camden alternatives (new and retained job costs by municipality are provided in Appendix III). Annual costs per new job ranged from a low of $4,542 in Bergen County to a high of $10,367 in Atlantic County. Annual costs per retained job ranged from a low of $1,875 in Union County to $10,640 in Passaic County. The significantly higher per-job cost of the Camden alternatives results from the alternative calculation used to determine these awards. This issue is described in more detail below. For awards calculated using the standard per-job approach, the differences in average costs per job across counties are driven by a combination of base awards – which range from $3,000 to $5,000 per job, depending on project location and classification[9] – and the number and type of bonuses for which projects are eligible.

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[8] Some awards were somewhat less than the calculation would indicate based on program rules capping the maximum possible award.

[9] There is a $500 base award category for project locations that do not fall into any of the other categories, but it has not yet been used.

Table 8 Annual Costs per job by County		
County	Cost per New Job ($)	Cost per Retained Job ($)
Atlantic	10,367	8,381
Bergen	4,542	2,569
Burlington	5,614	3,742
Camden*	8,938	7,992
-Camden Alternatives	34,061	34,061
Cumberland	7,450	4,510
Essex	9,409	3,628
Gloucester	7,997	4,423
Hudson	8,285	3,752
Mercer	7,278	3,752
Middlesex	6,789	2,298
Monmouth	5,152	2,492
Morris	4,881	2,547
Ocean	6,971	3,107
Passaic	10,190	10,640
Somerset	5,002	1,879
Union	7,581	1,875
Warren	7,500	-
*Does not include Camden alternatives.		

While there is no single generally accepted benchmark cost-per-job measure to which these figures can be compared, Pew Charitable Trusts' Tax Incentives Project provided several citations of per job estimates. From a paper on stimulus policy during recessions, David Neumark estimates a total cost-per-job of state and federal hiring credits ranging from $9,100 to $75,000 and suggests costs might tend toward the lower end depending on the degree of indirect multiplier effects and the public costs (e.g., unemployment insurance) that might be reduced as a result of the credits.[10] Pew also sites work by Jennifer Weiner suggesting the standard of $35,000 "per full-time permanent equivalent" based on the federal Community Development Block Grant parameter.[11] Assuming a ten-year duration for full-time permanent jobs in the Neumark and Weiner examples, the costs per job of Grow NJ awards is generally consistent with these estimates, with the average $7,650 per new Grow NJ job near the upper bound of Neumark's range and the average $3,670 cost per retained Grow NJ job in line with Weiner's CDBG-based estimate. However, as the Pew Trust has noted, it is difficult to make such direct comparisons, as various states, programs and studies thereof use different methodologies and incorporate different measures of costs and fiscal impact into their calculations.

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[10] Neumark, David, "Spurring Job Creation in Response to Severe Recessions: Reconsidering Hiring Credits," NBER Working Paper No. 16866, National Bureau of Economic Research, March 2011.

[11] Weiner, Jennifer, "State Business Tax Incentives: Examining Evidence of Their Effectiveness," New England Public Policy Discussion Paper 09-3, December 2009.

Camden Alternatives

The other 13 Grow NJ awards were calculated under alternative rules applying only to projects in the city of Camden. Under these rules set forth in the enabling legislation, projects in Camden meeting certain thresholds for job creation and capital investment are eligible for awards with caps based on their capital investment, rather than on the per-job maximum of $15,000. These parameters are shown in Table 9, excerpted from the NJEDA's material on business incentives in Camden.[12]

Table 9
Camden Alternatives – Maximum Award Caps

Jobs - Minimum	Capital Investment - Minimum	Maximum Cap *Equal to the greater of: total tax credit amount for a qualifying project in a GSGZ or total cap investment of the project divided by the total number of new full-time jobs*
35	$5 million	$20 million
70	$10 million	$30 million
100	$15 million	$40 million
150	$20 million	$50 million
250	$30 million	Uncapped

In total, these 13 projects are estimated to create 1,418 new jobs and retain 2,511 jobs already in the state. These projects, with their award amounts and related employment, as well as costs-per-job and median salaries, are listed in Table 10.

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[12] http://www.njeda.com/pdfs/GSGZ_Camden.aspx

			Eligible Capital Investment	New Jobs	Retained Jobs	Annual Cost per Job ($)	Median Salary ($)
Table 10							
Camden Alternative Awards							
Project	**Award**	**Term**					
ACTEGA North America, Inc.	$40,000,000	10	$40,882,760	21	79	40,000	68,415
AeroFarms Camden, LLC	$11,147,360	10	$34,346,983	56	0	19,906	27,290
American Water Works Company, Inc;	$164,187,735	10	$165,689,476	100	596	23,590	94,347
Conner Strong & Buckelew Companies, LLC	$86,239,720	10	$86,240,000	111	157	32,179	72,050
E Mortgage Management LLC	$23,658,600	10	$23,659,194	0	86	27,510	72,000
EMR Eastern LLC and affiliates	$148,589,900	10	$148,589,900	285	62	42,821	52,000
Holtec International	$260,000,000	10	$260,000,000	235	160	65,823	86,265
Lockheed Martin Corporation	$107,000,000	10	$146,379,719	0	250	42,800	98,000
NFI, L.P.	$79,377,980	10	$79,380,000	0	341	23,278	54,928
Philadelphia 76ers, L.P.	$82,040,507	10	$82,040,507	250	0	32,816	45,000
Resintech, Inc.	$138,817,600	10	$150,217,500	173	92	52,384	37,080
Subaru of America, Inc.	$117,832,868	10	$117,832,868	100	500	19,639	87,500
The Michaels Organization, LLC	$79,378,750	10	$79,380,000	87	188	28,865	73,202
Total	**$1,338,271,020**	**10**	**$1,414,638,907**	**1,418**	**2,511**	**34,061**	

Of the 13 projects, 11 represent in-state moves. The total value of the Grow NJ awards for these 13 projects is approximately $1.34 billion over 10 years. Based on these total awards, costs per job for these projects range from just under $20,000 per year to over $65,000 per year, with an average of about $34,000 (the award amount for new and retained jobs is the same in Garden State Growth Zone municipalities), or 4.5 times the average award per new job for awards calculated on a per-job basis. As such, the annual per-job costs for these projects as a percentage of the median annual salaries for the jobs created/retained by the projects ranges from 23% to 141% in the case of Resintech, where the per-job award of $52,384 exceeds the median average salary of $37,080 by 40%. On average for all 13 projects, annual costs-per-job represented approximately 53% of the median salary level (on an employment-weighted basis).

Because these awards were not calculated on a per-job basis, detailed information on bonuses for which these projects would qualify was not available. However, assuming the maximum cap of $15,000 per job for per-job award calculations, the cumulative awards for these 13 projects would total approximately $589.4 million – less than half of the value actually awarded under the alternative approach. These awards (as with all projects in Camden) are not limited to the amount required to complete the project relative to other potential locations, while projects calculated on a per-job basis that are approved for awards greater than $4 million per year are required to demonstrate the difference in costs between the New Jersey location and locations considered outside the state. For example, the incentive award for the Philadelphia 76ers practice facility was approximately $82 million, while the cost differential between the two sites was calculated to be approximately $42.5 million over the 15-year commitment duration of the incentive. This difference was based on approximately $49 million in higher initial capital costs in New Jersey versus the alternative site in Philadelphia, but slightly lower annual costs in New Jersey. However, approximately $16 million of the difference in capital costs was attributable to the larger size of the facility in New Jersey (approximately 50% larger).

Recommendation: The effort to encourage large scale development projects in the city of Camden as reflected in the legislative establishment of alternative incentive calculations for the city appears to have been effective, to the degree that the scale of the awards played a role in attracting them to the city. At the same time, it should be noted that, by design, these costs are significantly higher than for other projects, even those in GSGZs. Based on these cost considerations alone, we would urge NJEDA and the legislature to re-examine the structure of this award type. There appears to be an intention in the legislation to encourage the type of large-scale capital investment targeted by these awards. If expenditures on a per-job basis are a concern, there may be approaches that would more closely tie awards to the same job creation/retention criteria used for other projects, while still encouraging large-scale capital investment in Camden or elsewhere. We note that there is already a per-job bonus of up to $5,000 available for capital investment in excess of minimum requirements that serves this purpose to some degree. This could be sufficient, or could serve as the basis for a restructured formula that continues to reward significant investment, while also tying it to job creation.

BONUS CATEGORIES

SUMMARY

This section describes the use of the various award bonuses and how the bonus categories impact the per-job awards in the Grow NJ program. Findings include:

- Over half of the 157 projects qualifying for the target industry bonus are in the manufacturing industry. These projects are intended to create over 6,600 new jobs and account for over $900 million of the total awards. The manufacturing bonus accounts for approximately 5.3% of the total awards for these projects, indicating a relatively low-cost means of targeting prioritized industries.

- Several bonus categories are seldom or never utilized by businesses, while a few exhibit signs of redundancy, possibly rewarding the same behavior twice.

Grow NJ augments base per-job award amounts with additional bonuses for businesses that fit certain categories, locate in certain areas or adopt certain practices. These bonuses are shown in Table 11, excerpted from the NJEDA Grow NJ website. (More detailed explanations of bonus categories are provided in Appendix I.)

Table 11 Grow NJ Bonus Categories	
Bonus Type* *(*Summarizes bonus types most widely available.)*	**Bonus Amount Per Job, Per Year**
Deep poverty pocket or Choice Neighborhood Transformation Plan area	$1,500
Qualified business facility in a vacant commercial building having over one million sq. ft. of office or laboratory space available for occupancy for a period of over one year (qualified buildings listed here).	$1,000
Project location at or within a three-mile radius of the campus or satellite campus of a New Jersey college or university other than a doctoral university, and the facility is used by the business to conduct a collaborative research relationship with the college or university	$1,000
Qualified incubator facility	$500
Mixed-use development with mod. income housing for min. of 20% of full-time employees.	$500
Transit oriented development	$2,000

Excess capital investment in industrial site for industrial use - *Excludes mega projects.*	$3,000 maximum
Excess capital investment in industrial site for industrial use - *Mega projects or GSGZ projects.*	$5,000 maximum
Median salary in excess of county's existing median or in excess of municipal median for GSGZ	$1,500 maximum
Large numbers of new and retained full-time jobs: 251 to 400 401 to 600 601 to 800 801 to 1,000 1,001+	$500 $750 $1,000 $1,250 $1,500
Business in a targeted industry	$500
Exceeds LEED "Silver" or completes substantial environmental remediation	$250
Located in municipality in Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Ocean and Salem counties with a 2007 MRI Index greater than 465	$1,000
Located within a half-mile of any new light rail station	$1,000
Projects generating onsite solar energy of at least 1/2 of the project's overall energy needs.	$250

Of the 214 awards made to 211 companies (excluding the Camden alternatives) included in the analysis, 207 included at least one bonus. The breakdown of bonuses by category is provided in Figure 8. The most commonly used bonus category provides an additional $500 per newly created job ($250 per retained job, in most cases) for companies in a selection of targeted industries (157 awards). Other commonly used bonuses include the $1,500 per-new-job bonus for jobs with median salaries in excess of the county or GSGZ level; the $2,000 per job bonus for transit oriented development (TOD), the bonus for retaining or creating large numbers of jobs, and the bonus for significant capital investment above the minimum requirements of the program.

Figure 8
Distribution of Bonus Categories

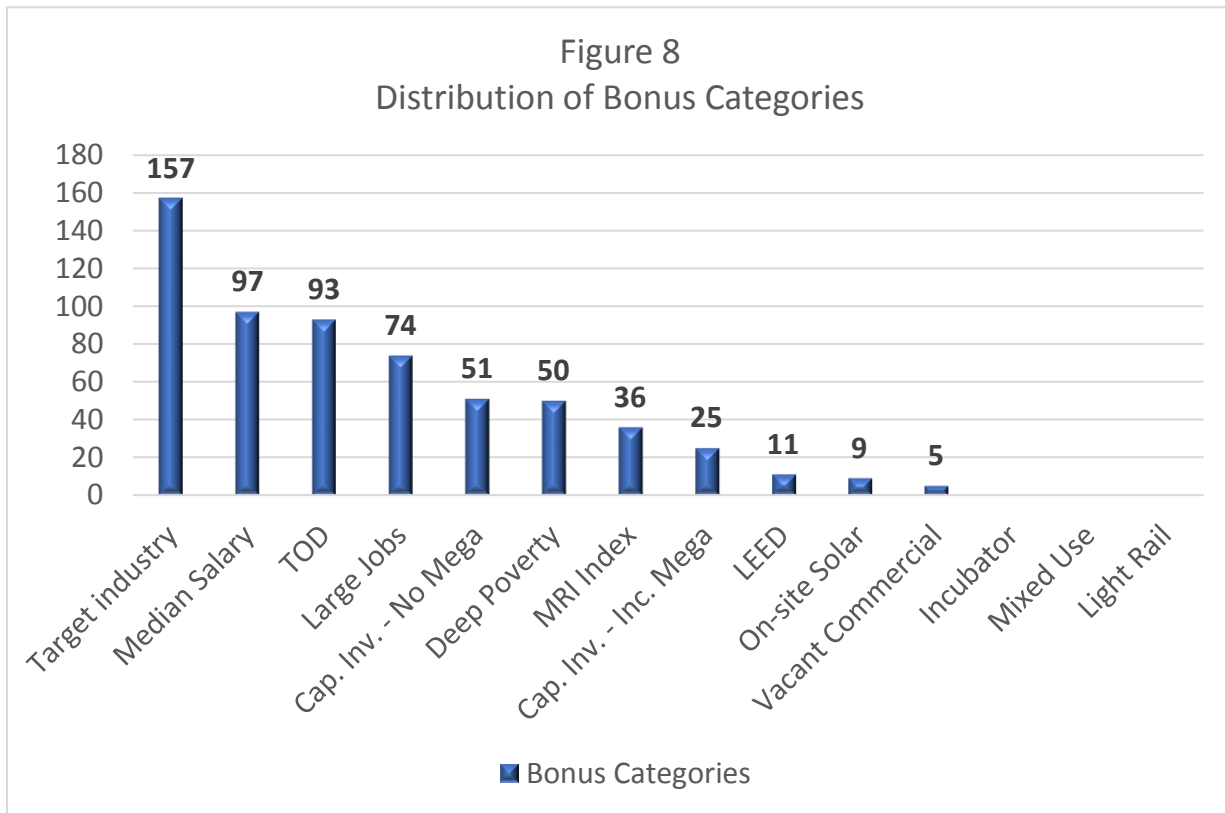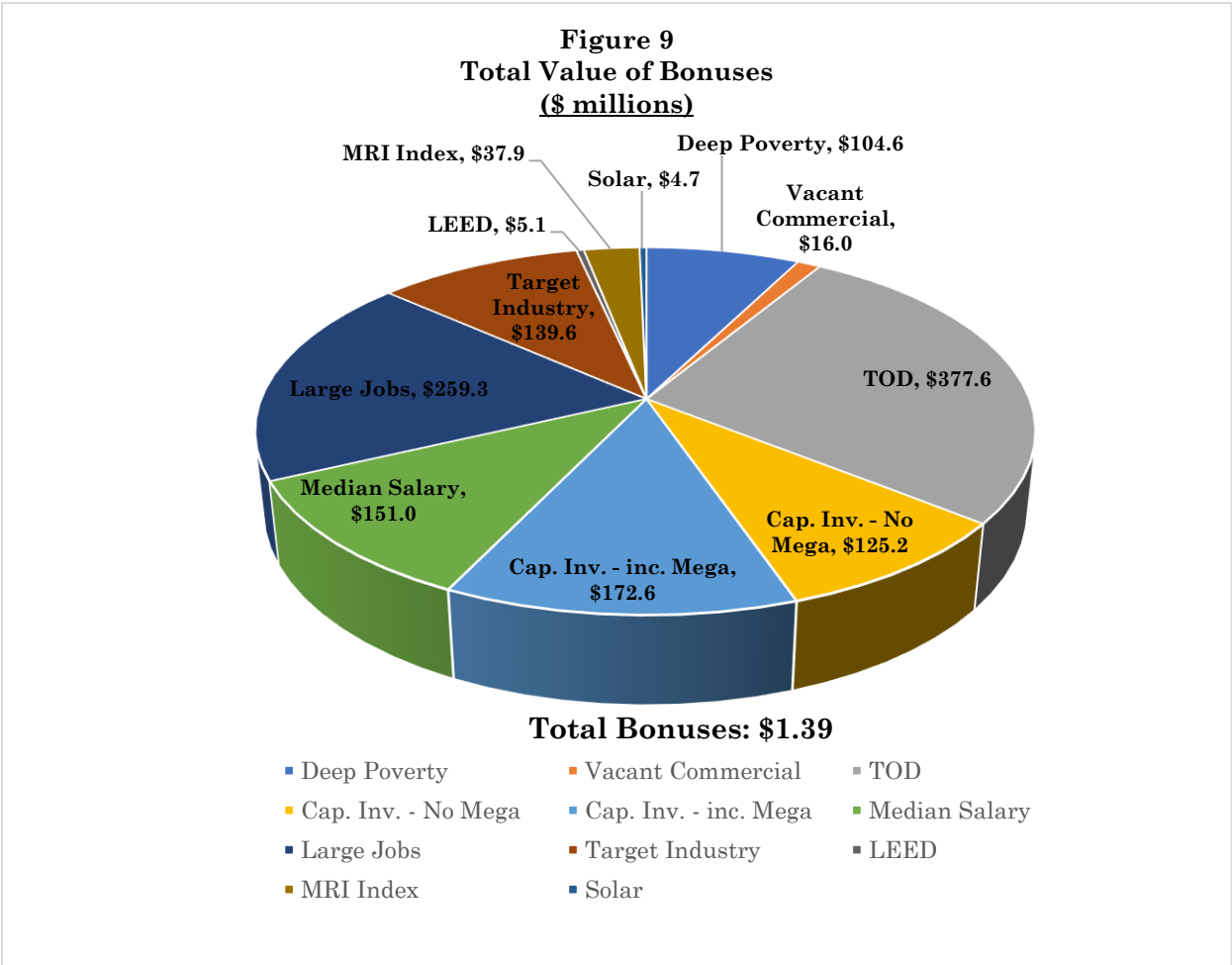Figure 9 provides the total cost of each bonus category. In all, the share of total awards of $3.1 billion accounted for by bonuses is approximately $1.39 billion, or approximately 45%, with the bonus share of any individual award ranging from as low as 6% to as high as 67%, with an average of about 42%. Thus, the bonuses represent a significant addition over and above the initial base amount of the award.

Figure 9
Total Value of Bonuses
($ millions)

Deep Poverty, $104.6
Vacant Commercial, $16.0
MRI Index, $37.9
Solar, $4.7
LEED, $5.1
Target Industry, $139.6
TOD, $377.6
Large Jobs, $259.3
Median Salary, $151.0
Cap. Inv. - inc. Mega, $172.6
Cap. Inv. - No Mega, $125.2

Total Bonuses: $1.39

- Deep Poverty
- Vacant Commercial
- TOD
- Cap. Inv. - No Mega
- Cap. Inv. - inc. Mega
- Median Salary
- Large Jobs
- Target Industry
- LEED
- MRI Index
- Solar

The bonus for transit-oriented development, used by 93 projects (43%), represented the largest share of the total value of bonuses, accounting for $378 million of the $1.38 billion total. The bonus for creating large numbers of jobs (74 projects) accounted for $259.3 million of the total. Other bonuses accounting for large shares of the total bonus amount include those for capital investment in excess of the minimum program requirement ($297.8 million, including Mega projects, or 21% of the total bonuses), for creating and/or retaining jobs with a median salary at or above the county median ($151 million, or 10.8% of the total), and for businesses in target industries ($139.6 million, or 10% of the total).

Figure 10 shows the extent to which each bonus category accounts for the costs of the awards of which it is a part. Table 12 provides aggregate data for each bonus category. The highest shares of total award costs are accounted for by the bonuses for excess capital investment for certain types of industrial sites, which accounts for 35-36% of the value of the awards for which they are used, depending on whether they are Mega projects. The bonus for excess capital investment in Mega projects also represents the highest average bonus per award (an average of $6.9 million for 25 awards). The bonus for transit-oriented development, which accounted for the largest total dollar amount of bonuses, represents 21% of the total dollar amount of the 93 awards to which it applies. Some bonuses representing significant shares of the total dollar amount of bonuses are both relatively widespread in their use and represent relatively smaller shares of the total awards to which they apply. For example, the relatively low bonuses for businesses in target industries ($500 per job) and businesses with average salaries above the county median (starting at $250 per job) are applied to 157 and 97 projects, respectively, but account for only 6% and 8.2%, respectively, of the total dollar amount of those awards.
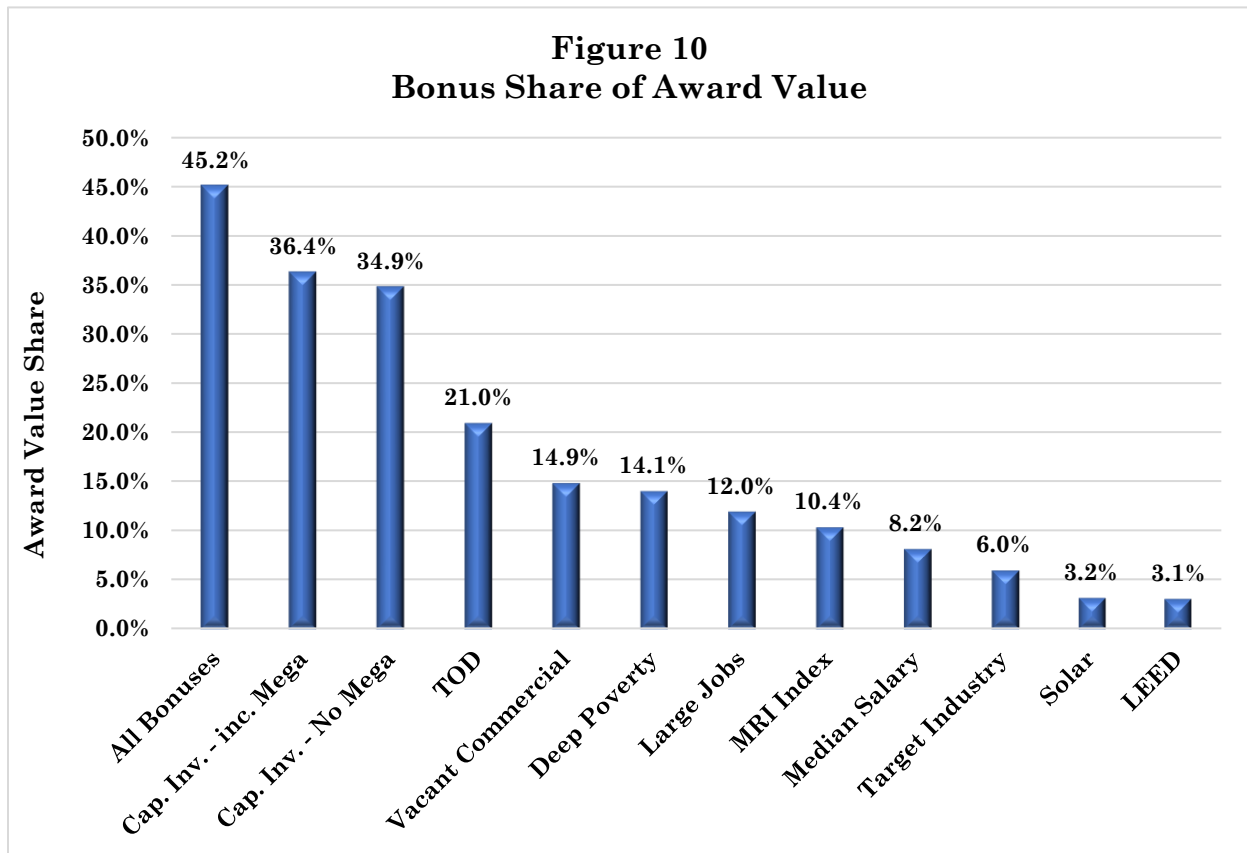

Figure 10
Bonus Share of Award Value

Bonus Type	% of Award Amount	Min	Max	Number of Projects	Bonus Amount	Total Awards
Table 12 Bonus Share of Awards (excludes Camden exceptions)						
All Bonuses	**45.2%**	**0.0%**	**66.7%**	**214**	**$1,394,659,980**	**$3,088,292,985**
Deep Poverty	14.1%	10.0%	23.1%	50	$104,599,206	$743,237,235
Vacant Commercial	14.9%	8.2%	25.0%	5	$15,996,827	$107,183,340
TOD	21.0%	13.3%	40.0%	93	$377,625,090	$1,797,753,495
Cap. Inv. - No Mega	34.9%	24.0%	46.2%	51	$125,238,904	$359,324,540
Cap. Inv. - inc. Mega	36.4%	11.1%	46.5%	25	$172,613,706	$474,333,240
Median Salary	8.2%	1.7%	30.0%	97	$150,960,365	$1,834,549,660
Large Jobs	12.0%	3.9%	31.6%	74	$259,338,660	$2,163,477,505
Target Industry	6.0%	3.3%	14.3%	157	$139,605,397	$2,331,937,730
LEED	3.1%	1.7%	6.7%	11	$5,061,975	$162,447,550
MRI Index	10.4%	6.7%	20.0%	36	$37,862,019	$364,350,195
Solar	3.2%	1.7%	6.7%	9	$4,707,831	$149,173,980
Light Rail	-	-	-	-	-	-
Incubator	-	-	-	-	-	-
Mixed Use	-	-	-	-	-	-

Target-Industry Bonus

The target industry bonus is the most commonly used of the bonus categories, with 157 of 214 projects qualifying. The bonus accounts for $139.6 million, or 6% of the total value of the awards for qualifying projects, which are planned to create and/or retain a total of over 39,000 jobs. Thus, overall, use of the target industry bonus is widespread, but relatively low- cost as a share of the total cost of awards using the bonus. The breakdown of these bonuses by target industry is provided in Table 13.

		Target Industry	Total	New	Retained
Sector	Projects	Bonuses ($)	Awards ($)	Jobs	Jobs
Manufacturing	85	48,964,423	919,345,040	6,648	6,092
Finance	28	47,221,244	840,580,160	8,046	4,683
Technology	15	15,286,095	216,968,190	2,328	1,718
Life Sciences	13	15,156,183	178,372,970	1,198	4,452
Health	7	8,335,271	117,137,230	782	1,617
Logistics	6	2,642,248	31,609,360	165	745
Energy	2	1,649,932	22,849,780	115	443
Transportation	1	350,000	5,075,000	70	0
Total	157	139,605,397	2,331,937,730	19,352	19,750

Table 13
Distribution of Target Industry Bonuses

Over half of the 157 projects qualifying for the target industry bonus are in the manufacturing industry. These projects are intended to create over 6,600 new jobs and account for over $900 million of the total awards. The target industry bonus accounts for approximately 5.3% of the total awards for these projects, again indicating a relatively low- cost means of targeting prioritized industries.

Issue #1: Several bonus categories are seldom or never used.

Table 14 provides a further parsing of bonuses issued by the category of base award, allowing for further examination of the bonus categories. The bonuses available for qualified incubator facilities, mixed-use developments and projects in proximity to light rail stations are excluded as they have not been used.[13] NJEDA should consider whether these bonuses and other never- or seldom-used bonus categories should be revised.

For example, the bonus for on-site solar energy production provides an increase of $250 per new job per year for projects that generate solar energy for use within the project of an amount equal to at least 50% of the project's annual electricity needs. Only nine projects have thus far used this bonus. This may indicate that the 50% threshold is too high to effectively encourage adoption of on-site solar production and that a lower threshold might encourage more widespread adoption. Similarly, the bonus for businesses taking space in large vacant commercial facilities that have been vacant for over one year has only been used by five projects, and NJEDA listed only four such properties on its website as of May 2016 (note that the list is not exhaustive). It is possible that vacant properties smaller than 1million square feet (but still relatively large) might also attract applicants interested in a wider range of possible locations.

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[13] Other newer bonus categories have also not yet been used, but were not part of the analysis.

Table 14
Bonus Categories by Base Award

Base Award	Projects	Deep Poverty Pocket	Transit-Oriented Development	Excess Capex (non-Mega)	High Median Salary	Large #s of Jobs	Target Industry	LEED Silver	Excess Capex (Mega)	High MRI Index in South Jersey	Onsite Solar	Vacant Commer-cial
Distressed Municipality	57	10	7	30	12	12	39	4		21	4	1
GSGZ	28	27	25		13	3	24	1	18	15	3	
HUB	56	11	52	6	41	19	38	5				
Mega Project	15	2	5		7	15	12		7		1	1
Priority Area	58		4	15	24	25	44	1			1	3
Total	**214**	**50**	**93**	**51**	**97**	**74**	**157**	**11**	**25**	**36**	**9**	**5**

Issue #2: Transit-Oriented Development (TOD) Bonus Redundancy

Of 56 projects with a base award for locating in an Urban Transit Hub, 52 of them qualify for the Transit-Oriented Development bonus, which provides an additional $2,000 ($1,000 per retained job in most cases) – or 40% increase in the award – per new job. While there are a few Urban Transit Hub awards that do not qualify for the TOD bonus, the geography of Urban Transit Hub municipalities focuses development in areas that qualify as TOD.[14] The Urban Transit Hub projects with TOD bonuses are approved for awards totaling over $840 million. The TOD bonuses account for approximately $193 million of this total, or about 23%. Similarly, in the Garden State Growth Zones, three out of five of which are also Urban Transit Hub municipalities (Trenton, Camden and Paterson), 25 of the 28 approved GSGZ projects also qualified for the TOD bonus. Of the $367.5 million in approved awards for these projects, $59.3 million, or about 16%, consists of TOD bonuses. This overlap of bonus categories with base awards for Qualified Incentive Areas raises the question of whether the TOD bonus is redundant in these areas, rewarding a decision that is already in most cases a simple fact of locating in either an Urban Transit Hub or GSGZ.

Recommendation: We suggest that NJEDA consider reducing or eliminating this bonus for Urban Transit Hubs and GSGZs. For this and other bonuses, we also recommend that NJEDA consider the possibility of replacing some bonus categories with increases in base awards. Though such an approach might remove emphasis from certain types or areas of development, it could result in more efficient allocations of funds. For example, the TOD bonus used by 93 projects accounts for over $377 million. We estimate that adding $500 to the base award for every project (not including Camden alternatives) would increase total awards by approximately $190 million. Such a shift could serve to broaden the reach of the awards while simplifying the program and reducing overall costs.

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[14] The program rules define transit-oriented development as "a qualified business facility located within a 1/2-mile radius, or one-mile radius for projects located in a Garden State Growth Zone, surrounding the mid-point of a New Jersey Transit Corporation, Port Authority Transit Corporation, or Port Authority Trans-Hudson Corporation rail, bus, or ferry station platform area, including all light rail stations. For the purposes of determining the transit project bonus pursuant to N.J.A.C. 19:31-8.8(c)4, a bus station platform is a terminal as listed on the EDA's website at www.njeda.com."

Issue #3: Large Job Creators Bonus Redundancy

The bonus to firms creating and/or retaining at least 250 jobs is somewhat redundant for Mega Projects and to some degree for other projects as well. [As of January 2018, EDA no longer accepts applications for businesses under the Mega project designation; however, we note its overlap with the bonus for large employers to illustrate possible cost redundancies.] The value of the bonus ranges from $500 to $1,500 per job, depending on the number of jobs created/retained. This bonus was applied for all 16 Mega projects included in this review, accounting for approximately $103.8 million of the total awards of $838.5 million approved for these projects. In most cases, the Mega project base award was available to firms in certain industries locating in certain areas that are required to create/retain a minimum of 250, or in some cases 1,000 jobs, as well as meeting certain capital investment requirements.[15] Because the designation of a Mega project already in some cases carries with it a higher base award than would otherwise have been available based on capital investment and employment requirements,[16] the additional bonus for creating large numbers of jobs at least in part rewards firms for meeting criteria that had already been rewarded as part of the Mega Project base award. In a broader sense, there is some redundancy in this bonus category itself. As awards are calculated on a per-job basis, there is already a significant financial incentive for those firms that create large numbers of jobs. Further, because the bonus is applied for *all* jobs created by a project, rather than for the additional jobs created above each threshold, the addition of a single job can significantly increase the cost of the award. For example, a project creating 250 new jobs would not qualify for the bonus at all, but would receive a $500 bonus for *each* job annually if it created one more job – a total of $125,500 per year. Similarly, under the current structure a project creating 1,000 new jobs would be eligible for a bonus of $1,250 per job for a total of $1.25 million; by adding one additional job, the per-job award would increase to $1,500, resulting in a total bonus of $1.5 million – an additional award of $251,500 annually.

Recommendation: While the Mega project designation no longer exists, this bonus still contains some redundancy in costs for other project types as well. We recommend that EDA consider eliminating this bonus or revising it to apply the per-job bonuses only to the marginal jobs created in excess of each threshold.

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[15] For projects located in certain areas of Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Ocean or Salem counties and meeting certain capital investment requirements, the minimum employment is 150 jobs for classification as a Mega Project. The four approved Mega Projects in those counties all qualify with at least 250 jobs.

[16] For some Mega project designations, such as those located in Urban Transit Hubs, the base award would be the same whether the project met the Mega requirements or not.

Issue #4: Deep Poverty Pocket Redundancy

The $1,500 per-job bonus for locating in a Deep Poverty Pocket or Choice Neighborhood Transformation area is part of 52 awards, including 27 of 28 GSGZ awards. For these 27 awards, the bonus accounts for $245.2 million of $417.1 million in total awards, or about 59%. As in the case of the TOD bonus, this overlap between the base award location and that of the bonus category suggests that there is some redundancy in the bonus for these areas. However, the bonus may be incentivizing location in these particular tracts as opposed to other areas of these cities. We note that of 24 Census tracts in Trenton, 19 qualify, as do 12 of 14 in Passaic, 25 of 33 in Paterson, all 17 in Camden and 13 of 14 in Atlantic City.

Recommendation: We recommend that NJEDA examine in more depth whether this bonus is influencing site selection within the GSGZs.

Issue #5: MRI data needs updating

To date, the program has relied on Municipal Revitalization Index values calculated using 2007 data.

Recommendation: This index has recently been reformulated and updated by the New Jersey Department of Community Affairs and the more current values should be used in determining eligibility for this bonus in the future.

SUMMARY

This section explores the use of the benefit-cost test in the Grow NJ award evaluations. A more detailed and technical discussion of the benefit-cost test can be found in Appendix V. Findings in reviewing the benefit-cost test include:

- A benefit-cost ratio higher than 1.1 would reflect the element of uncertainty regarding the role of the award in the retention or attraction of any given firm and could potentially reduce the number of approved awards or require a reduction in the size of many awards relative to the projects' projected benefits.

- Benefit-cost ratios for the 227 projects considered in this report range from 1.0 to as high as 26.9. The average benefit-cost ratio for all projects is approximately 5.9; the cumulative average (weighted by award size) is 2.5, but rises to 5.4 when the Camden alternatives are excluded from the calculation (the arithmetic average is only slightly higher at 6.1).

- A number of revisions to the benefit-cost methodology have already been adopted by NJEDA in order to make the calculated benefit-cost ratios more accurate, and in most cases, more conservative. A series of further technical revisions are recommended for the benefit-cost model that have a variety of potential effects on calculated benefits.

- Further research is suggested to provide an empirical comparison between benefit-cost models, across regions and job types, in order to identify how raising the benefit-cost threshold would affect past and future awards.

The EOA legislation directs NJEDA to use a benefit-cost test to determine whether applicants qualify for Grow NJ awards. The test compares the benefits of the award – measured in terms of the state and local tax revenues associated with both the project's initial capital expenditures and with the firm's operations – with the costs – the dollar value of the tax credits granted to the applicant. Benefit-cost analysis is a useful tool both for organizing and categorizing the types of benefits and costs that might arise over time in relation to a proposed expenditure, and for estimating the magnitude of those benefits and costs. Benefit-cost models can play an important role in evaluating projects such as those implemented under Grown NJ and ERG, helping to understand how different benefits and costs accrue over time. At the same time, the results of such models are highly sensitive both to their own underlying structure and parameters, and to the model inputs used to analyze a given project or other initiative. In addition, the context in which the results – in terms of a net benefit or benefit-cost ratio – of a benefit-cost analysis are interpreted should be carefully considered as part of the decision-making process.

In this section, we first discuss the overall benefit-cost framework used in assessing Grow New Jersey awards. In particular, we examine the benefit-cost thresholds that projects are required to meet in order to be approved. We then highlight several model revisions adopted by EDA, as well as additional issues regarding model inputs and parameters that require further attention. Appendix V examines in detail the parameters and inputs used in measuring the benefits and costs of proposed Grow NJ projects and the effect of certain changes, some of which have already been adopted, on benefit-cost calculations. Careful examinations of the benefit-cost calculations for several awards are presented to highlight the impact of the various parameters and changes on the benefit-cost calculus.

Benefit-Cost Analysis Thresholds

A key question surrounding location incentives like Grow NJ is whether they actually affect firm behavior, or whether they may reward decisions that firms would have made even in the absence of the incentive. There is a wealth of academic literature examining this question and supporting both sides of the issue. We do not seek here to provide a definitive answer; however, we do suggest an approach for considering the benefits and costs of the Grow New Jersey awards that accounts for the uncertainty surrounding the effect of incentives on firm behavior.

In a 2015 paper, Duanjie Chen of the University of Calgary, citing Sebastian James of The World Bank, provides a set of metrics for codifying the extent to which tax incentives have influenced firm behavior. These include:

- "Redundancy ratio: the amount of investment that is within the TIP [Tax Incentive Program] target *but* would be in place even without the TIP, as a share of the total investment within the target of TIP."

- "Displacement share: a 'net addition' of investment within the TIP target (e.g., the targeted geographic area, or business line, or capital size, or investor's nationality, etc.) may include a relocation (i.e., displacement) of existing capital from outside of the TIP target; such a net addition within the TIP target represents a "washout" within the overall economy and a sure loss in both economic efficiency and government revenue. This displacement effect should be measured as a share of the additional investment truly attributable to the TIP. A high displacement share indicates a great efficiency and revenue loss; and vice versa.

While in practice it is not necessarily possible to measure these indicators directly, they do provide a helpful framework for considering the costs of incentives.

As previously noted, Grow NJ applicants are initially required to demonstrate that there is a cost differential between the proposed New Jersey site and an alternative project site outside the state. The Grow NJ program further requires the CEOs of companies receiving Grow NJ credits to attest that credits constitute a material factor in the company's

decision. However, even with this provision and a demonstrated cost differential, it would still be prudent for the benefit-cost evaluation structure to reflect the possibility that not all economic activity associated with the awards is necessarily a direct product thereof. The current benefit-cost parameters for the program do not embody this possibility.

Under the Economic Opportunity Act of 2013, the current analytical framework for Grow NJ requires that the ratio of benefits to costs for proposed awards be at least 1.1 (110%) for most awards (or 1.0 (100%) in the case of Garden State Growth Zone awards). Benefits consist of corporate business taxes, income taxes to be paid by the workers in the new and retained jobs, and local property taxes, as well as the income taxes and sales taxes generated indirectly via the economic ripple or "multiplier" effects of the awardees' operations. While this standard – a benefit-cost ratio of (or 1.0 for GSGZs) does require the calculated benefits – in terms of state and local tax revenue – to exceed (or equal) the cost of the credits for a given project, it *effectively assumes very low* redundancy ratios and displacement shares. In other words, these benefit-cost thresholds assume that all or nearly all (91%, or 100% for GSGZs) economic activity associated with these projects would not have occurred in the state were it not for the awards.

Considered from this perspective, a higher benefit-cost ratio would reflect an element of uncertainty regarding the role of the award in the retention or attraction of a given firm. For example, with a benefit-cost threshold of 2.0, even if only 50% of a given firm's benefits were attributable to the effect of the award, it would still pass the benefit-cost test. Similarly, with a threshold of 5.0, one could state that even if only 20% of the benefits were attributable to the award, it would still pass the test. While in reality it is not possible to attribute a given percentage of the benefits to the award, such an approach - which would in practice reduce the number of approved awards, or alternatively, require a reduction in the size of many awards relative to the projects' projected benefits – would reflect the uncertainty surrounding the attribution of benefits to the awards.

Benefit-cost ratios for the 227 projects considered in this report range from 1.0 (100%) to as high as 26.9 (2,687%). The (arithmetic) average benefit-cost ratio for all projects is approximately 5.9; the cumulative average (weighted by award size) is approximately 2.5, but is approximately 5.4 when the Camden alternatives are excluded from the calculation (the arithmetic average is only slightly higher at 6.1). This difference results from the relatively high value of the 13 Camden alternative awards ($1.3 billion in total) and their relatively low benefit-cost ratios, ranging from 1.0 to 2.4 with a weighted average of 1.4.

The distribution of projects by benefit-cost ratio is shown in Figure 11. Table 15 provides the distributions of benefit-cost ratios for all projects, as well as separate distributions for projects creating only new jobs and those with retained jobs in the state. There are 19 projects with benefit-cost ratios between the minimum of 1.0 and 1.15 (one standard deviation below the average), including six Camden alternatives. These 19 projects with the lowest ratios account for just under $873 million in credits and are projected to have an aggregate net benefit (i.e., net of awards) of $46.5 million over ten years. The awards for some of these projects were limited to an amount less than the per-job calculation in order to comply with the requirement of a minimum 1.1 benefit-cost ratio.

Figure 11
Distribution of Benefit-Cost Ratios
(All Projects)
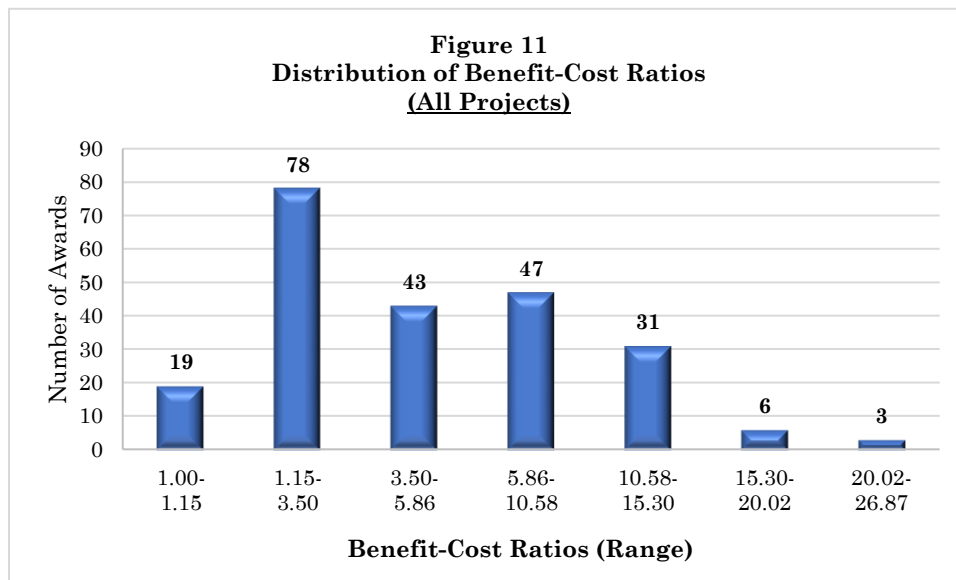
As shown in Table 15, the benefit-cost ratios for projects creating only new jobs tend to be lower than those for in-state moves that include retained jobs. The average (mean) for projects creating only new jobs is 4.5, vs. 6.85 for in-state moves. This in part reflects several in-state projects with very high ratios.

Table 15
Distribution of Benefit-Cost Ratios

All Projects (227)		New Jobs Only (95)		New & Retained (132)	
Cutoff	*Frequency*	*Cutoff*	*Frequency*	*Cutoff*	*Frequency*
1.15	19	1.15	11	1.64	17
3.50	78	2.73	24	4.25	39
5.86 (mean)	43	4.50 (mean)	25	6.85 (mean)	20
10.58	47	8.03	21	12.05	34
15.30	31	11.57	8	17.25	18
20.02	6	15.11	5	22.46	2
26.87	3	15.59	1	26.87	2

There are 140 projects with benefit-cost ratios at or below the average of 5.9. These projects have been approved for awards totaling approximately $3.4 billion. The 87 projects with benefit-cost ratios at or above the average have total awards of approximately $1.04 billion. Thus, for example, if a higher benefit-cost threshold of 6.0 were required, either the 140 projects below that threshold would not qualify for the program, or their total costs would need to be reduced by approximately $2 billion in order to reach that threshold. Some awards with benefit-cost ratios of 1.1 had already been limited in a similar way. That is, their calculated net benefits did not exceed their calculated awards by a sufficient amount to achieve the required 1.1 ratio, and awards for nine projects (non-Camden exceptions) were thus reduced by an aggregate total of $12.5 million in order for them to achieve the requisite 1.1 benefit- cost ratio. Table 16 shows the number of projects that would require a reduction in their award in and the total dollar reduction in awards that would be necessary for all projects to pass the benefit-cost test given higher qualifying thresholds under the current benefit calculation methodology.

Table 16		
Award Reductions for Higher Benefit-Cost Thresholds		
Benefit-Cost Ratio Threshold	**Number of Projects**	**Total Award Reduction**
2	51	$0.57 billion
3	79	$1.06 billion
4	111	$1.32 billion
5	132	$1.73 billion
6	140	$1.99 billion

As noted above, a benefit-cost threshold of 1.0 assumes that all direct and indirect economic activity associated with the project is attributable to the receipt of the tax credit, and would not have occurred but for the credit. By the same token, in the case of the maximum benefit-cost ratio of 26.9 (assuming for purposes of the example that this is a

correct calculation), even if only 4.1% of the benefits were attributable to the incentive, the project would still pass the 1.1 benefit-cost threshold (1.1 / 26.9= .0409) for regular awards and would need only 3.7% of its benefits to be realized to pass the 1.0 threshold for GSGZs. Similarly, a project with a benefit-cost ratio of 2.0 passes the 1.1 benefit-cost threshold even if only 55% of its benefits are attributable to the award.

Recommendation: Given the uncertainty inherent to the benefit calculations themselves (i.e., the calculations are based on estimates of average salaries, tax rates, corporate and other expenditures *and* the estimated indirect multiplier effects of these expenditures), as well as the uncertainty regarding the effect of incentives on firm decisions, we recommend considering a higher benefit-cost threshold that reflects the possibility that firm decisions are not necessarily wholly predicated on receipt of the credits – i.e., that there is some possibility that the benefits would have occurred even in the absence of the award. A higher benefit-cost threshold would require that the proposed project demonstrate significant benefits relative to the calculated award, and would effectively lower the cap on award size for those applicants for which the calculated benefits are not significant relative to the calculated award.

Technical Parameters and Inputs for Benefit-Cost Analyses

In considering a framework for the use of benefit-cost analysis in evaluating Grow NJ project proposals, it is important to examine the technical parameters used in the benefit-cost analyses used for project approvals to date and for those in the future, in order to ensure that, whatever the thresholds set for project approval, the benefit-cost ratios calculations are conducted using proper approaches and assumptions.

We have previously submitted, under separate cover, a draft memorandum outlining several recommendations for revisions to the parameters used in the benefit-cost analyses. The memorandum and these recommendations comprise a part of this analysis and the original draft memorandum is attached as Appendix IV. Since submission of that memorandum, further review and analysis has indicated several additional areas of concern in the model's parameters and its use. Here, we summarize the recommendations set forth in the original memorandum, and list several other general recommendations for revisions to the benefit-cost analysis methodology. A detailed discussion of these recommendations and their potential effect on the results of benefit-cost analyses are provided in Appendix V.

The recommendations in the original memorandum that were <u>adopted</u> by NJEDA include:

- Limiting the benefit calculation to a 15-year horizon, to align with the statutory requirement that firms receiving Grown NJ awards remain in the state for 15 years. The previous approach calculated the stream of benefits over a period up to 35 years. The new approach allows only the additional property taxes associated with the capital improvements to be included in the benefits stream after the fifteenth year. An analysis of eleven projects provided by

Jones Lang LaSalle found that this change reduced total estimated benefits by between 17% and 45% (Table 17). Note that these percentages do not represent reductions that would have been made in Grow NJ awards. Rather, they would be reductions in the estimated economic benefits, used in the benefit-cost analysis, of the firms' activity in New Jersey. According to JLL, in most cases, these reductions in the state benefit calculation would not alone have been sufficient to have required a reduction in firms' awards in order to meet the required 1.1 benefit-cost threshold.

Table 17 Reductions in Calculated State Economic Benefits due to Change in Term of Benefit Calculation		
	Benefit Reduction	
Project	$	%
Metro	-21,231,343	-17.1%
Jackson	-5,417,963	-19.9%
Stay Fresh	-4,090,605	-19.3%
Spirit	-2,087,882	-17.2%
Rubber	-1,780,440	-19.8%
Plastics	-2,292,018	-35.6%
Accurate	-37,397,502	-34.2%
LBU	-6,205,091	-39.3%
Manhattan	-5,837,839	-19.4%
Super Flex	-5,215,434	-19.8%
Amerinox	-5,628,532	-44.8%

- Determining gross income tax rates on direct and indirect jobs using a formula that takes into account estimated salaries and data on the distribution of filers across status and income groups. This results in more precise estimates of the GIT benefits relative to the effective rate of 4% previously used. A review of several projects with benefits calculated under the revised approach indicate effective income tax rates of between 1.9% and 3.2%. In the case of projects with higher estimated average salaries (over $90,000 for single filers and over $170,000 for married filers), under current New Jersey income tax rates the 4% effective rate would have underestimated the GIT portion of the benefit calculation. In addition to this change, NJEDA also incorporated New Jersey's Earned Income Tax Credit into the GIT calculation, adding further precision.

Recommendations not adopted include:

- Discounting the cost side of the benefit-cost calculation. Benefit-cost analyses use discounting to put present and future costs into a common metric of present value. Adopting this change would actually serve to *increase* the calculated benefit-cost ratio for any given project by discounting the stream of costs (i.e.,

the tax expenditure associated with the credit) over the 10-year period of the award. Generally, this approach would *decrease* the net present value of the cost of a given award by approximately 26%. In order to maintain a conservative approach to the calculation of benefit-cost ratios, NJEDA has opted to continue using the full (i.e., undiscounted) value of costs in its calculations.

- Adoption of an alternative discount rate reflecting the current cost of capital to the state. The model was amended, however, to reflect a lower real growth rate of 2.25%, rather than the previous 3%.

Based on review of the benefit-cost model, we recommend a number of technical revisions that can, but do not necessarily, have significant effects on the results of benefit-cost analyses for Grow NJ projects. We discuss two of the more potentially impactful of these issues below, with a more thorough discussion of the technical recommendations provided in Appendix V.

Appropriate Inclusion of Property Tax Revenues

Benefits included in the model include local property taxes to be paid on the improvements made to property by the capital expenditures associated with each project. These taxes are usually estimated at 3% on the value of eligible construction expenditures. Garden State Growth Zones have the option of offering tax exemptions on these improvements. In Camden, Trenton and Passaic, Grow NJ projects are exempt from payment of property taxes on these improvements for the first five years, or in the case of projects designated as Garden State Growth Zone Development Entities, ten years after project completion. In the latter cases, property taxes are then phased in at 10% per year over the subsequent 10-year period (years 11-20). However, we note that, according to the program rules, the benefit-cost analyses for projects in these areas nevertheless include these tax revenues in full in the benefit stream for the entire analysis period. For projects with significant capital expenditures, these estimated revenues can constitute a significant portion of the projected annual benefits even though such benefits are not realized by the state or municipality. A review of a selection of the Camden alternatives shows property taxes accounting for between 15% and 44% of annual project benefits. For those projects with relatively low benefit-cost ratios where these taxes represent a large share of the calculated benefits, their inclusion may have resulted in the benefit-cost threshold of 1.0 being attained when it otherwise would not have been, even when benefits were calculated over a 35-year period in cases prior to the adoption of the revised modeling parameters.

Recommendation: We recommend that these non-realized tax revenues be excluded from future benefit-cost analyses.

Use of State-Level Multipliers

The calculation of a project's benefits includes tax revenues generated both through the direct activity of the firm (e.g., income taxes paid by the firm's employees), and through the additional indirect economic activity that occurs as a result of the firm's initial operating and capital expenditures. Economic multipliers are tools used to estimate the magnitude of this latter, indirect economic activity that occurs as the result of an initial investment, expenditure or other economic event. The benefit-cost model used by NJEDA was designed using county-level multipliers produced by the U.S. Bureau of Economic Analysis's RIMS II input-output modeling system. The use of county-level multipliers was chosen in order to obtain relatively conservative benefit estimates, given that multipliers for counties tend to be smaller than they are for states. More conservative estimates of indirect economic effects would result in a more rigorous benefit-cost test for Grow NJ applicants. It is true that use of county-level multipliers will generally result in somewhat more conservative estimates of the income taxes calculated on the basis of indirect earnings, and of the sales taxes on business expenditures generated indirectly by the initial business activity. However, due to an incomplete understanding within NJEDA's benefit-cost model of how worker commuting between counties affects the use of multipliers, we suggest that the use of county multipliers in the benefit-cost model contributes to sometimes significant mis-estimation of benefits, including potential over- estimation.

Recommendation: Given this issue as well as other potential issues surrounding the use of county multipliers, we recommend that *state-level* RIMS II multipliers be used instead. We also recommend that some of the benefit calculations be revised to incorporate alternative data in lieu of multipliers. These recommendations for technical revisions to the benefit-cost modeling process are described in Appendix V.

ERG PROGRAM DESCRIPTION

The Economic Redevelopment and Growth (ERG) Program is an incentive that provides gap financing to developers whose development projects are not projected to generate sufficient revenue to service the amount of debt required for completion. Residential and commercial projects are eligible for base awards of tax credits or reimbursement grants of up to 20% of project costs. Mixed-use parking projects are eligible for base award tax credits up to 100% of the parking component of total project costs and up to 40% of the non-parking component. . As with the Grow NJ program, by meeting additional location or project type criteria, residential and commercial projects are eligible for reimbursement or tax credits covering up to an additional 20% of project costs (see sidebar). Credits are allocated over a ten-year period.

New residential projects are required to meet affordable housing requirements, with at least 20% of units reserved for low- or moderate-income households. Similar to Grow NJ projects, commercial ERG projects are required to pass a benefit-cost test based on the revenues the state will realize from the project. The program limits the aggregate total of all residential and mixed- use parking tax credits to $718 million.

To date, NJEDA has approved 38 residential projects totaling $649.1 million in tax credits, 10 commercial projects totaling $340.2 million in grants, and two mixed-use parking projects totaling $34 million in grants.

ANALYSIS OF COMMERCIAL ERG AWARDS

Ten commercial ERG awards were approved between 2014 and 2017. These awards are widely distributed geographically (see Figure 14), with projects in nine municipalities in seven counties.

The distribution of award funds (Figure 15) is more concentrated, as 66% ($223.3 million) of the total $340.2 million in total commercial grants are for a single project – the $1.2 billion retail, office and hotel component of a larger mixed-use project in Sayreville, Middlesex County.

ERG ADDITIONAL GRANT FUNDING

*Additional Grant Funding:

EDA will analyze the developer's financing structure to verify a "gap" or financial need. This review may result in assistance of up to 20% of the total eligible costs, and up to 40% if the following criteria are evidenced:

1. Up to an additional 20% (i.e., a total maximum of up to 40%) if located in a one of the five Garden State Growth Zones Atlantic City, Camden, Trenton, Paterson, and Passaic)("GSGZ")

2. Up to an additional 10% (i.e., a total maximum of up to 30%) if the project is one or more of project types or located in one or more of the locations listed below. (See the Mapping Tool link at the bottom of this page for assistance in determining whether the project address is located in an eligible area.)

- Located in a distressed municipality which lacks adequate access to one of the following:
  - Nutritious food, and will include either a supermarket or grocery store with a minimum of 15,000 square feet of selling space devoted to the sale of consumable products or a prepared food establishment selling only nutritious ready to serve meals
  - Health care and health services and will include a health care and health services center with a minimum of 10,000 square feet of space devoted to the provision of health care and health services
- Transit project
- Qualified residential project with at least 10% of residential units constructed/reserved for moderate income housing.
- Located in a highlands development credit receiving area or redevelopment area
- Disaster recovery project
- Aviation project
- Tourism destination project
- Substantial rehabilitation or renovation of more than 51% of an existing structure(s)

Figure 12
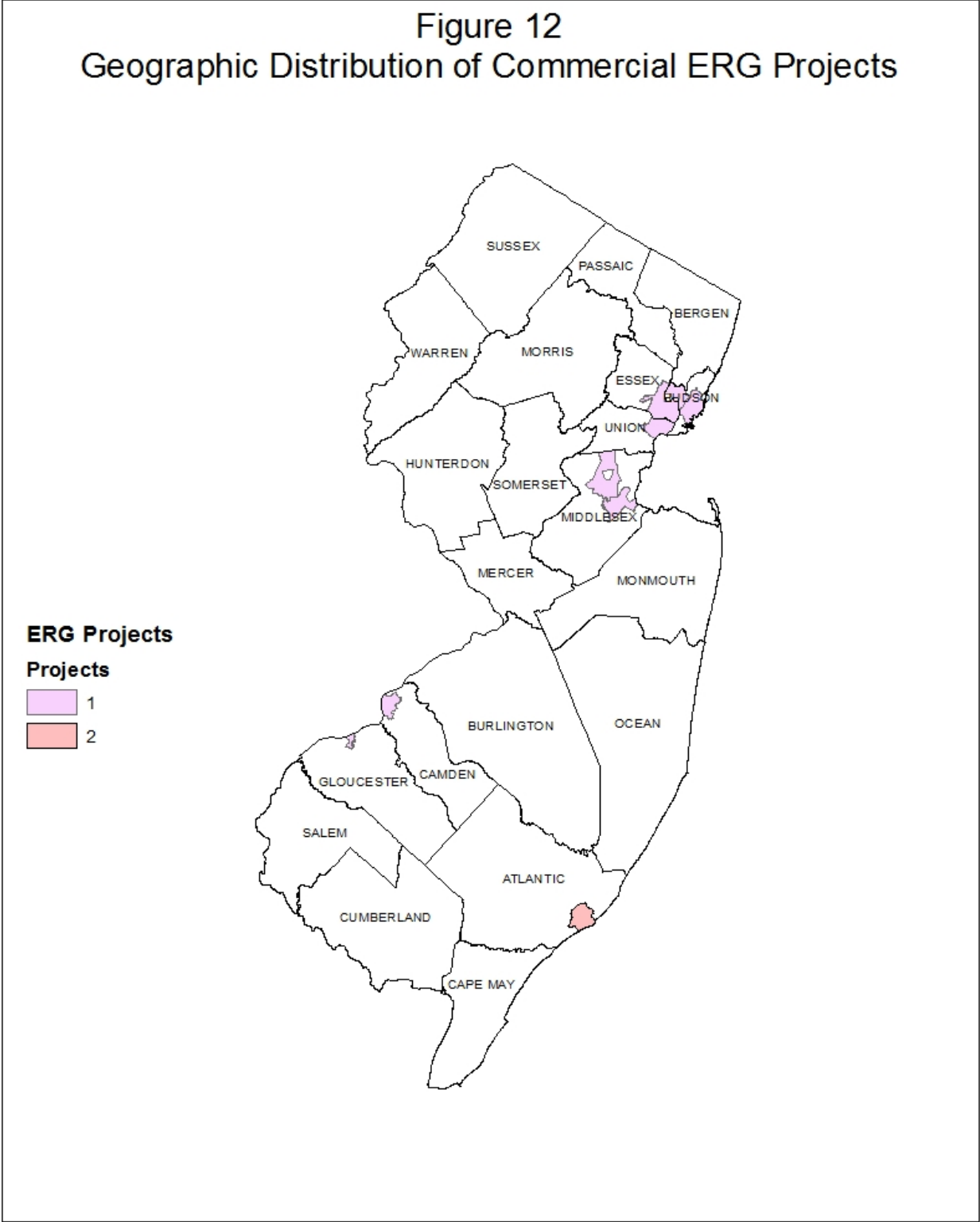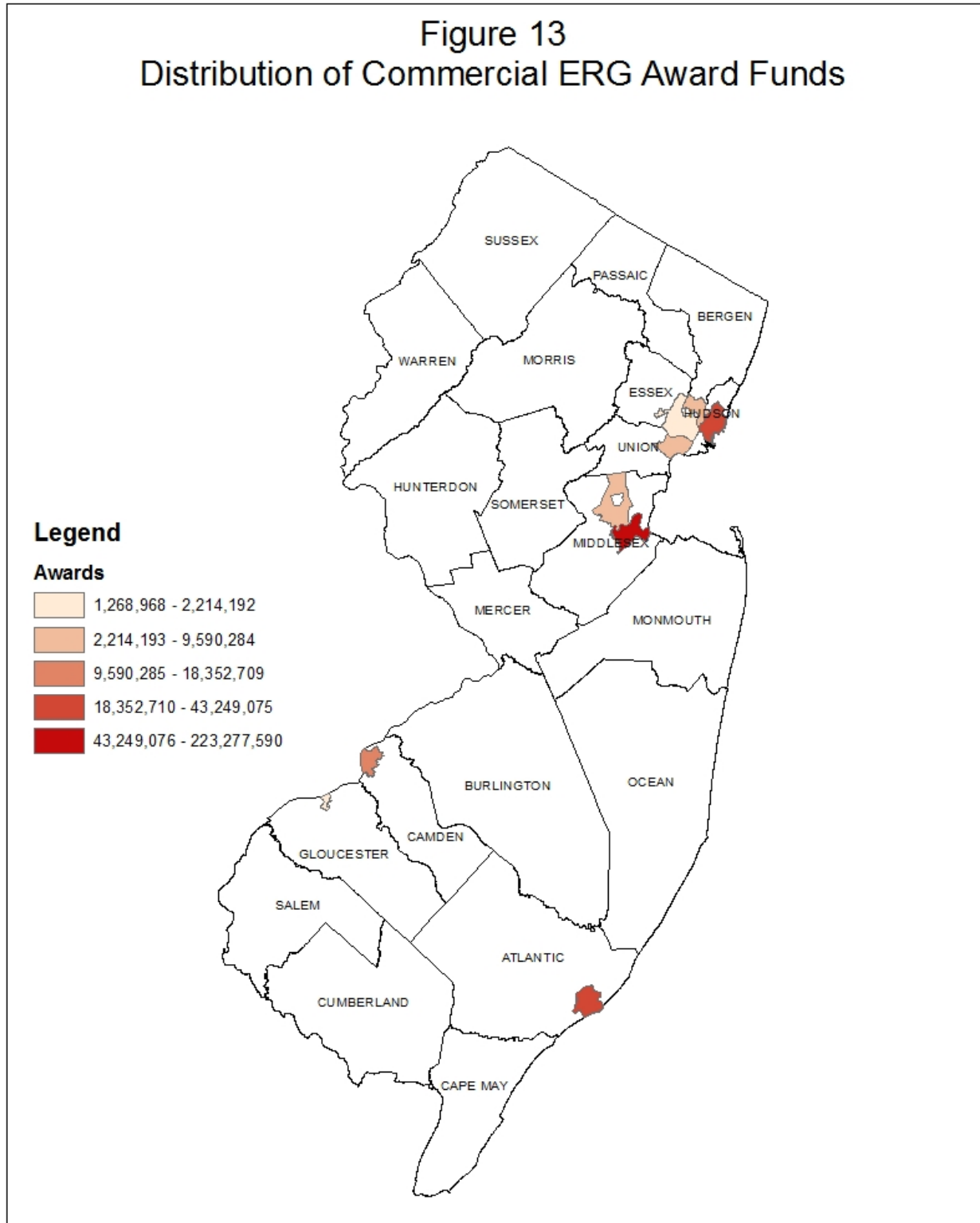Geographic Distribution of Commercial ERG Projects

Figure 13
Distribution of Commercial ERG Award Funds

Legend

Awards

- 1,268,968 - 2,214,192
- 2,214,193 - 9,590,284
- 9,590,285 - 18,352,709
- 18,352,710 - 43,249,075
- 43,249,076 - 223,277,590

Awards for the 10 projects range from $1.3 million to $223.3 million, accounting for between 9.5% and 36.4% of eligible project costs. Overall, the $340.2 million in approved awards account for 20.5% of the total eligible capital investment of $1.66 billion for all ten projects.

	Table 17 Summary of Commercial ERG Awards				
County	Municipality	# of Projects	Total Awards	Eligible Capital Investment	Award Share of Eligible Investment
Atlantic	Atlantic City	2	43,249,075	171,500,000	25.2%
Camden	Camden	1	18,352,709	50,421,000	36.4%
Essex	Newark	1	2,214,192	23,344,425	9.5%
Gloucester	Paulsboro Borough	1	1,268,968	4,595,305	27.6%
Hudson	Jersey City	1	32,900,000	197,422,908	16.7%
	Kearny	1	9,590,284	47,951,422	20.0%
Middlesex	Edison	1	4,579,282	28,840,939	15.9%
	Sayreville	1	223,277,590	1,116,387,952	20.0%
Union	Elizabeth	1	4,794,204	15,980,681	30.0%
Total		**10**	**340,226,304**	**1,656,444,632**	**20.5%**

Bonus Share of Award Costs

Four of the ten awards qualify for bonus funds above the 20% maximum base gap financing award. Two of these projects are in Garden State Growth Zones, with one in Camden receiving the full 20% additional financing available for GSGZs. One project received an additional 10% as a grocery store in a food desert, and one based on substantial rehabilitation. In all, the "bonus" financing for these projects totaled $22.8 million, or 6.7% of total awards. (Total awards as a share of eligible investment are 20.5%, as some projects required less than the full 20% available gap financing.)

Issue #1: Benefit-Cost Framework

Similar to Grow NJ awards, commercial ERG awards are subject to a net benefit test. Projects are required to demonstrate a fiscal net benefit – i.e., that the state revenues derived from the operations of the business receiving the assistance grant will exceed the amount of state assistance provided. Our recommendations for revisions to the calculations used in the benefit-cost model are outlined in the Grow NJ section of this report and apply to the analysis of ERG commercial projects as well.

At the same time, because ERG grants are awarded based on a financing gap, rather than on a per-job basis, the recommendation of a higher benefit-cost threshold does not necessarily apply in the same way as it does for Grow NJ awards. That is, in the case of ERG, it must be explicitly demonstrated that the project cannot proceed due to the financing gap

(rather than that the project is at risk of locating outside the state). As such, the assumed risk that the project would have proceeded even in the absence of the award is not as great. However, commercial projects such as office and retail facilities receiving ERG grants are not necessarily developments that would not have occurred in the state at all. Instead, the ERG grants are intended to facilitate development in locations where projects might otherwise not be realized. In some cases, such projects might still be built in nearby communities not necessarily eligible for ERG assistance if there is sufficient market demand. As such, the net benefits realized to the state for some projects might be realized even in the absence of any public financing. This does not obviate the local need for certain types of projects – e.g., a grocery store in a food desert – or suggest that it is problematic to facilitate projects in areas where they would otherwise not be feasible. However, it does indicate that the metric of net positive benefit *to the state* is not necessarily probative for all projects.

Recommendation: NJEDA should consider additional metrics for evaluating the viability and benefit of commercial ERG projects. While economic impacts (e.g., additional tax revenues) may accrue to the state as a result of such projects, it is not always clear that such projects would not have been pursued elsewhere in the state in the absence of the ERG grant, and the state benefits therefore may not necessarily constitute a net return to the state. This recommendation applies only to the inclusion of state taxes in the calculation of state benefits. Local benefits of such development may still be significant, and reflect the program's central objective of directing investment to areas where it would not otherwise have occurred.

Issue #2: Internal Rates of Return

Project financing gaps are analyzed in part using a hurdle rate model applied to the internal rate of return on the equity portion of a project's financing. While we have not conducted a full accounting analysis of the hurdle rate determinations (i.e., the maximum equity IRR determined by JLL based on project type and locality), we do note that the improvements in IRR resulting from ERG gap financing have a wide range. Differentials run from as low as 1.4 percentage points for a $200 million, 491,000-square-foot retail and office tower in Jersey City to 13 percentage points for a $17 million, 55,000-square-foot grocery store and mixed retail development in Elizabeth (a "food desert" project). All project summaries state that the IRR in the absence of the ERG award would not be sufficient for project completion. However, while the cash flow from the ERG grant would by definition improve the IRR for any given project, it is not clear that very small increases in projected IRR would necessarily significantly change a project's viability.

Recommendation: NJEDA should clarify how the IRR calculation informs the evaluation for each project in terms of the magnitude of the return to the developer and whether the level of increase in IRR conditional on ERG assistance should be considered in project evaluations. The amount of ERG funding available is not dependent on the IRR calculation, but it is not clear from the current analytical framework that the higher IRR that results when ERG is

factored in to a project's financing is either a necessary prerequisite of project completion or necessarily sufficient to satisfy a developer's target rate of return.

Issue #3: Multi-Phase Projects

An issue that has arisen in analyses of projects elsewhere is one that pertains to multi-phase projects. One example was a 1,000-room flagship hotel targeted for city incentives in San Antonio, Texas. The rationale for the incentives was that the hotel was to sit atop a large, new conference center and the market would by nature only otherwise enable hoteliers to commit to two hotels half that size and it would take eight years for the two to come on line. The subsidy would open up the possibility for much larger conferences and, hence, much more tourism over the course of those eight years. Analysis suggested, that the subsidy would pay for itself through the time value of the earlier influx of taxes via tourism. Interestingly, the oral history of the conference center suggest that it too was built with some city funds. And this funding was also justified via tourism, by assuming the existence of a hotel that was sufficiently large to lure to san Antonio large organizations like the American Medical Association, which prefer a single venue in which most of their members can be housed either on top of or immediately adjacent to the event/meeting space. In other words, a sort of circular logic was applied to justify the two projects: Each justified the economic viability of the other. If the hotel had been built first, the city's hotels would have suffered heavy average vacancy rates. Because the conference center was built first, it was unable to capture the large volumes of visitations needed to pay for itself. Each without the other posed a possible economic development failure.

Given the difficulty in assuring funding for all stages of a multi-phase project, how can or should they viably be assessed? Presently NJ Administrative Code §19:31-4.6(a)3 states "For large, multi-phased projects that are built sequentially over time, the EDA shall only evaluate and validate the project financing gap on phases of the project with funding commitments." While this provision limits the gap analysis (and potential award) to project phases with funding commitments, as illustrated in the example above, it is important to consider the inter-dependency of project phases, and to view the economic viability of those phases being considered for ERG assistance in the context of future phases.

N.J.A.C. §19:31-4.3(a)2.ii notes "In the event the project is to be undertaken in phases, a developer may apply for phases for which construction has not yet commenced, subject to N.J.A.C. 19:31-4.6(a)2," which states that "a developer's future expenditures will have to be at least 100 percent of the project costs previously expended as of its application date in order for the Authority to include the costs expended prior to the application date to be included in the project costs." Given the example above, this wording needs clarity and some strengthening.

Under the enabling legislation, ERG apportioned available funding for residential projects as follows:

- $250 million for projects in Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Ocean and Salem Counties
    - $175 million of which was dedicated to residential projects in Garden State Growth Zones or mixed-use parking projects in GSGZs or Urban Transit Hubs in those counties.
    - $75 million of which was dedicated to cities in those counties with a 2007 MRI Index of 400 or higher.
- $250 million for projects:
    - in commuter rail Urban Transit Hubs and GSGZs not in the eight counties listed above;
    - mixed-use parking projects in Urban Transit Hubs and GSGZs not located in those counties. No more than $25 million of that total is to be allocated to mixed use parking projects in an Urban Transit Hub and $25 million is to be allocated to mixed-use parking projects in GSGZs with a population of 125,000 or more and not in the eight counties listed above.
    - Disaster recovery projects not in the eight counties.
    - Residential projects in SDA (Abbott District) municipalities in Hudson County that received Transitional State Aid in fiscal year 2013.
- $87 million for residential projects in distressed municipalities, deep poverty pockets, Highlands development credit or redevelopment areas and mixed use parking projects used by educational institutions and non-profit hospitals.
- $16 million for residential projects in other ERG incentive areas.

The 38 ERG awards for residential projects approved between January 2014 and April 2018 are distributed across 14 municipalities in ten counties and range in size from $2.7 million to $40 million (see Table 18 and Figures 14 and 15). In aggregate the awards account for approximately 29% of eligible capital investment for the projects, with coverage ranging from 18.6% to 100% financing for the $30 million parking lot component of a development in Atlantic City.[17] Eligible capital investment for the 38 residential projects totals $2.25 billion, which are estimated to create 7,814 new residential units, of which 3,743, or 48% are slated to be affordable units.

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[17] We note that there are at least two awards classified under the Residential program that do not create residential units. One is a parking and retail facility related to a dormitory project in Atlantic City. The other is for infrastructure and facilities at Rutgers University.

							Award Share
County	Municipality	# of Projects	Total Awards	Eligible Capital Investment	Residential Units	Affordable Units	of Eligible Investment
Atlantic	Atlantic City	5	113,223,987	260,936,890	798	477	43.4%
Camden	Camden	5	47,776,013	127,490,907	500	240	37.5%
Essex	East Orange	2	11,331,904	37,773,012	190	190	30.0%
	Newark	9	159,378,226	608,172,386	2,363	1,376	25.5%
Gloucester	Glassboro	3	73,021,282	243,404,277	1,371	49	30.0%
Hudson	Jersey City	3	90,065,184	394,261,587	949	294	22.8%
Mercer	Ewing	1	15,767,702	78,838,509	130	26	20.0%
	Trenton	4	36,131,255	99,598,535	845	754	36.3%
Middlesex	New Brunswick	1	40,000,000	142,590,404	207	43	28.1%
	Piscataway	1	25,000,000	134,550,000	-		18.6%
Monmouth	Asbury Park	1	9,558,300	31,861,000	116	23	30.0%
	Keansburg	1	17,022,967	56,743,222	186	112	30.0%
Ocean	Lakewood	1	4,037,434	13,458,114	63	63	30.0%
Union	Elizabeth	1	6,792,937	22,643,123	96	96	30.0%
Total		**38**	**649,107,191**	**2,252,321,966**	**7,814**	**3,743**	**28.9%**

Table 18
Summary of Residential ERG Awards

The highest concentration of residential awards is in Essex County, particularly in the city of Newark, where awards of $159.4 million have been approved for nine projects totaling $608.2 million in eligible capital investment. Atlantic City has five residential projects totaling $113.2 million in ERG credits, and Camden has five projects accounting for $47.8 million in credits. Three projects in Jersey City have qualified for credits totaling $90 million.

Figure 14
Geographic Distribution of ERG Residential Projects

Legend

Projects

- 1
- 2
- 3
- 4 - 5
- 6 - 9
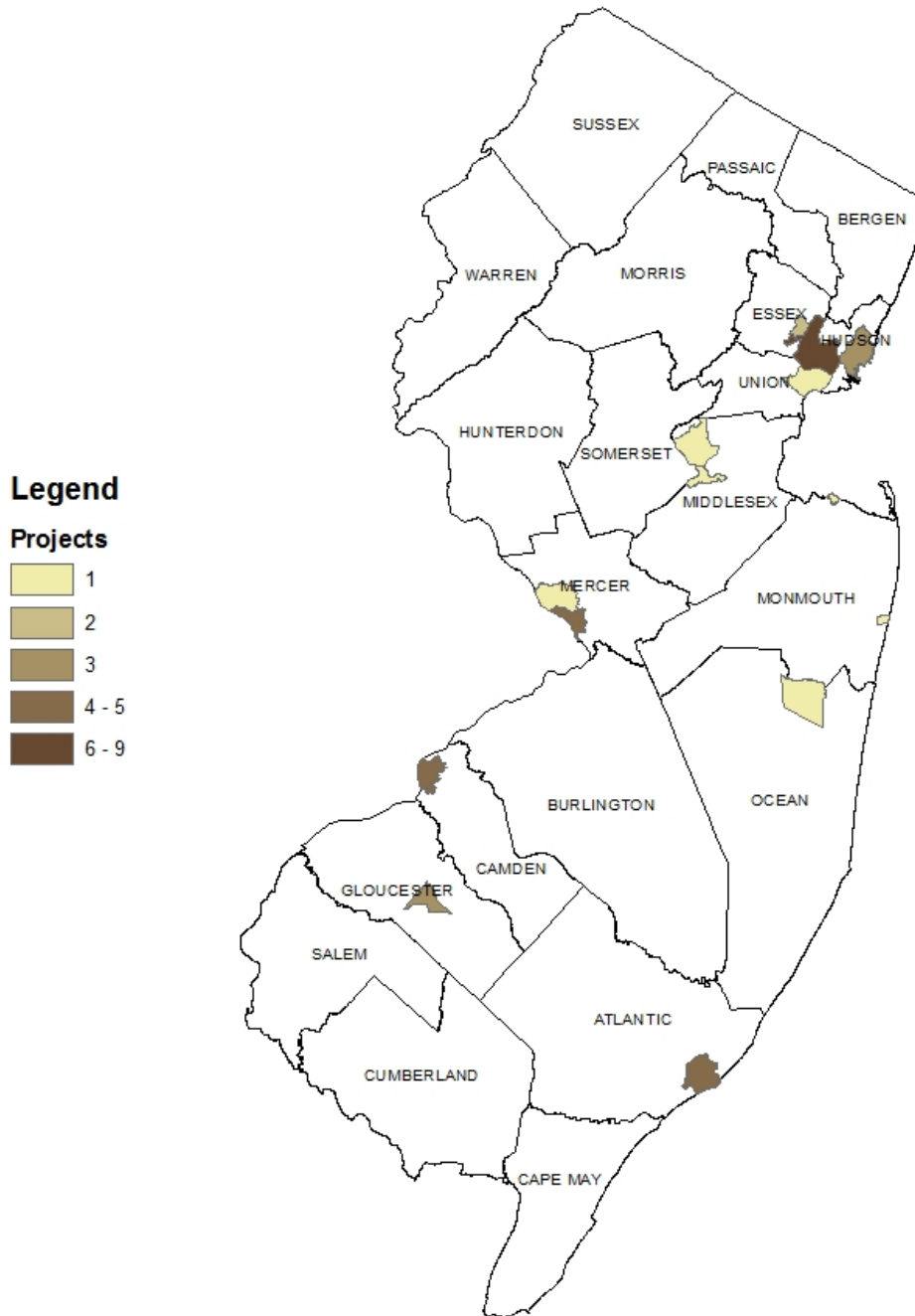
Figure 15
Distribution of ERG Residential Award Funds

Legend

Awards

	4,037,434 - 11,331,904
	11,331,905 - 25,000,000
	25,000,001 - 47,776,013
	47,776,014 - 113,223,987
	113,223,988 - 159,378,226
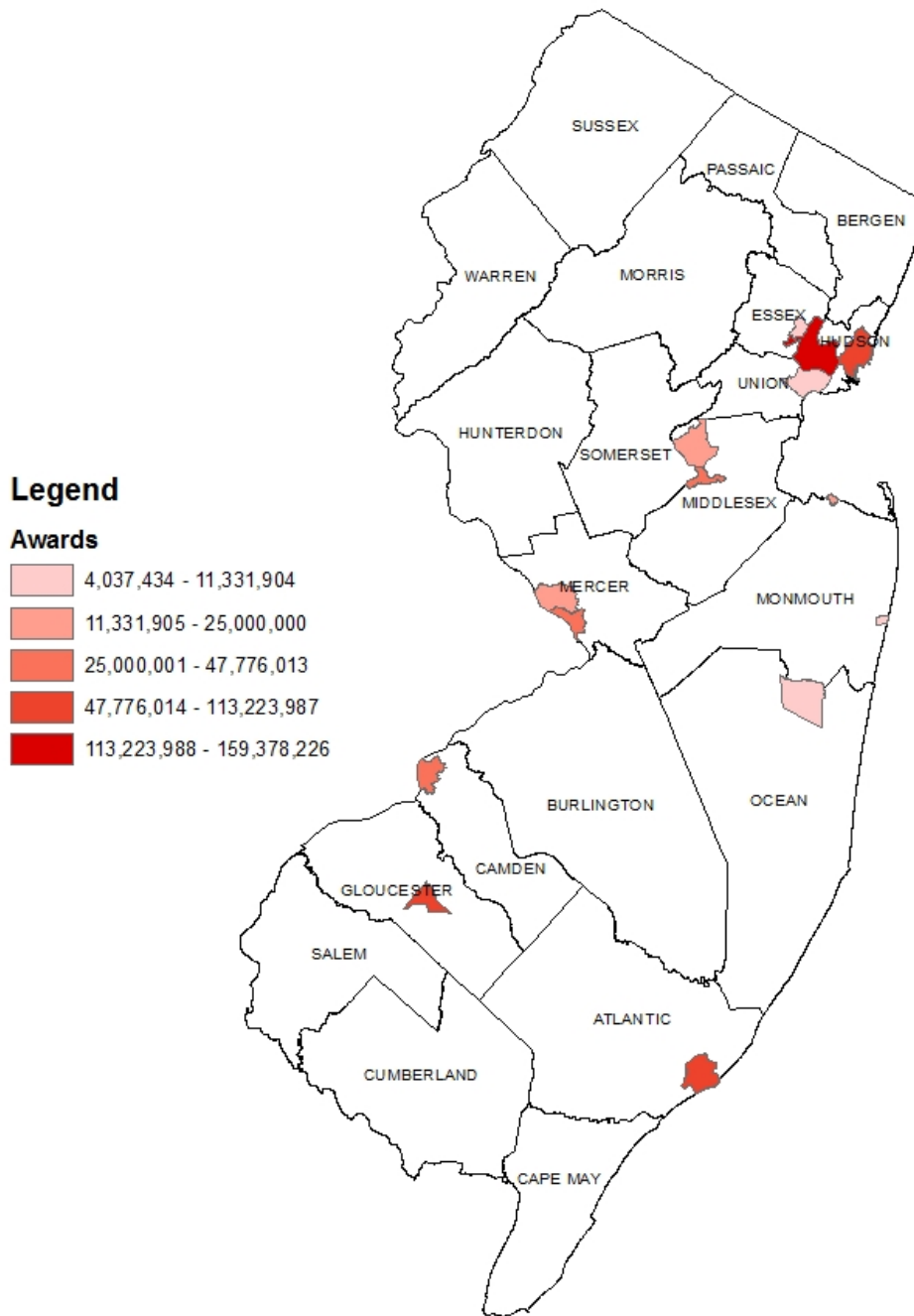
Table 19 lists ERG residential projects for which NJEDA reported issuing credits in 2016. Five completed projects were issued $8 million in credits. These projects account for 739 residential units, of which 288 are affordable. The $8 million in credits for the 5 projects represents about 21.5% of the credits that would be issued annually were all the projects approved by 2016 to reach completion. Many of these may have already been completed and credits issued, though data on certified credits for 2017 is not yet available.

Table 19 ERG Residential Credits Issued in 2016			
Project	**Municipality**	**County**	**Certified Credit Amount**
Broadway Associates 2010 LLC	Camden	Camden	$1,349,166
Washington Street University Housing Urban Renewal Associates, LLC	Newark	Essex	$2,314,247
PRC Campus Centers, LLC	Ewing	Mercer	$1,576,770
Glassboro Mixed-Use Urban Renewal, LLC	Glassboro	Gloucester	$2,204,581
Broadway Housing Partners LLC (1)	Camden	Camden	$611,989
34 Projects			**$8,047,053**

Bonus Share of Total Awards

Under program rules, residential projects are eligible for a base award equivalent to 20% of eligible capital expenditures, plus bonuses allowing for up to an additional 20% (total of 40%) depending on location and the percentage of units reserved for low and moderate-income residents. In contrast to the commercial ERG program, the "bonus" categories for residential projects account for a significant portion of the awarded credits – approximately 33%, or $231.8 million. This is primarily a result of the significant fund allocations to GSGZs, eligible for additional funding of up to 20% of award costs, as well as to the 10% additional funding available for reserving 10% of residential units for low- to moderate-income residents. Approximately half of the additional funding for residential projects is for projects in GSGZs, with the rest attributable to 10% additional financing for affordable housing.

Issue #1: Limited Geographic Distribution

The eight-county region comprising most of southern New Jersey is allocated $250 million. Of that total, however, $175 million is reserved for Garden State Growth Zones and Urban Transit Hubs in those counties. Under this definition, only five cities qualify for access to this $175 million total, with only projects in Camden and Atlantic City receiving awards.[18] Of the remaining $75 million, three projects in Glassboro (Gloucester County) account for $73 million, with an additional $4 million allocated to a project in Lakewood (Ocean County).[19] Excluding the five Urban Transit Hub and GSGZ municipalities, there are 81

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[18] The five cities are Camden, Atlantic City, Salem City, Bridgeton (Cumberland County) and Mount Holly (Burlington County).

[19] The ERG awards for these four projects total $77.06 million, exceeding the original program

municipalities in the eight counties with 2007 MRI ranking of 400 or higher. These municipalities had an aggregate population of over 644,000 in 2010, including seven with populations over 20,000 and one with population over 60,000 (Vineland, 2007 MRI Rank #474). The five GSGZ/UTH cities had total population of 157,000. The allocations for northern New Jersey are similarly explicitly channeled to a limited number of cities (e.g., Newark, Jersey City).

Recommendation: While the geographic distribution objectives for residential ERG awards are largely explicitly embodied in the program funding allocations, and there is an allocation for projects not located in pre-specified municipalities, we observe that the resulting geographic distribution of these funds is limited to a small number of cities. Given the large number of municipalities with high MRI 2007 rankings, including some of significant size, it may make sense to consider strategies that would broaden the geographic reach of the program to employ available funds in other areas that may benefit from residential development.[20] The example of financing allocation approaches used for affordable housing programs can be informative in this regard.

Financing for affordable housing generally includes layered financing from a number of sources, as is the case with most ERG projects. These include federal sources such as Federal Housing Administration insurance, Low Income Housing Tax Credits, HOME Investment Partnerships Program, historic tax credits (can be used for housing), and state and local sources such as subsidies from the New Jersey Housing Mortgage and Finance Agency and the Department of Community Affairs' Balanced Housing Funds. Historically there has been more demand for affordable housing financing than has been available, which has led to the creation of a number of frameworks for determining which projects receive priority for funding. A leading example of this is the Qualified Allocation Plan (QAP) used for the Low Income Housing Tax Credit program.[21] This plan lays out a detailed matrix of criteria for prioritizing projects eligible for the limited supply of LIHTC assistance. Projects are scored and ranked according to numerous parameters that include location, duration of availability of LIHTC-funded units, provision of social services, provision of amenities, level of municipal support, energy efficiency, proximity to certain land uses (grocery stores, pharmacies, etc.), and a wide range of other factors.

While ERG is not exclusively an affordable housing program, we recommend that NJEDA consider adopting a set of guiding criteria for determining residential funding priorities. The QAP can serve as a useful example of a state-specific model for selecting and prioritizing the multiple parameters that NJEDA may determine are germane to its residential project financing objectives.

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allocation of $75 million. It is not clear under which qualifying area Lakewood falls, as its 2007 MRI rank was 298.

[20] As noted earlier, we recommend that the updated 2017 MRI methodology and rankings be employed for future programs, and that the rankings be updated regularly to reflect the relative changes in economies of the state's municipalities.

[21] http://www.state.nj.us/dca/hmfa/developers/credits/allocations/qap.shtml

Issue #2: Inclusion of Non-Residential Awards

As seen in the allocation of ERG funds described above, the residential portion of the program has been used as a vehicle for financing of certain non-residential projects. Notably, this applies to the $25 million allocation for university infrastructure. This allocation is specifically for a tax credit to Rutgers University as part of the $140 million construction of new and renovation of existing athletic training facilities. The findings accompanying the Economic Stimulus Act of 2009 (N.J. Stat. § 52:27D-489b), which created the original ERG program, specifically foresee the use of tax credits to "assist institutions of higher education to develop needed classrooms, laboratories, dormitory rooms and other educational facilities," and amendments made in 2015 add Rutgers as a qualified developer and specify university infrastructure as a qualified category for assistance. While this project and other non-residential projects are thus eligible for residential ERG financing under program rules, their inclusion under the rubric of the residential program is somewhat confusing. Such projects may not necessarily lend themselves to evaluation under the same parameters as residential projects, and their purpose and potential impact are clearly different from that of more typical residential projects.

Recommendation: Future programs should seek to clearly delineate and evaluate projects by type. While the use of an existing funding mechanism such as the residential ERG for non-residential projects is not necessarily problematic, potential differences in evaluation parameters, project goals, economic outcomes and program purposes suggest that a separate classification and/or approach is warranted.

Issue #3: Construction Employment

The original scope of the analysis of ERG projects proposed for this study consisted primarily of assessing the economic impacts of the capital spending associated with selected projects, for comparison to any impacts estimated as part of the benefit-cost model developed by Jones Lange LaSalle. The impact estimates for both ongoing and one-time (capital) expenditures associated with the JLL model have been reviewed in detail in the Grow NJ analysis and accompanying case studies. Here we provide an estimate of the construction jobs (job-years) associated with the total construction spending of all ERG residential projects in aggregate.[22][34] This allows for a comparison of estimated direct construction employment generated by these expenditures with publicly available estimates from NJEDA. For ease of analysis, we exclude the two projects receiving ERG assistance that do not include the construction of residential units; additionally, we consider all capital expenditures for other projects to be for residential development, even in the case of mixed use projects. The aggregate expenditures for these 36 projects total $2.32 billion, with $1.5 billion allocated to construction and site improvements. Using the R/ECON input-output model, we estimate that these

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[22] Construction employment is generally measured in job-years. A job-year is equivalent to one job lasting one year.

expenditures would generate approximately 8,834 job-years. This estimate is approximately 33% higher than NJEDA's estimate of 6,608 jobs for the same projects.

We believe that this discrepancy is attributable to the difference in assumed compensation rates for construction jobs in New Jersey.[23] While the R/ECON model uses an underlying estimate of average compensation (wages + benefits) for all construction jobs (about $92,000), the NJEDA estimate appears to be based on county prevailing wage rates ranging high as $125,000. The approach used by NJEDA – allocating 50% of construction costs to labor, and then dividing by prevailing wage rates – is not unreasonable, but it should be noted that it assumes that the total construction and site improvement costs for the project were estimated assuming that prevailing wage rates will be paid by all contractors.[24]

Issue #4: Affordable Housing – Redundancy/Ambiguity in Program Rules

Among the objectives specified in the findings of the Economic Stimulus Act of 2009 (N.J. Stat. § 52:27D-489b) is the use of tax credits and other public financing mechanisms to "assist the private development of affordable housing." In the case of ERG, this objective is reflected in the additional 10% financing of eligible project costs for "a qualified residential project in which at least 10 percent of the residential units are constructed as and reserved for moderate income housing." At the same time, the program rules cite and stipulate compliance with prior law requiring that residential developments receiving public funds reserve at least 20% of units for low- to moderate-income residents. This would seem to suggest that any project would by definition qualify for the additional funding assistance. It is not clear from the available data whether some projects received this additional funding based on meeting the legislated 20% threshold.

Recommendation: NJEDA should clarify the rules and data reporting regarding the affordable housing requirement. If the development of affordable housing is considered a key objective of the program, additional financing for projects that surpass the minimum 20% requirement would be reasonable stipulation, but it is not clear whether the funding is being allocated in this way.

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[23] EDA uses county level construction compensation estimates, while we have applied a state-wide average to all projects. Any divergence in estimates arising from this difference would be minor.

[24] The allocation of 50% of construction costs to labor is consistent with data for New Jersey reported in the 2012 Economic Census, in which the sum of annual payroll, fringe benefits, and work subcontracted to others for new multi-family housing construction comprise 48% of the value of construction work. We recommend that this figure be re-confirmed as the latest data become available. (The Economic Census is conducted every five years, with data released periodically in the following years. The most recent Economic Census was conducted in 2017.)

APPENDIX I: DEFINITIONS OF BASE AWARD AND BONUS CATEGORIES

The following definitions and explanations are excerpted from the Grow New Jersey Program Rules outlined in the New Jersey Administrative Code (N.J.A.C. 19:31-18.1 through 18.19). Detailed definitions are provided for base award categories (Qualified Incentive Areas), followed by detailed information on bonus categories.

Additional Information on Base Award Categories:

1) "Garden State Growth Zone" or "growth zone" means the four New Jersey cities with the lowest median family income based on the 2009 American Community Survey from the U.S. Census, (Table 708. Household, Family, and Per Capita Income and Individuals, and Families Below Poverty Level by City: 2009); or a municipality which contains a Tourism District as established pursuant to section 5 of P.L. 2011, c. 18 (N.J.S.A. 5:12-219) and regulated by the Casino Reinvestment Development Authority. (N.J.A.C. 19:31-18.2, p. 5.)[25][38]

2) "Mega project" means:

1. A qualified business facility located in a port district housing a business in the logistics, manufacturing, energy, defense, or maritime industries, either: i. Having a capital investment in excess of $ 20,000,000, and at which more than 250 full-time employees of such business are created or retained; or ii. At which more than 1,000 full-time employees of such business are created or retained;

2. A qualified business facility located in an aviation district housing a business in the aviation industry, in a Garden State Growth Zone, or in a priority area housing the United States headquarters and related facilities of an automobile manufacturer, either:

   i. Having a capital investment in excess of $ 20,000,000, and at which more than 250 full-time employees of such business are created or retained; or

   ii. At which more than 1,000 full-time employees of such business are created or retained;

3. A qualified business facility located in an urban transit hub housing a business of any kind, having a capital investment in excess of $ 50,000,000, and at which more than 250 full-time employees of a business are created or retained; Page 6 N.J.A.C. 19:31-18.2

4. A project located in an area designated in need of redevelopment, pursuant to P.L. 1992, c. 79 (N.J.S.A. 40A:12A-1 et seq.), prior to the enactment of P.L. 2014, c. 63, within Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Ocean, or Salem

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[25] The Garden State Growth Zones are Atlantic City, Camden, Passaic, Paterson and Trenton.

counties having capital investment in excess of $ 20,000,000, and at which more than 150 full-time employees of a business are created or retained; or

5. For applications submitted after July 1, 2016, a qualified business facility primarily used by a business principally engaged in research, development, or manufacture of a drug or device, as defined in N.J.S.A. 24:1-1, or primarily used by a business licensed to conduct a clinical laboratory and business facility pursuant to the "New Jersey Clinical Laboratory Improvement Act," P.L. 1975, c. 166 (N.J.S.A. 45:9-42.26 et seq.), either:

   i. Having a capital investment in excess of $ 20,000,000, and at which more than 250 full-time employees of such business are created or retained; or

   ii. At which more than 1,000 full-time employees of such business are created or retained. (N.J.A.C. 19:31-18.2, p. 5-6.)

3) "Urban transit hub municipality" means a municipality that qualifies for State aid pursuant to P.L. 1978, c. 14 (N.J.S.A. 52:27D-17 178 et seq.), or that has continued to be a qualified municipality thereunder pursuant to P.L. 2007, c. 111; and in which 30 percent or more of the value of real property was exempt from local property taxation during tax year 2006. The percentage of exempt property shall be calculated by dividing the total exempt value by the sum of the net valuation that is taxable and that which is tax exempt. (N.J.A.C. 19:31-18.2, p. 9).

The Urban Transit Hub municipalities are:

Municipality	County
Bridgeton City	Cumberland
Camden City	Camden
East Orange City	Essex
Elizabeth City	Union
Hoboken City	Hudson
Jersey City	Hudson
Mount Holly Twp	Burlington
New Brunswick City	Middlesex
Newark City	Essex
Paterson City	Passaic
Salem City	Salem
Trenton City	Mercer
West New York Town	Hudson

4) "Distressed municipality" means a municipality that is qualified to receive assistance under P.L. 1978, c. 14 (N.J.S.A. 52:27D-178 et seq.), a municipality under the supervision of the Local Finance Board pursuant to the provisions of the Local Government Supervision Act (1947), P.L. 1947, c. 151 (N.J.S.A. 52:27BB-1 et seq.), a municipality identified by the Director of the Division of Local Government Services in the Department

of Community Affairs to be facing serious fiscal distress, an SDA municipality, or a municipality in which a major rail station is located. (N.J.A.C. 19:31-18.2, p. 4).

Distressed Municipalities are:

List of Municipalities Meeting NJ Economic Opportunity Act
Definition of Distressed Municipality
Updated 2/16/2017

Municipality	County	Municipality	County
Asbury Park City	Monmouth	Mount Holly Township	Burlington
Atlantic City	Atlantic	Neptune City Borough	Monmouth
Bayonne City	Hudson	Neptune Township	Monmouth
Belleville Township	Essex	New Brunswick City	Middlesex
Bergenfield Borough	Bergen	Newark City	Essex
Bloomfield Township	Essex	North Bergen Township	Hudson
Brick Township	Ocean	Nutley Township	Essex
Bridgeton City	Cumberland	Old Bridge Township	Middlesex
Camden City	Camden	Orange City	Essex
Carteret Borough	Middlesex	Passaic City	Passaic
Clifton City	Passaic	Paterson City	Passaic
East Orange City	Essex	Pemberton Township	Burlington
Elizabeth City	Union	Penns Grove Borough	Salem
Garfield City	Bergen	Pennsauken Township	Camden
Glassboro Borough	Gloucester	Perth Amboy City	Middlesex
Gloucester City	Camden	Phillipsburg Town	Warren
Gloucester Township	Camden	Plainfield City	Union
Hackensack City	Bergen	Pleasantville City	Atlantic
Harrison Town	Hudson	Rahway City	Union
Hillside Township	Union	Roselle Borough	Union
Hoboken City	Hudson	Salem City	Salem
Irvington Township	Essex	Seaside Heights Borough	Ocean
Jersey City	Hudson	Secaucus Town	Hudson
Keansburg Borough	Monmouth	Trenton City	Mercer
Kearny Town	Hudson	Union City	Hudson
Lakewood Township	Ocean	Vineland City	Cumberland
Lindenwold Borough	Camden	Weehawken Township	Hudson
Lodi Borough	Bergen	West New York Town	Hudson
Long Branch City	Monmouth	Willingboro Township	Burlington
Manville Township	Somerset	Winslow Township	Camden
Millville City	Cumberland	Woodbridge Township	Middlesex
Monroe Township	Gloucester	Woodbury City	Gloucester
Montclair Township	Essex		

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5) "Priority area" means the portions of the qualified incentive area that are not located within a distressed municipality and which: are designated pursuant to the State Planning Act, P.L. 1985, c. 398 (N.J.S.A. 52:18A-196 et seq.), as Planning Area 1 (Metropolitan), Planning Area 2 (Suburban), a designated center under the State Development and Redevelopment Plan, or a designated growth center in an endorsed plan until June 30, 2013, or until the State Planning Commission revises and readopts New Jersey's State Strategic Plan and adopts regulations to revise this definition; intersect with portions of a deep poverty pocket, a port district, or were Federally owned land approved for closure under a Federal Commission on Base Realignment and Closure action; are the proposed site of a disaster recovery project, a qualified incubator facility, a highlands development credit receiving area or redevelopment area, a tourism destination project, or transit oriented development; or contain a vacant commercial building having over 400,000 square feet of Page 7 N.J.A.C. 19:31-18.2 office, laboratory, or industrial space available for occupancy for a period of over one year; or a site that has been negatively impacted by the approval of a "qualified business facility," as defined pursuant to section 2 of P.L. 2007, c. 346 (N.J.S.A. 34:1B-208). (N.J.A.C. 19:31-18.2, p. 7).

6) "Other eligible area" means the portions of the qualified incentive area that are not located within a distressed municipality, or the priority area.

Additional Information on Selected Bonus Categories:

1) "Deep poverty pocket" means a population census tract having a poverty level of 20 percent or more, and which is located within the qualified incentive area. (N.J.A.C. 19:31-18.2, p. 3.)

2) "Qualified incubator facility" means a commercial building located within a qualified incentive area: that contains 50,000 or more square feet of office, laboratory, or industrial space; that is located near, and presents opportunities for collaboration with a research institution, teaching hospital, college, or university, which is evidenced by a written agreement that demonstrates this collaboration; and within which, at least 50 percent of the gross leasable area is restricted for use by one or more technology startup companies during the commitment period. The restricted space may be comprised of non-contiguous areas, and its location within the qualified incubator facility may change from time to time. (N.J.A.C. 19:31-18.2, p. 8.)

3) "Transit oriented development" means a qualified business facility located within a 1/2-mile radius, or one-mile radius for projects located in a Garden State Growth Zone, surrounding the mid-point of a New Jersey Transit Corporation, Port Authority Transit Corporation, or Port Authority Trans-Hudson Corporation rail, bus, or ferry station platform area, including all light rail stations. For the purposes of determining the transit

project bonus pursuant to N.J.A.C. 19:31-8.8(c)4, a bus station platform is a terminal as listed on the EDA's website at www.njeda.com. (N.J.A.C. 19:31-18.2, p. 9.)

4) Bonus for excess capital investment (excluding mega projects):
A qualified business facility, other than a mega project or a project in a Garden State Growth Zone, at which the capital investment in industrial premises for industrial use by the business is in excess of the minimum capital investment required for eligibility pursuant to subsection b. of section 3 of P.L. 2011, c. 149 (N.J.S.A. 34:1B-244), an increase of $ 1,000 per year for each additional amount of investment, as measured in square feet of measured gross leasable area, that exceeds the minimum amount required for eligibility by 20 percent, with a maximum increase of $ 3,000 per year. (N.J.A.C. 19:31-18.8, p. 30.)

5) Bonus for excess capital investment (mega projects):
For a mega project or a project located within a Garden State Growth Zone at which the capital investment in industrial premises for industrial use by the business is in excess of the minimum capital investment required for eligibility pursuant to subsection b. of section 3 of P.L. 2011, c. 149 (N.J.S.A. 34:1B-244), an increase of $ 1,000 per year for each additional amount of investment, as measured in square feet of measured gross leasable area, that exceeds the minimum amount by 20 percent, with a maximum increase of $ 5,000 per year. (N.J.A.C. 19:31-18.8, p. 30.)

6) Bonus for median salary in excess of county median:
For a business with new full-time jobs and retained full-time jobs at the project with a median average salary in excess of the existing median average salary for full-time workers residing in the county in which the project is located, or, in the case of a project in a Garden State Growth Zone, a business that employs full-time jobs at the project with a median average salary in excess of the median average salary for full-time workers residing in the Garden State Growth Zone, an increase of $ 250.00 per year during the commitment period for each 35 percent by which the project's average salary levels exceeds the county or Garden State Growth Zone average salary, with a maximum increase of $ 1,500 per year. (N.J.A.C. 19:31-18.8, p. 30.)

7) "Targeted industry" means any industry identified from time to time by the Authority including initially, a transportation, manufacturing, defense, energy, logistics, life sciences, technology, health, and finance business, but excluding a primarily warehouse, distribution, or fulfillment center business. (N.J.A.C. 19:31-18.2, p. 9.)

8) Bonus for locating in municipalities with MRI Index over 465:
"Municipal Revitalization Index" means the 2007 index by the Office for Planning Advocacy within the Department of State measuring or ranking municipal distress. (N.J.A.C. 19:31-18.2, p. 6.). These municipalities are (see http://www.njeda.com/web/pdf/GrowNJ_SouthJersey_MRIIndex.pdf):

List of Municipalities in Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Ocean, and Salem counties with 2007 Municipality Revitalization Index (MRI) greater than 465

MUNICIPALITY	COUNTY	MRI RANK
CAMDEN CITY	CAMDEN	566
WILDWOOD CITY	CAPE MAY	562
SALEM CITY	SALEM	561
ATLANTIC CITY	ATLANTIC	559
ELMER BORO	SALEM	558
PAULSBORO BORO	GLOUCESTER	557
BRIDGETON CITY	CUMBERLAND	553
WESTVILLE BORO	GLOUCESTER	552
WOODLYNNE BORO	CAMDEN	549
PENNS GROVE BORO	SALEM	547
BEVERLY CITY	BURLINGTON	545
CLEMENTON BORO	CAMDEN	544
CARNEYS POINT TWP	SALEM	543
SEASIDE HEIGHTS BORO	OCEAN	542
EGG HARBOR CITY	ATLANTIC	541
AUDUBON PARK BORO	CAMDEN	540
WOODBURY CITY	GLOUCESTER	539
BURLINGTON CITY	BURLINGTON	538
GLOUCESTER CITY	CAMDEN	537
SWEDESBORO BORO	GLOUCESTER	535
WRIGHTSTOWN BORO	BURLINGTON	533
PLEASANTVILLE CITY	ATLANTIC	528
MILLVILLE CITY	CUMBERLAND	526
LINDENWOLD BORO	CAMDEN	525
MAGNOLIA BORO	CAMDEN	524
COMMERCIAL TWP	CUMBERLAND	522
HI-NELLA BORO	CAMDEN	521
WEST WILDWOOD BORO	CAPE MAY	518
BORDENTOWN CITY	BURLINGTON	516
LAUREL SPRINGS BORO	CAMDEN	515
DOWNE TWP	CUMBERLAND	514
WOODBINE BORO	CAPE MAY	513
LAWNSIDE BORO	CAMDEN	511
QUINTON TWP	SALEM	510
NEW HANOVER TWP	BURLINGTON	506
MOUNT HOLLY TWP	BURLINGTON	505
GREENWICH TWP	CUMBERLAND	504
COLLINGSWOOD BORO	CAMDEN	502
BASS RIVER TWP	BURLINGTON	501
NATIONAL PARK BORO	GLOUCESTER	499
OAKLYN BORO	CAMDEN	498

BROOKLAWN BORO	CAMDEN	497
BUENA BORO	ATLANTIC	495
MANNINGTON TWP	SALEM	491
MOUNT EPHRAIM BORO	CAMDEN	486
PITMAN BORO	GLOUCESTER	484
MERCHANTVILLE BORO	CAMDEN	483
PINE HILL BORO	CAMDEN	482
PENNSAUKEN TWP	CAMDEN	481
LAWRENCE TWP	CUMBERLAND	480
RUNNEMEDE BORO	CAMDEN	477
PEMBERTON BORO	BURLINGTON	476
VINELAND CITY	CUMBERLAND	474
CORBIN CITY	ATLANTIC	473
NEWFIELD BORO	GLOUCESTER	472
NORTH WILDWOOD CITY	CAPE MAY	471
CLAYTON BORO	GLOUCESTER	469
GLASSBORO BORO	GLOUCESTER	468
WILDWOOD CREST BORO	CAPE MAY	466

Table A-1
Summary of Grow New Jersey Awards by
County/Municipality

County	Municipality	Number of Projects	Award Amount	New Jobs	Retained Jobs	Total Eligible Capital Investment
Atlantic	Atlantic City	4	55,799,015	385	210	50,810,316
	Galloway Township	1	29,810,000	271	0	26,236,368
Atlantic Total		**5**	**85,609,015**	**656**	**210**	**77,046,684**
Bergen	Carlstadt	1	4,950,000	110	0	1,407,798
	East Rutherford	1	975,000	0	30	5,350,009
	Englewood Cliffs	1	38,000,000	0	1,600	57,074,134
	Mahwah	2	29,056,960	72	403	44,100,000
	Montvale	2	14,513,750	0	751	16,449,195
	Northvale Borough	1	24,650,000	181	318	18,000,000
	Paramus	2	9,243,750	82	329	12,485,000
	Ridgefield Park	1	495,720	102	0	2,580,750
	Rutherford	1	1,625,000	50	0	5,850,000
	Wallington	1	3,000,000	44	112	7,594,680
	Woodcliff Lake	1	7,990,290	265	43	12,659,124
Bergen Total		**14**	**134,500,470**	**906**	**3,586**	**183,550,690**
Burlington	Evesham	1	14,000,000	350	0	1,295,750
	Florence	2	50,282,030	300	641	63,179,354
	Moorestown	1	9,690,000	191	74	5,949,125
Burlington Total		**4**	**73,972,030**	**841**	**715**	**70,424,229**
Camden	Camden	25	1,508,823,520	1,787	3,553	1,462,576,900
	Pennsauken	10	75,887,080	706	712	49,750,793
	Somerdale	1	1,758,500	11	70	1,462,500
	Voorhees	1	850,000	10	20	1,075,000
	Winslow Twp.	2	8,137,500	78	61	12,707,500
Camden Total		**39**	**1,595,456,600**	**2,592**	**4,416**	**1,527,572,693**
Cumberland	Deerfield	1	28,125,000	60	380	25,464,500
	Millville	1	8,126,630	53	87	4,548,950
	Millville City	1	1,600,000	16	0	1,836,800
	Vineland	4	17,069,970	123	322	62,597,228
	Vineland City	2	17,270,000	197	70	13,424,000
Cumberland Total		**9**	**72,191,600**	**449**	**859**	**107,871,478**
Essex	Bloomfield	1	2,346,750	35	0	1,995,340
	Newark	10	183,854,060	1,333	1,714	227,038,782
	Nutley	1	32,217,500	263	0	20,783,088

Essex Total		**12**	**218,418,310**	**1,631**	**1,714**	**249,817,210**
Essex; Passaic	Newark; Clifton	1	18,648,000	150	200	23,221,782
Essex; Passaic Total		**1**	**18,648,000**	**150**	**200**	**23,221,782**
Gloucester	Glassboro	3	21,965,000	201	241	18,042,680
	Logan	1	23,430,000	125	176	55,195,542
	West Deptford	1	3,282,500	36	29	4,060,000
Gloucester Total		**5**	**48,677,500**	**362**	**446**	**77,298,222**
Hudson	Bayonne	3	22,425,000	280	0	20,288,670
	Hoboken	6	163,295,050	1,702	615	105,501,460
	Jersey City	41	953,189,620	9,197	4,164	381,466,550
	Kearny	1	3,195,000	35	72	17,893,638
	North Bergen	1	2,200,000	55	0	645,000
	Secaucus	11	118,158,500	1,102	2,054	141,210,102
Hudson Total		**63**	**1,262,463,170**	**12,371**	**6,905**	**667,005,420**
Mercer	Hamilton	1	3,000,000	50	0	1,046,087
	Lawrence	1	1,900,000	40	0	1,120,540
	Lawrenceville	1	12,894,240	200	228	7,312,500
	Trenton	3	69,930,760	314	294	28,549,682
	West Windsor	4	22,066,500	164	707	22,236,487
Mercer Total		**10**	**109,791,500**	**768**	**1,229**	**60,265,296**
Middlesex	Carteret	3	45,160,000	505	0	44,198,530
	Cranbury	1	2,210,000	34	0	14,500,249
	Edison	1	2,108,710	25	107	1,522,528
	Middlesex	1	1,141,840	0	56	1,142,250
	New Brunswick	1	30,360,000	253	0	17,000,000
	Perth Amboy	1	39,270,000	390	172	116,111,263
	Piscataway	2	58,004,750	1,097	251	46,264,000
	Plainsboro	2	18,980,000	160	602	22,336,919
	Woodbridge	3	25,944,520	375	276	14,708,460
Middlesex Total		**15**	**223,179,820**	**2,839**	**1,464**	**277,784,199**
Middlesex and Somerset	Middlesex and Bridgewater	1	11,486,250	50	241	17,500,000
Middlesex and Somerset Total		**1**	**11,486,250**	**50**	**241**	**17,500,000**
Monmouth	Eatontown	1	2,135,000	36	50	6,400,000
	Holmdel	3	58,028,340	737	706	51,243,824
	Red Bank	1	2,660,000	50	90	3,280,963
Monmouth Total		**5**	**62,823,340**	**823**	**846**	**60,924,787**
Morris	Florham Park	1	2,430,000	45	0	1,314,086
	Hanover	1	40,000,000	900	0	19,413,570
	Madison	1	58,284,000	300	1,019	103,700,000
	Morris	1	2,205,000	41	44	1,479,397
	Parsippany	1	3,120,550	44	123	2,147,510

	Parsippany-Troy Hills	4	21,735,060	177	943	22,841,555
Morris Total		**9**	**127,774,610**	**1,507**	**2,129**	**150,896,118**
Ocean	Brick	1	4,101,250	61	71	2,815,000
	Lakewood	5	49,382,770	454	495	21,069,110
Ocean Total		**6**	**53,484,020**	**515**	**566**	**23,884,110**
Passaic	Clifton	2	20,277,500	153	259	5,950,015
	Passaic	1	10,325,000	70	0	5,856,884
	Paterson	8	116,565,000	292	542	40,584,984
Passaic Total		**11**	**147,167,500**	**515**	**801**	**52,391,883**
Passaic/Essex	Clifton/Nutley	1	16,937,500	271	0	55,158,000
Passaic/Essex Total		**1**	**16,937,500**	**271**	**0**	**55,158,000**
Somerset	Branchburg	1	14,872,500	50	561	24,100,000
	Bridgewater	4	66,922,470	377	2,608	106,479,002
	Franklin	2	5,712,500	59	53	11,363,500
	Somerset	1	2,865,000	35	121	3,000,000
	Warren	1	20,425,000	337	143	26,413,500
Somerset Total		**9**	**110,797,470**	**858**	**3,486**	**171,356,002**
Somerset/Bergen	Branchburg/Teterboro	1	10,254,300	60	464	73,910,484
Somerset/Bergen Total		**1**	**10,254,300**	**60**	**464**	**73,910,484**
Union	Berkeley Heights	1	3,656,000	75	100	1,148,400
	Elizabeth	2	27,000,000	300	0	3,664,999
	Hillside	1	2,600,000	20	25	3,700,000
	Summit	1	3,150,000	45	0	919,800
	Union Township	1	5,475,000	52	115	2,900,000
Union Total		**6**	**41,881,000**	**492**	**240**	**12,333,199**
Warren	Phillipsburg	1	1,050,000	14	0	800,000
Warren Total		**1**	**1,050,000**	**14**	**0**	**800,000**
Grand Total		**227**	**$4,426,564,005**	**28,670**	**30,517**	**$3,941,012,486**

Table A-2
Annual Costs Per New and Retained Job

County/City	Annual Cost Per New Job	Annual Cost Per Retained Job
Atlantic County	**10,367**	**8,381**
Atlantic City	9,922	8,381
Galloway Township	11,000	-
Bergen County	**4,542**	**2,569**
Carlstadt Borough	4,500	-
East Rutherford Borough	-	3,250
Englewood Cliffs	-	2,375
Mahwah Township	12,741	4,934
Montvale Borough	-	1,933
Northvale Borough	7,250	3,625
Paramus Borough	3,750	1,875
Ridgefield Park Village	486	-
Rutherford Borough	3,250	-
Teterboro Borough	-	2,219
Wallington Borough	3,000	1,500
Woodcliff Lake Borough	2,789	1,394
Burlington County	**5,614**	**3,742**
Evesham Township	4,000	-
Florence Township	8,367	3,929
Moorestown Township	4,250	2,125
Camden County	**29,523**	**21,199**
Camden City	39,340	25,678
Pennsauken Township	7,941	2,784
Somerdale Borough	4,500	1,805
Voorhees Township	4,250	2,125
Winslow Township	7,500	3,750
Cumberland County	**7,450**	**4,510**
Deerfield Township	11,250	5,625
Millville City	10,000	3,249
Vineland City	6,188	3,709
Essex County	**9,409**	**3,628**
Bloomfield Township	6,705	-
Newark City	8,919	3,628
Nutley Township	12,250	-
Gloucester County	**7,997**	**4,423**
Glassboro Borough	6,398	3,778
Logan Township	11,000	5,500
West Deptford	6,500	3,250
Hudson County	**8,285**	**3,752**
Bayonne City	8,009	-
Hoboken City	8,734	4,191
Jersey City	8,566	4,221
Kearny Town	4,500	2,250
North Bergen Township	4,000	-
Secaucus Town	5,644	2,724
Mercer County	**7,278**	**3,752**
Hamilton Township	6,000	-
Lawrence Township	4,542	1,708
Trenton City	10,461	12,613
West Windsor Township	5,579	1,827
Middlesex County	**6,789**	**2,298**

Carteret Borough	8,943	-
Cranbury Township	6,500	-
Edison Township	3,500	1,153
Middlesex Borough	-	3,326
New Brunswick City	12,000	-
Perth Amboy City	8,250	4,125
Piscataway Township	4,859	1,875
Plainsboro Township	4,109	2,061
Woodbridge Township	5,887	1,402
Monmouth County	**5,152**	**2,492**
Eatontown Borough	3,500	1,750
Holmdel Township	5,345	2,640
Red Bank Borough	3,500	1,750
Morris County	**4,881**	**2,547**
Florham Park Borough	5,400	-
Hanover Township	4,444	-
Madison Borough	7,200	3,600
Morris Township	3,500	1,750
Parsippany-Troy Hills Township	3,660	1,573
Ocean County	**6,971**	**3,107**
Brick Township	4,250	2,125
Lakewood Township	7,336	3,248
Passaic County	**10,190**	**10,640**
Clifton City	7,760	3,542
Passaic City	14,750	-
Paterson City	13,875	14,031
Somerset County	**5,002**	**1,879**
Branchburg Township	3,221	2,048
Bridgewater Township	5,390	1,789
Franklin Township	5,327	2,052
Warren Township	5,000	2,500
Union County	**7,581**	**1,875**
Berkeley Heights	4,000	656
Elizabeth City	9,000	-
Hillside Township	7,750	3,875
Summit City	7,000	-
Union Township	5,000	2,500
Warren County	**7,500**	**-**
Phillisburg Town	7,500	-

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November 7, 2016

Tim Lizura, President/COO
Maureen Hassett, Senior Vice President, Governance, Communications and Strategic Initiatives
New Jersey Economic Development Authority

Re: Proposed changes to NJEDA Economic Impact Model

Tim and Maureen:

We have reviewed the proposed changes to the economic impact model used in the benefit-cost calculations for Grow NJ and ERG projects. We believe that several of these useful revisions will result in more accurate benefit estimates generated by the modeling process (e.g., via more highly articulated personal income tax calculations and incorporation of NJEITC effects), and we also concur with the revisions designed to render the benefit estimates more conservative (e.g., treatment of sales taxes in UEZs).

We also have several observations and suggestions NJEDA and JLL may wish to consider as the basis for further revisions intended to improve the accuracy of the estimates, render the calculations more conservative in their approach, and apply certain commonly accepted practices to the modeling process. Most of these apply to the proposed changes to the model described by NJEDA, with a couple of additional observations we believe are relevant. We recognize that the modeling process is subject to ongoing review and revision and that it may not be possible to consider these changes in the nearer term.

1) <u>Term of benefit calculation:</u> We agree that it is important to recognize the increased uncertainty associated with impacts potentially occurring beyond the (usually) 15-year statutory term during which the awardee is required to remain in the state. NJEDA proposes to do this by increasing the discount rate by 5% annually for each year beginning in year 16. To ensure a strictly conservative approach to the calculation of benefits, we recommend that the period of measurement for most benefits <u>end</u> at the statutory time limit of the award. The rationale for this is that, at that juncture, the awardee once again will face a financial decision that may result in re-application for an NJEDA award. We do agree, particularly in cases where large capital investments have been made in new structures, there may be local property tax benefits and/or social benefits and amenities that continue beyond the 15-year period, even if the awardee should relocate its operations elsewhere. It therefore may be appropriate for the benefit calculation for such projects to include some portion of the estimated property tax revenues beyond the statutory limit of the award, based on the value of the structure, depreciated over time (based on federal tax depreciation schedules).

2) <u>Inflation and discount rates:</u> From our understanding, the estimated benefits (both direct and indirect) are increased at a 3% annual rate that strictly reflects inflation (rather than business expansion). It is important to note the distinction between the lower future purchasing power implied by inflation, and the time value of money intended to be captured by discounting. Discounting reflects the preference for current consumption and the opportunity cost of investments. Inflation reflects economy-wide increases in wages and/or prices, and if included in benefit-cost calculations, should be included *in addition to* the real discount rate. Thus, the current practice of growing benefits by 3% annually to reflect inflation, then discounting back at a 6% rate, implies a real discount rate of approximately 3%. We would recommend using the

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taxable equivalent rate for state capital bond issues as the real discount rate, in order to reflect the current cost of capital to the state. Then, if benefits are increased by an assumed inflation rate of 3% (or another figure), that same rate should be *added to the discount rate when calculating the net present value of benefits*. That is, if the benefits are in nominal (current dollar) rather than real (constant dollar) terms, the discount rate is equal to the opportunity cost of the investment to the state plus the rate of inflation.

3) <u>Alternative discount rate for indirect benefits</u>: We do not agree with the recommendation that indirect benefits be discounted at a higher rate than direct benefits based on the spread between low and high risk corporate credits. Instead, in accordance with our recommendation that the taxable equivalent interest rate on state capital bonds be used as the discount rate for direct effects, we also suggest that the same rate be used for indirect effects. Using an alternative rate for indirect effects ignores a number of confounding factors already inherent in the modeling process, including the use of regional purchase coefficients (which capture the anticipated trade leakage of indirect effects). We should note that federal government guidelines for benefit-cost analysis of federal investment moneys require that indirect effects be wholly excluded from benefit-cost analyses, reflecting the assumption that production is under capacity, but that the national economy is operating at full employment (see OMB Circular A-94 – www.whitehouse.gov/omb/circulars_a094) . However, this assumption is somewhat looser at the state level, since it is less likely that additional demand in the economy can be met by in-state production at existing employment levels.

4) <u>Discounting of costs</u>: The same discounting procedure should be applied to the cost side of the benefit-cost calculation as to the benefit side. It is our understanding that calculations to date only discount the benefits. While this change would decrease the net present value of a given project's costs – thus increasing the benefit-cost ratio in a "less conservative" direction – it is commonly accepted practice to discount both benefits and costs at the same rate, so that comparisons of the present value of both sides of the benefit-cost equation are on equivalent terms.

5) <u>Progressive Tax Scale/NJEITC</u>: We agree that recognition of the NJEITC, together with a more articulated calculation of personal income taxes, should result in a more accurate estimation of personal income tax revenues generated from the awarded projects.

6) <u>Sales tax rate applied to indirect purchases</u>: We noted that the current modeling process applies an effective 3.5% sales tax rate to all business spending. We recommend using the detailed RIMS II data to estimate business spending into the retail and wholesale sectors (and possibly to taxable service sectors as well), and applying the full 7% rate to those specified expenditure categories.

Best regards,

Will Irving
Project Manager

cc. M. Lahr, R. Caprio

Estimation of Indirect Effects and Tax Revenue Benefits

The benefit-cost model calculates certain tax revenues generated directly and indirectly by firms' activity. These tax revenues include ongoing annual revenues, as well as one-time revenues generated during the construction process, and comprise the benefits in the benefit-cost calculation for each proposed project. All tax revenue benefits are calculated either directly or indirectly on the basis of three main inputs for each firm:

- Total payroll (direct)
- Total employment (direct)
- Total construction expenditures

The current approach to estimating benefits, and the connection of each of these inputs to each calculated tax benefit is depicted in Figure A-2.

Figure A-2
Current Benefit-Cost Model Structure
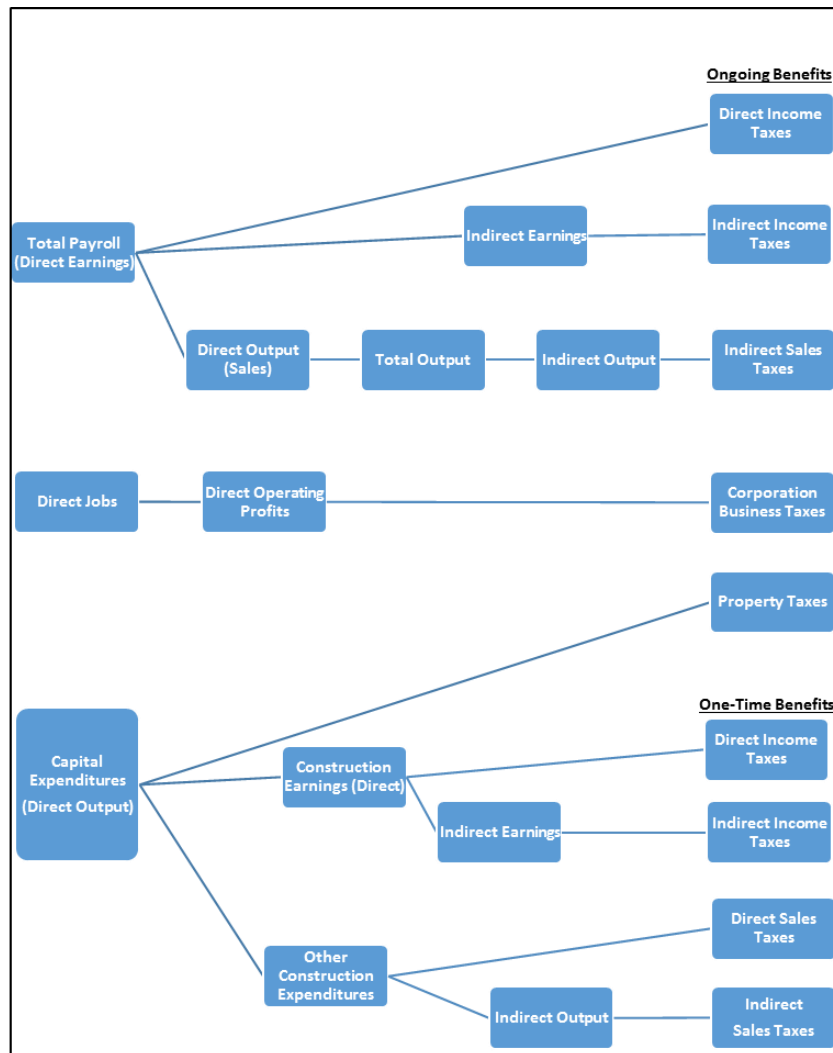
A review of the approach used in determining the direct and indirect effects and associated tax revenues indicates that the analyses may mis-estimate these effects due to a number of factors. We recommend a revised modeling approach that more accurately estimates these effects. The revised estimation pathways are shown in Figure A-3. [Note that there are additional steps in the tax calculations that are not reflected in the diagram, but are elaborated in the text.] As explained in detail below, these revised approaches draw on state, rather than county-level economic multipliers, and use additional data sources and alternative methodologies to more accurately estimate tax benefits.

Figure A-3
Revised Benefit-Cost Model Structure
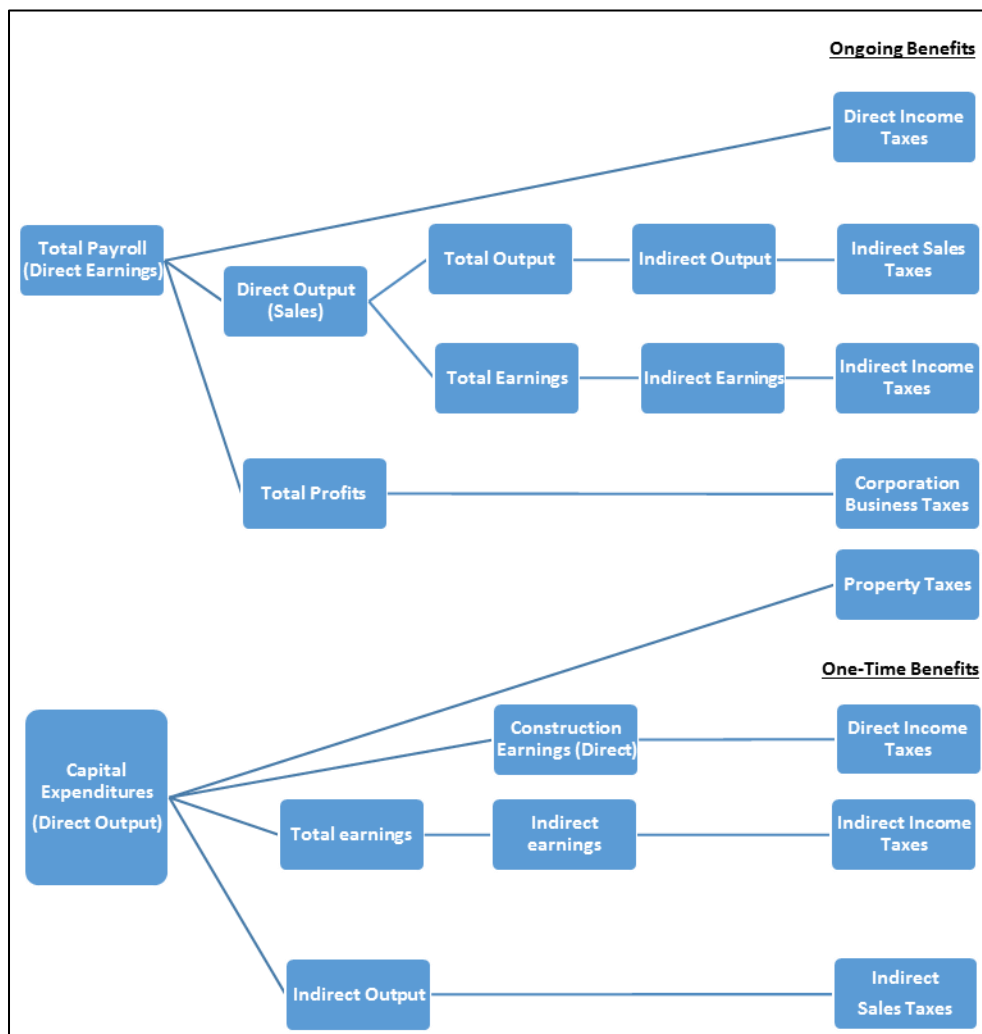
Economic multipliers are tools used to estimate the additional economic activity that occurs as the result of an initial investment, expenditure or other economic event. The benefit-cost model used by NJEDA was designed using county-level multipliers produced by the U.S. Bureau of Economic Analysis's RIMS II input-output modeling system. The use of county-level multipliers was chosen in order to obtain relatively conservative benefit estimates, given that multipliers for counties tend to be smaller than they are for states. More conservative estimates of indirect economic effects would result in a more rigorous benefit-cost test for Grow NJ applicants. It is true that use of county-level multipliers will generally result in somewhat more conservative estimates of the income taxes calculated on the basis of indirect earnings, and of the sales taxes on business expenditures generated indirectly by the initial business activity. However, due to an incomplete understanding within NJEDA's benefit-cost model of how worker commuting between counties affects the use of multipliers, we suggest that the use of county multipliers in the benefit-cost model contributes to sometimes significant mis-estimation of benefits, including potential over-estimation. Below we detail this issue and suggest an alternative approach using publicly available national and/or state-level data.

NJEDA's benefit-cost model estimates the tax revenues generated indirectly (i.e., via the multiplier effect) by the firms' business activity by applying tax rates to estimates of indirectly generated corporate spending and personal income. The first step in this process uses projected payroll (known as "direct earnings" for modeling purposes) of the Grow NJ applicant to estimate the total regional earnings (direct + indirect) generated by the applicant's business activity. The total earnings are calculated by applying a direct effect earnings multiplier to the direct earnings (payroll) of the firm in question. This direct effect earnings multiplier – taken from the Regional Input-Output Modeling System (RIMS II) produced by the U.S. Bureau of Economic Analysis – estimates the total change in earnings for households employed in all industries for each dollar of earnings paid directly to households employed by the industry of the firm in question.[26] The direct earnings (payroll) of the applicant firm is then subtracted from this total, and an effective income tax rate is applied to the remaining *indirect* income to estimate the indirect gross income tax revenues projected to result from the applicant's business activity – one of the benefits used in the benefit-cost analysis. This will generally result in more conservative estimates of indirect income taxes, as the direct effect earnings multipliers for counties will generally be smaller than those for the state (or nation).

In the next step, the total earnings (direct + indirect) calculated in the first step are used to calculate "direct output" (used in the model as a proxy for the applicant's revenue[27]) by dividing total earnings by the RIMS II "final demand earnings multiplier" for the industry in the region. The final demand earnings multiplier "represents the total dollar change in earnings of households employed by all industries for each additional dollar of output

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[26] See https://www.bea.gov/regional/pdf/rims/RIMSII_User_Guide.pdf.
[27] In input-output modeling, a firm or industry's revenues are in most cases equivalent to its expenditures (including payroll), plus profits, overhead and certain taxes.

delivered to final demand by the industry" of the applicant firm. This approach to calculating total earnings and total output for a region is similarly set forth by the Bureau of Economic Analysis in the RIMS II user handbook, which suggests first dividing the final demand earnings multiplier by the direct effect earnings multiplier for the industry to obtain a ratio of earnings to output for the industry, then dividing the direct earnings (payroll) by that ratio to estimate direct output.[28] The total output (direct + indirect) for the region is then calculated using a final demand output multiplier, and the direct output is subtracted from that total to derive an estimate of indirect output, to which the model applies a 3.5% tax rate (effectively applying the 7% sales tax rate to 50% of a firm's output).

However, when using the direct effect earnings multiplier for a region (county or state), one assumes that the direct earnings are *all attributable to residents (i.e., households) of the region (e.g., county), and thus, that the indirect earnings are also limited to those within the region.* This is because the RIMS II system, in developing multipliers, only uses the part of direct earnings that are earned by labor in households in the region. As a result, applying the county direct effect earnings multiplier to the entire payroll of the firm will likely overstate the total regional earnings that are then used to estimate (the firm's) direct output. In other words, if using this approach as outlined by the RIMS II handbook, the direct earnings used in the model should be discounted to account for the leakage of earnings of the firm's workers who commute into the county.

This fundamental issue is reflected in the relationship between the final demand earnings multiplier and the direct effects earnings multiplier for a region. Dividing the former by the latter as indicated in the RIMS methodology derives a ratio of direct earnings to direct output, but it is in fact the ratio of the direct earnings (payroll) of households *in the region (e.g. Hudson County)* to the *total output of the firm.* If this ratio underestimates the actual share of compensation (direct earnings) in an industry or firm's output, the inverse ratio (direct output to direct earnings) will be overstated (and vice versa), leading to distortions in the representation of direct, and hence indirect output.

For example, assume a health insurance company in Hudson County (as in one of the case studies presented below) has a payroll of $1 million. Using county level multipliers and the RIMS suggested methodology as employed by NJEDA, resting on the assumption that all workers reside in Hudson County, one would first multiply the total payroll by the direct effect earnings multiplier for the health insurance industry in Hudson County (approximately 2.0) to attain a total Hudson County earnings effect of $2 million (1). One would then subtract direct earnings from total earnings to arrive at an estimate of indirect earnings of $1 million (2), to be taxed as income. One would then divide the total earnings estimate ($2 million) by the final demand earnings multiplier for the industry in Hudson County (approximately 0.1) to arrive at direct output (i.e., firm sales revenue) of $20 million (3). This total would then be multiplied by the final demand output multiplier (about 1.6) to arrive at a total output of $32 million (4), and indirect output of $16 million (total output less

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[28] See https://www.bea.gov/regional/pdf/rims/RIMSII_User_Guide.pdf.

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direct output) (5), to be taxed at 3.5%.

1. $1 million (payroll) x 2.0 (direct effect earnings multiplier) = $2 million (total earnings)

2. $2 million (total earnings) - $1 million (direct earnings) = $1 million (indirect earnings)

3. $2 million (total earnings) / 0.1 (final demand earnings multiplier) = $20 million (direct output)

4. $20 million (direct output) x 1.6 (final demand output multiplier) = $32 million (total output)

5. $32 million (total output) - $20 million (direct output) = $16 million (indirect output)

In the approach used by NJEDA, the estimate of $20 million in direct output would imply that the share of the firm's output (i.e., "direct output") accounted for by payroll (i.e., "direct earnings") is 5%. One can arrive at this result more directly using the RIMS Handbook approach of dividing the final demand earnings multiplier by the direct effect earnings multiplier to find the ratio of direct earnings to direct output: 0.1 / 2.0 = .05. Note again, however, that this is a ratio of the direct earnings (payroll) of households *in the county* to the *total output of the firm*. The actual share of the firm's output that goes to payroll should include the earnings not only of those residing in the county, but of all employees. National input-output tables provide a breakdown of the "production recipe" for each industry – that is, the share of each dollar of each industry's output that is spent on other industries, *and on labor*. Because these data are aggregated at the national level, they do not account only for the local contribution of households to output. We can therefore determine from the national data on the insurance industry[29] that compensation's share of output for the insurance industry at the national level is in fact closer to 26% than to 5%. This would suggest that the direct output as calculated here is over-estimated by a factor of five, leading to a significant over-estimation of indirect output and associated taxes.

It should be noted that not all results calculated with county-level multipliers will overstate indirect output or total tax revenues. As suggested in the alternative approach outlined below, the direction and magnitude of the adjustment will depend on the relative sizes of the county multipliers and the suggested alternatives. Further, the state-level multiplier examples presented here are based on older RIMS II multipliers and are provided and used only for illustrative purposes, though the state-level inter-industry relationships are unlikely to have changed significantly, and the most potentially impactful changes recommended here rely not on RIMS II state multipliers but rather on up-to-date national data (compensation-to-output ratios). In addition, the county-level multipliers used in the JLL model have been updated since the model's inception, and those used in the examples presented below may not be those that would be used going forward.

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[29] Specifically, the insurance industry vector in the Commodity-by-Industry Direct Requirements Matrix of the national input-output tables produced by the U.S. Bureau of Economic Analysis. These tables comprise the underlying source of the RIMS II multipliers.

The first step in the alternative approach would replace the two-step derivation of direct output with the direct earnings (i.e., compensation) to direct output ratio at the national level, in order to more accurately reflect the actual contribution of labor to firm output.[30] In this approach, all earnings are assumed to accrue to households in New Jersey. *We note, however, that model revisions adopted in Feburary 2017 do account for interstate commutation when calculating the gross income taxes on direct earnings.[31]* Having thus calculated a direct output estimate, we then suggest applying *state-level* multipliers to calculate indirect earnings and output. While these multipliers will in most (though not all) cases be larger (i.e., less conservative) than the county-level multipliers, we recommend that they be used, as the calculations are intended to provide a basis for estimation of *state* income and sales taxes. The following steps would thus replace steps 1-5 outlined above.

1. $1 million (direct earnings) / 0.26 (*national* compensation share of output) = $3.85 million (direct output)

2. $3.85 million (direct output) x 2.3 (state level final demand output multiplier) = $8.85 million (total output)

3. $8.85 million (total output) - $3.85 million (direct output) = $5 million (indirect output)

4. $3.85 million (direct output) x .6268 (state level final demand earnings multiplier) = $2.4 million (total earnings)

5. $2.4 million (total earnings) - $1 million (direct earnings) = $1.4 million (indirect earnings)

In this approach, step (1) calculates direct output as a function of direct earnings based on the relationship at the national level, without using the intermediate step of conversion to total earnings. This results in what we suggest is a more reliable estimate of direct output on the basis of earnings. *In this case, the estimate is significantly lower than in the original approach, but this will not always be the case.* For industries/counties that have lower rates of commutation, the county estimates would more closely align with the national ratio of earnings to output. As in the original approach, steps (2) and (3) calculate indirect output using the final demand output multiplier, in this case at the state level. The state-level multiplier is larger than that of the county (2.3 vs. 1.6) resulting in a higher estimate of indirect output relative to direct output. Indirect earnings are calculated in step (4) and step (5) by applying the state-level final demand earnings multiplier to the estimate of direct

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[30] Alternatively, one could use the suggested RIMS approach adopted by NJEDA (i.e., dividing the final demand earnings multiplier by the direct effect earnings multiplier to estimate the direct earnings to direct output ratio), but using New Jersey state-level multipliers instead of county multipliers. However, we suggest using the national level data as a more direct representation of the industry-level direct earnings to direct output ratio.

[31] This modification is discussed in further detail in the section below discussing the tax calculations. It does not address the issue of commutation as it regards the use of county-level multipliers to calculate direct (and indirect) output.

output derived in step (1), and subtracting direct earnings from this total. Because state-level final demand earnings multipliers will tend to be higher than at the county level (here, 0.6268 rather than 0.1), this will generally result in higher estimates of indirect earnings.

Implications for State Tax Revenue Benefits and Recommendations for Revisions to Indirect Sales Tax Estimation

The effect of the changes suggested above on the calculation of indirect state tax revenue benefits will depend on the direction and magnitude of the changes to the estimated indirect income and output. We also recommend further revisions to the calculation of indirect income and sales tax revenues.

Gross Income Tax on Indirect Earnings

Prior to model revisions adopted in February 2017, an effective gross income tax rate of 4% was applied to direct and indirect earnings. With this approach, the change in gross income taxes on indirectly generated earnings would simply change (likely increase) under the new calculation by the same percentage as the change in indirect earnings resulting from the application of a state-level, rather than a county-level multiplier. In the example above, the 4% rate would be applied to indirect earnings (as well as direct earnings) of $1.3 million to generate indirect gross income taxes of $52,000, compared to 4% of $1 million, or $40,000 under the current approach using county-level multipliers.

Based on revisions made in February 2017, the model now applies an average tax rate to direct and indirect wages that draws on actual marginal tax rates applicable to the projected actual or average wages of the directly generated jobs associated with Grow NJ applicant firms' activity. The revised model also accounts for interstate commuting of employees in the direct jobs based on the county where the firm is located, thus more conservatively projecting the income tax revenues associated with the direct earnings. We note that the marginal tax rates applied to the direct earnings are an arithmetic average of the calculated effective rates for single and married filers.

Recommendation: We would recommend weighting this average based on the division between single and married filers in the most recent Statistics of Income report issued by the New Jersey Division of Taxation.

We also note that the model presently applies the effective gross income tax rate determined from the information on direct earnings to the aggregate indirect earnings as well.

Recommendation: We recommend calculation of a separate effective rate for indirect earnings based the average earnings per indirect job. The model already calculates the number of indirect jobs by applying a county-level final demand employment multiplier (the number of total jobs for each million dollars of direct output) to the estimate of direct output to estimate total jobs, then dividing by the direct effect multiplier to estimate direct jobs, and subtracting

this number from the total jobs estimate.[32] *We agree with this approach, but to ensure consistency with the previous calculations, state multipliers and the more direct approach to estimating direct output described above should be used. The estimated indirect earnings should then be divided by the estimated indirect jobs to derive average indirect earnings per job, which can then serve as the basis for calculation of a separate effective income tax rate.*

Sales Taxes on Indirect Output

The model currently applies an effective sales tax rate of 3.5% to all indirect output, using indirect output as a proxy for expenditures and implicitly assuming that 50% of expenditures (when the sales tax rate was 7%) are taxable.

Recommendation: We recommend that the RIMS state-level table of final demand output multipliers by industry be used to more directly estimate these taxes. The table can be used to calculate the share of indirect output associated with a given industry's expenditures that is spent on certain other industries. In this case, we suggest using the allocations to retail, wholesale and food service industries, and applying the full sales tax rate (now 6.625%). We recognize that this approach does not capture certain taxable services, but we believe it accounts for the majority of taxable expenditures. Another important step in applying this approach involves the recognition that RIMS data in the final demand output multiplier tables count only wholesale and retail *margins* as output, rather than total sales. It is therefore necessary to adjust the shares of output allocated to retail and wholesale expenditures to reflect that they represent 28.7% and 18.3% of their actual sales (output) values, respectively.[33] This is a straightforward calculation and the resulting total shares of indirect output by industry for retail, wholesale and food service expenditures are included as part of Appendix VI.

Calculation of Corporation Business Tax Revenues

For firms subject to the corporation business tax (CBT), in the past the model has calculated (CBT) revenues based on a per-job estimate of corporate net income, to which an applicable rate of 9% or 4% is applied depending on the firm's filing status. With the model revisions of February 2017, the model now excludes CBT revenues from the benefit calculation for projects that do not result in an increase in taxable income in the state. In addition, applicants are now required to submit documentation of their state corporate tax obligations (either in New Jersey or in another state if relocating from outside New Jersey)

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[32] This estimate of direct jobs will be different than the actual number of direct jobs associated with the project. This is because it is derived on the basis of average earnings for the industry, rather than the actual average salaries projected by the applicant. It is used only for the purpose of estimating the indirect employment associated with the indirect earnings.

[33] The adjustment factors for the retail and wholesale industries represent gross margins as a percentage of sales at the national level as reported by the U.S. Census Bureau based on the Annual Retail Trade Survey and the Annual Wholesale Trade Survey.

from prior years. This information is then used to estimate the CBT revenues included in the benefit-cost analysis.

Recommendation: While the estimated CBT revenues for the benefit-cost analysis are now calculated using data supplied by the applicant, we recommend that NJEDA still use an independent estimating procedure. This can serve as a point of comparison for verifying that the estimated CBT revenues calculated on the basis of applicant documentation are comparable to those that would be estimated using current industry-standard data for the state. Under the previous modeling approach, the per-job net income values used in calculating the estimated taxable income range from $30,000 to $130,000 depending on the broad industry group in which the firm is classified. As an alternative, we recommend using the most recent state data on industry-level compensation and gross operating surplus available from the U.S. Bureau of Economic Analysis to calculate an estimate of net taxable income. The ratio of gross operating surplus to compensation by industry (currently available for 2015) can be applied to estimated payroll (direct earnings) to derive this estimate. The applicable industry ratios of gross operating surplus to compensation are provided in Appendix VII.

Appropriate Inclusion of Property Tax Revenues

Benefits included in the model include local property taxes to be paid on the improvements made to property by the capital expenditures associated with each project. These taxes are usually estimated at 3% on the value of eligible construction expenditures. Garden State Growth Zones have the option of offering tax exemptions on these improvements. In Camden, Trenton and Passaic, Grow NJ projects are exempt from payment of property taxes on these improvements for the first five years, or in the case of projects designated as Garden State Growth Zone Development Entities, ten years after project completion. In the latter cases, property taxes are then phased in at 10% per year over the subsequent 10-year period (years 11-20). However, we note that, according to the program rules, the benefit-cost analyses for projects in these areas nevertheless include these tax revenues in full in the benefit stream for the entire analysis period. For projects with significant capital expenditures, these estimated revenues can constitute a significant portion of the projected annual benefits even though such benefits are not realized by the state or municipality. A review of a selection of the Camden alternatives shows property taxes accounting for between 15% and 44% of annual project benefits. For those projects with relatively low benefit-cost ratios where these taxes represent a large share of the calculated benefits, their inclusion may have resulted in the benefit-cost threshold of 1.0 being attained when it otherwise would not have been, even when benefits were calculated over a 35-year period in cases prior to the adoption of the revised modeling parameters.

Recommendation: We recommend that these non-realized tax revenues be excluded from future benefit-cost analyses.

Averaging of Multipliers

We also note that in cases where a Grow NJ project has more than one industry classification for different portions of its facility or for multiple sites, the current model calculates aggregate multipliers by weighting the industry multipliers used for each site by the square footage of the site. It then applies these weighted aggregate multipliers to the aggregate earnings and output estimates. However, this derivation of aggregate multipliers is not necessary, as the calculations of direct and indirect earnings and output for each industry/site, when summed across sites, can be used to derive the aggregate multipliers directly, rather than weighting by square footage, which may in some cases distort the value of the multipliers.

One-Time Impacts

Similar to calculation of ongoing benefits, the benefit-cost model also calculates the *one-time* tax benefits associated with the construction expenditures made for each Grow NJ project. These benefits occur as a result of the construction expenditures and therefore do not recur annually as in the case of the annually repeating benefits associated with the firms' ongoing activity. For the one-time benefits, we recommend a revised approach similar to that for calculating the ongoing tax benefits of each project.

Recommendation: Under the current model, total construction expenditures are used to estimate indirect expenditures, and a sales tax rate is then applied to these indirect expenditures. As in the case of the ongoing expenditures, the model currently uses county-level multipliers to estimate indirect impacts. We again recommend the use of state-level RIMS multipliers in all cases.

Indirect Sales Tax Revenues

The model first uses the estimate of total construction expenditures to estimate indirect spending generated by the project. The total construction value also used to estimate annual property tax revenues is multiplied by the final demand output multiplier for the construction industry to derive an estimate of indirect output. As with the ongoing expenditures, this estimate is multiplied by an effective tax rate to arrive at an estimate of indirect sales tax revenues. However, in the case of the one-time expenditures, the model uses a 7% rate, rather than the effective 3.5% rate used in calculation of the ongoing indirect sales tax revenues.

Recommendation: As with the ongoing revenues, we recommend an alternative approach that applies the *state* final demand output multiplier to estimate indirect spending, then applies the applicable retail/wholesale/food service shares of spending for the construction industry, and *then* applies the full 7% rate to the resulting expenditure estimates.[34] While the current model's application of the full 7% rate to *all* indirect expenditures would likely overstate these revenues, its use of county-level multipliers *and the exclusion of labor costs in calculating indirect output* instead result in estimates somewhat lower than would be calculated using this alternative approach. Given that these are state-level impacts, however, and given the aforementioned complications that arise from the use of county-level multipliers in the estimation of ongoing benefits, we continue to recommend the use of state multipliers.

Direct Sales Tax Revenues

We also note that the model calls for calculation of sales taxes on direct construction expenditures by applying a 7% sales tax rate to the non-labor portion of total construction

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[34] The state sales tax rate is currently 6.625%, but we use the previous level of 7% in order to provide a comparison consistent with the parameters used at the time the model was adopted.

value. We have some concern that this may result in double counting of sales tax revenues, which are by definition *indirect* (i.e., not collected and remitted by the construction contractor). Contractors effectively pay the sales taxes on behalf of their clients, but few contractors send sales taxes to the state. Like householders, the taxes they pay are sent in to the State by retailers, wholesalers, and a relatively small set of service providers, manufacturers, and subcontractors. That is, while the contractors pay for such taxes they only do so indirectly. As such, no effective sales tax rate should be attached to the net income of contractors. Taxes on purchases of construction materials are more accurately captured as part of the taxes on the indirect output of the construction sector as described above. We thus recommend that this element of the one-time impacts be excluded from the model.

Direct and Indirect Income Tax Revenues

The model currently applies an income tax rate of 5% to both direct and indirect earnings generated through construction expenditures. We recommend a revised approach to calculating indirect earnings and either the application of the already updated JLL income tax calculation module or a lower effective rate of 3% to generate more refined income tax estimates.

The model assumes construction earnings to be 50% of "hard construction costs." A county-level direct effect earnings multiplier is then applied to these direct earnings, and a 5% effective income tax rate is then applied to both direct and indirect earnings.

Recommendation: As in the case of the ongoing impacts, we recommend that the final demand earnings multiplier for the state be applied to the *total construction value (*inclusive of labor). The direct payroll (already estimated as 50% of "hard costs") can then be subtracted from the total earnings to derive an estimate of indirect earnings. Further, rather than using a 5% aggregate income tax rate, we recommend using the articulated tax model developed by JLL used in calculating the ongoing income tax benefits.

For this purpose, we suggest that average earnings and employment for the one- time direct and indirect jobs be calculated as follows:

1. Direct earnings are first calculated under the assumption that they account for 50% of total construction expenditures

   Direct earnings = Hard costs x 0.5

2. The total state final demand earnings multiplier (.6956) should be applied to the total construction expenditures (inclusive of direct earnings) to estimate total earnings.

   Total earnings = .6956 x Direct output (Total construction costs)

3. Direct earnings – already calculated as 50% of "hard costs" – should then be subtracted from the total earnings derived in step (2) to arrive at an estimate of indirect earnings.

   Indirect earnings = Total earnings – direct earnings

Because construction data in the RIMS model is not articulated by type of facility (and as a result tends to underestimate construction sector earnings per job), the next steps use state employment multipliers and state data on construction wages to calculate income tax revenues for the direct and indirect employment generated by the construction spending.

4. The New Jersey Department of Labor provides prevailing wage rates by detailed construction type by county.

    Recommendation: We recommend that these rates serve as the basis for calculating taxes on direct earnings using JLL's detailed income tax module. The project-appropriate per-employee prevailing wages should be chosen and the taxes estimated. The direct earnings should be divided by the prevailing wage rate to determine the number of construction salaries to which the estimated tax rates should be applied.

    Average Income Taxes = Prevailing Wage x Effective income tax rate (JLL module)

5. Number of direct jobs = Direct earnings/Prevailing Wage

6. Direct Income Taxes = Average Income Taxes x Number of Direct Jobs

7. To calculate indirect income taxes, we also recommend an approach that uses the JLL tax module and average indirect earnings.

    Implied total jobs = Total construction costs (incl. labor) x State final demand employment multiplier/1 million

    [Note: this calculation is used to derive the estimate of indirect jobs used in the tax calculations. Due to the aforementioned lack of detail in the RIMS model's representation of the construction sector, it is not used to estimate the direct construction jobs associated with the project, which are estimated in step (5) above.]

8. Indirect jobs = Implied total jobs – (Implied total jobs/direct effect employment multiplier)

9. Average indirect earnings = Indirect earnings (step (3)) / indirect jobs

10. Average indirect income taxes = Average indirect earnings x Effective income tax rate (JLL module)

Award Case Studies

To illustrate some of the issues regarding the benefit-cost approach, we provide detailed examinations of the benefit-cost test as assessed for several projects.

Sharp Electronics

Sharp Electronics, the sales and marketing arm of the Japanese electronics company, was approved for a Grow NJ award of $6.92 million over 10 years. The project would relocate the firm's current 346 employees in New Jersey from Mahwah to Montvale, both in Bergen County. The total payroll for the facility is $38.9 million. The estimated benefits calculated under the original approach and the recommended revised approach are as follows:

Tax Revenue Benefits	Original Approach	Revised Approach
Ongoing (Annual)		
Indirect Sales	$3,979,621	$3,078,040
Direct Income (@ 4%)	$1,557,440	$1,557,440
Indirect Income (@ 4%)	$731,169	$732,795
CBT (9%)	$2,179,800	$1,100,125
Total Ongoing (Annual)	**$8,448,030**	**$6,468,400**
One-Time[35]		
Direct Sales	$255,426	-
Indirect Sales	-	$442,957
Direct Income (@ 5%)	-	-
Indirect Income (@ 5%)	-	-
Total One-Time	$255,426	$442,957

These benefits were calculated as the aggregate of three subsets of firm activity – i.e., three industries – at the proposed location. Each of these activities would occupy a designated portion of the facility:

- Administrative and support services: 4,565 square feet
- Professional, scientific and technical services: 96,463 square feet
- Management of companies and enterprises: 4,260 square feet

Ongoing Indirect Sales Tax

The indirect sales taxes estimated to be generated by the project annually were calculated using the county-level multipliers for each industry as follows:

Original Approach

1. Direct payroll was multiplied by a county direct effect earnings multiplier to attain

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[35] Income taxes and indirect sales taxes are not calculated for expenditures only on renovations under the current approach. The revised approach includes all sales taxes under taxes on indirect sales.

a total earnings estimate.

Industry	Square Footage	Direct Payroll	Direct Effect Earnings Multiplier	Total Earnings
Admin & Support	4,565	$925,980	1.4817	$1,372,025.6
Prof., sci. and tech	96,463	$32,498,840	1.4545	$47,269,562.8
Mgmt. of companies	4,260	$5,511,170	1.7953	$9,894,203.5
Total	**105,288**	**$38,935,990**	**1.4695**	**$58,535,790.8**

While the alternative calculation is detailed below, it is worth noting here that the direct earnings multiplier for the total payroll – 1.4695 – is calculated as a square-footage-weighted average of the individual industry multipliers, and used later in the process to calculate impacts. While the proposed revised approach eliminates this particular calculation, average multipliers, when calculated on the basis of individual industries, should be derived simply by dividing the total for the indicator (here, total earnings of $58.5 million) by the direct value (here, $38.9 million in total earnings). In this case, the aggregate multiplier would be 1.503, rather than 1.47.

2. The total earnings for each industry were divided by the industry-specific county final demand earnings multipliers to derive direct output estimates.

Industry	Square Footage	Total Earnings	Final Demand Earnings Multiplier	Direct Output
Admin & Support	4,565	$1,372,025.6	0.3226	$4,253,021
Prof., sci. and tech	96,463	$47,269,562.8	0.367	$128,799,899
Mgmt. of companies	4,260	$9,894,203.5	0.245	$40,384,504
Total	**105,288**	**$58,535,790.8**	**.360**	**$173,437,424**

Here once again, the aggregate final demand output multiplier of .36 (used later in the analysis) was calculated based on square-footage-weighted multipliers, rather than simply dividing the aggregate total earnings by the aggregate direct output, which would have produced an estimate of 0.34.

3. These estimates were then multiplied by the county-level industry-specific final demand output multipliers and the direct output subtracted out to derive estimates of indirect output.

Industry	Square Footage	Direct Output	Final Demand Output Multiplier	Indirect Output
Admin & Support	4,565	$4,253,021	1.6203	$2,638,149
Prof., sci. and tech	96,463	$128,799,899	1.6589	$84,866,253

Mgmt. of companies	4,260	$40,384,504	1.6184	$24,973,777
Total	**105,288**	**$173,437,424**	**1.6556**	**$112,478,179**

Here, as above, the aggregate final demand multiplier should be calculated as the total output (not shown) divided by the direct output, producing an estimate of 1.649.

4. In the final step, rather than using the aggregate indirect output already calculated ($112.48 million), the aggregate direct output ($173.4 million) is multiplied by the square-footage-weighted multiplier (1.6556) to derive a slightly higher estimate of $113,703,470 in indirect output. This amount was then multiplied by an effective tax rate of 3.5% to derive the estimated indirect sales tax revenues of $3,979,621 million.

Revised Approach

The alternative approach using state multipliers and selected national data proceeds as follows:

1. Direct payroll is divided by the national compensation-to-output ratio for each industry, producing a direct output estimate of $88.3 million.

Industry	Square Footage	Direct Payroll	Compensation/ Output	Direct Output
Admin & Support	4,565	$925,980	0.449747	$2,058,891
Prof., sci. and tech	96,463	$32,498,840	0.515425	$63,052,510
Mgmt. of companies	4,260	$5,511,170	0.466766	$11,807,137
Total	**105,288**	**$38,935,990**		**$76,918,538**

2. The state-level final demand output multiplier for each industry is then applied and the direct output subtracted from the product to arrive at an estimate of indirect output.

Industry	Square Footage	Direct Output	STATE Final Demand Output Multiplier	Indirect Output
Admin & Support	4,565	$2,058,891	2.1779	$2,425,167.71
Prof., sci. and tech	96,463	$63,052,510	2.1936	$75,259,475.94
Mgmt. of companies	4,260	$11,807,137	2.1993	$14,160,299.40
Total	**105,288**	**$76,918,538**		**$91,844,943**

3. The retail, wholesale and food service shares of indirect expenditures generated by each industry are then applied to generate an estimate of $43.9 million.

Industry	Square Footage	Indirect Output	STATE Retail/Wholesale/Food	Taxable Indirect

				Service Shares	Output
Admin & Support	4,565	$2,425,167.71		0.485549	$1,177,537.76
Prof., sci. and tech	96,463	$75,259,475.94		0.48329	$36,372,152.13
Mgmt. of companies	4,260	$14,160,299.40		0.453543	$6,422,304.67
Total	**105,288**	**$91,844,943**			**$43,971,995**

4. Finally, a 7% tax rate is applied to the estimated indirect taxable sales to arrive at an annual indirect sales tax estimate of approximately $3.078 million – approximately $0.9 million lower than under the current approach. (The current applicable tax rate would be 6.625%)

Ongoing Income Tax Revenues

This project preceded the model revisions adopted in 2017, and therefore uses an effective income tax rate of 4% with no assumption of interstate commutation. For purposes of comparison, we use this rate to illustrate the difference in the results of the original and revised approaches. The current NJEDA approach that uses state marginal income tax rates would be sensitive to the detailed compensation information provided by the applicant (14 positions at $393,655 per year, 15 positions at $61,732 per year and 317 positions at $102,520 per year) and would account for interstate commutation.

Original Approach

1. First, the effective 4% tax rate is applied to direct payroll.

   $38,935,990 x .04 = $1,557,440

2. To calculate indirect earnings, the county-level direct effect earnings multiplier for each industry is applied and direct earnings are subtracted out.

Industry	Square Footage	Direct Payroll	Direct Effect Earnings Multiplier	Indirect Earnings
Admin & Support	4,565	$925,980	1.4817	$446,045
Prof., sci. and tech	96,463	$32,498,840	1.4545	$14,770,723
Mgmt. of companies	4,260	$5,511,170	1.7953	$4,383,034
Total	**105,288**	**$38,935,990**	**1.4695**	**$19,599,801**

   Here again, the use of square-footage weighted multipliers is problematic. As shown in the table above, the total indirect earnings sum to $19,599,801. However, the current approach applies the square-footage-weighted average multiplier of 1.4695 to the direct payroll of $38.9 million to derive an indirect earnings estimate of $18,279,232.

3. This total is then multiplied by the effective 4% rate to arrive at an estimate of $731,169 in indirect income taxes.

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Revised Approach

Under the alternative approach, direct income tax revenues are unchanged. Estimated direct output and state-level final demand earnings multipliers are used to estimate indirect earnings and tax revenues:

1. First, the effective 4% tax rate is applied to direct payroll.

   $38,935,990 x .04 = $1,557,440

2. Direct output as calculated earlier using the national compensation-to-output ratios is then used to estimate total earnings using state-level final demand earnings multipliers for each industry.

Industry	Square Footage	Direct Output	STATE Final Demand Earnings Multiplier	Total Earnings	Indirect Earnings
Admin & Support	4,565	$2,058,891	.7222	$1,486,931.08	$560,951.08
Prof., sci. and tech	96,463	$63,052,510	.7555	$47,636,171.31	$15,137,331.31
Mgmt. of companies	4,260	$11,807,137	.6888	$8,132,755.97	$2,621,585.97
Total	**105,288**	**$76,918,538**		**$57,255,858**	**$18,319,868**

3. Because an effective 4% rate is being applied to all income in this example, the next step is simply to subtract direct payroll of $38,935,990 from the total earnings of $57,255,858 to derive estimated indirect earnings of $18,319,868. This total is then multiplied by 4%.

   $18,319,868 (indirect earnings) x 4% = $732,795 taxes on indirect earnings.

   Here, the estimate is about equal to that of the original approach.

   [Note that under NJEDA's current approach using a more refined income tax module, the same effective marginal tax rate calculated and applied to direct income is then applied to indirect income as well. We suggest using state multipliers to derive estimates of indirect employment associated with the indirect earnings for each industry. This would allow for estimation of average indirect earnings per job for each industry which could then be used in conjunction with the tax module to more accurately estimate taxes on indirect income. See box below.]

Estimating Indirect Employment and Average Earnings

Original Approach

The model currently estimates indirect employment using county employment multipliers and the model's estimate of direct output. A final demand multiplier is applied to direct output to generate an estimate of total employment.* This total is divided by a direct effect employment multiplier to estimate direct employment, which is subtracted from the total to derive the estimate of indirect employment.

Industry	Square Footage	Direct Output	Final Demand Employment Multiplier*	Total Employment (Implied)	Direct Effect Employment Multiplier	Indirect Employment
Admin & Support	4,565	$4,253,021	9.36	40	1.38	11
Prof., sci. and tech	96,463	$128,799,899	6.46	832	1.80	371
Mgmt. of companies	4,260	$40,384,504	3.71	150	2.97	99
Total	**105,288**	**$173,437,424**	**6.48**	**1,022**	**1.83**	**481**

Note again that the use of a square-footage-weighted multiplier results in the total indirect employment differing from the sum of the indirect employment by sector.

The estimated indirect earnings of $18,279,232 would then be divided by 481 to derive estimated average earnings of $38,000, to which the detailed marginal tax rate module should be applied.

Revised Approach

Under the revised approach, using state-level multipliers and the alternative derivation of direct output, a higher estimate of indirect employment is derived in this case. As a result, the average indirect earnings calculated on this basis using the indirect earnings estimate of $18,319,868 is approximately $29,033.

Industry	Square Footage	Direct Output	Final Demand Employment Multiplier*	Total Employment (Implied)	Direct Effect Employment Multiplier	Indirect Employment
Admin & Support	4,565	$2,058,891	25.0188	52	1.4784	17
Prof., sci. and tech	96,463	$63,052,510	14.5588	918	2.3148	521
Mgmt. of companies	4,260	$11,807,137	11.0461	130	3.455	93
Total	**105,288**	**$76,918,538**	**14.30**	**1,100**	**2.34**	**631**

* The final demand employment multiplier indicates the total number of jobs created throughout the economy for each million dollars of direct output in the sector. The resulting estimates of total and direct employment are only generated in order to estimate indirect employment associated with the indirect earnings generated by the project.

Ongoing Corporation Business Tax

Original Approach

Under the current approach, the CBT is calculated based on a per-employee estimate of operating margin for a selection of aggregate industries. In this case, the per-employee rate of $70,000 for aggregate service industries is multiplied by total direct employment of 346 to derive and operating profit margin of $24,220,000. A 9% CBT rate is then applied to derive the estimate of CBT revenues:

346 (direct employment) x $70,000/employee = $24,220,000 (operating profit)

$24,220,000 x 9% (CBT rate) = $2,179,800 CBT

Revised Approach

Under the revised approach, state data on compensation and gross operating surplus (GOS)[36] for each detailed industry is used to derive the estimate of taxable operating profits. The direct payroll for each industry is multiplied by the state-level GOS/Compensation ratio for each industry (provided in Appendix VII), and the resulting GOS estimates are summed. The 9% CBT rate is then applied.

Industry	Direct Payroll	STATE GOS/Compensation	GOS
Admin & Support	$925,980	0.481	$445,396.38
Prof., sci. and tech	$32,498,840	.338	$10,984,607.92
Mgmt. of companies	$5,511,170	.144	$793,608.48
Total	**$38,935,990**		**$12,223,613**

$12,223,613 (GOS) x 9% (CBT rate) = $1,100,125

In this case, the estimated CBT is approximately half of that calculated in the original approach.

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[36] The U.S. Bureau of Economic Analysis defines "Gross operating surplus" as "the business income of private domestic enterprises. It includes consumption of fixed capital (CFC), proprietors' income, corporate profits, and business current transfer payments (net)."

One-Time Indirect Sales Tax[37]

Original Approach

Under the current approach, 50% of the renovation value of $7.3 million is assumed to be non-labor spending, and a 7% sales tax rate (or current level) is applied to that portion to derive what are considered *direct* sales taxes:

$7,297,886 (Renovation Value) x 50% (non-labor share) * 7% (tax rate) = $255,426

Revised Approach

Under the revised approach, the state final demand output multiplier for the construction industry is used to estimate *indirect* output based on the total renovation or construction value. The wholesale/retail share of indirect output generated by construction industry spending is then applied to the indirect output to estimate the *taxable* expenditures. The sales tax rate is then applied to this total.

$7,297,886 (Renovation Value) x 2.2454 (State Final Demand Output Multiplier for the Construction Industry) x 0.6962 (wholesale/retail share) = $6,327,956 (Taxable Spending)

$6,327,956 (Taxable Indirect Spending) x 7% = $442,957 (Indirect Sales Tax)

As noted in the preceding section, this approach will sometimes produce higher estimates than the original approach due to the use of state-level multipliers.

Total Tax Revenues (Benefits)

Under the original calculation, total annual tax benefits were:

$1,557,440 (direct income taxes) + $731,169 (indirect income taxes) + $3,979,621 (indirect sales taxes) + $2,179,800 (CBT) = $8,448,030

Using the alternative approach, with the resulting lower indirect sales tax revenues, similar income tax revenues and lower CBT revenues results in the following benefits:

$1,557,440 (direct income taxes) + $732,795 (indirect income taxes) + $3,078,040 (indirect sales taxes) + $1,110,125 (CBT) = $6,468,400

Thus, the alternative approach would result in an annual benefit estimate

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[37] As noted in the preceding section, we recommend that direct sales tax revenues not be included in the impacts, as they likely double count sales taxes remitted indirectly by the suppliers from whom contractors purchase material. That is, all applicable sales tax revenues associated with the one-time spending are captured in the calculation of the indirect amount.

approximately $2 million (about 23%) lower than in the current model. The model approach in use at the time would grow benefits at an annual rate of 3% (effectively assuming a 3% real growth rate) and then discount the results to net present value at a 6% rate over 20 years. In the original analysis, this resulted in total estimated benefits of $123 million (not including one-time benefits, which were de minimis in this case - $255,426) and, based on the total award of $6.92 million, a benefit-cost ratio of nearly 18. Under these same growth and discounting assumptions, the alternative approach would result in estimated benefits of $94.2 million and a benefit cost ratio of 13. If the current parameters of 2.25% annual growth and a 15-year period of benefit calculation are applied, estimated benefits would be $72 million and the benefit-cost ratio would be 10.

This project for a Medicare plan provider in Hudson County was approved for a Grow NJ award of $6,256,500 over ten years. The project was projected to create 62 new jobs and retain 102 existing jobs in the state, with an average salary for all jobs of $80,100 and a capital investment of $720,000.

The estimated benefits calculated under the original approach and the recommended revised approach are as follows:

Tax Revenue Benefits	Original Approach	Revised Approach
Ongoing (Annual)		
Indirect Sales (3.5% or 7%)	$5,550,661	$1,515,791
Direct Income (@ 4%)	$495,713	$495,713
Indirect Income (@ 4%)	$498,836	$687,586
CBT (9%)	-	-
Total Ongoing (Annual)	**$6,545,210**	**$2,699,090**
One-Time		
Direct Sales	$25,200	-
Indirect Sales	$20,130	$43,702
Direct Income (@ 5%)	$18,000	$18,000
Indirect Income (@ 5%)[38]	$5,875	$7,042
Total One-Time	**$69,205**	**$68,744**

Ongoing Indirect Sales Tax

Original Approach

The indirect sales taxes estimated to be generated by the project annually were calculated using the county-level multipliers as follows:

1. The direct payroll of $13.1 million was discounted at 6% for an estimated first year payroll of $12.4 million.

2. This was multiplied by a county direct effect earnings multiplier of approximately 2.01 to attain a total earnings estimate of $24,863,735.

3. The total earnings were divided by the county final demand earnings multiplier of .0962 to derive a direct output estimate of approximately $258.5 million.

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[38] We recommend that either JLL's more refined tax module used for ongoing income tax benefits or a lower effective income tax rate of 3% be used. Here, we show the 5% rate in order to provide a direct comparison of what the income taxes would be based on the Original and Revised approaches to calculating direct and indirect income. At a 3% rate, estimated taxes on direct income would be $10,800 and taxes on indirect income would be $4,225.

4. This estimate was then multiplied by the final demand output multiplier of 1.61 and the direct output subtracted out to derive a n estimate of $158.6 million in indirect output – the model's proxy for indirect annual spending.

5. This amount was then multiplied by the effective tax rate of 3.5% to derive the estimated indirect sales tax revenues of $5.551 million.

Due to the commutation effects described in the preceding section, we suggest that the low county-level final demand earnings multiplier results in an overestimate of indirect sales tax revenues.

Revised Approach

1. Direct payroll of $12.4 million is divided by the national compensation-to-output ratio for the industry of approximately 0.263, producing a direct output estimate of $47.2 million.

2. The state-level final demand output multiplier of approximately 2.3 is then applied and the direct output subtracted from the product to arrive at an estimate of $61.1 million in indirect output.

3. The retail, wholesale and food service shares of indirect expenditures generated by the industry (approximately 35.4%) are then applied to generate an estimate of $21.65 million in taxable expenditures.

4. A 7% tax rate is then applied to the estimated indirect taxable sales to arrive at an annual indirect tax estimate of approximately $1.5 million.

Ongoing Income Tax Revenues

Original Approach

In this example, for purposes of comparison, we use the 4% effective tax rate on income used in the analysis at the time it was conducted. For projects approved since the model revisions were adopted, income-level-specific marginal tax rates would be applied. As such, the income taxes on direct earnings of $495,713 would not be changed.

For income taxes on indirect earnings, the indirect income was calculated by applying the direct effect earnings multiplier for the county/industry to the direct earnings (payroll):

1. $12,392,830 (direct earnings) x 2.01 (direct earnings multiplier) - $12, 392,830 = $12,470,905 (indirect earnings)

2. $12,470,905 x 4% = $498,836 taxes on indirect earnings

Revised Approach

Using the alternative approach, the estimated direct output and state-level final demand earnings multipliers are used to estimate indirect earnings and tax revenues:

1. $47.2 million (direct output) x .6268 (final demand earnings multiplier) = $29,582,477 (total earnings)

2. $29,582,477 (total earnings) - $12,392,830 (direct earnings) = $17,189,647 (indirect earnings)

3. $17,189,647 (indirect earnings) x 4% = $687,586 taxes on indirect earnings.

One-Time Sales Taxes

Original Approach

Under the current approach, 50% of the construction value of $720,000 million is assumed to be non-labor spending, and a 7% sales tax rate (or current level) is applied to that portion to derive what are considered *direct* sales taxes:

$720,000 (Construction Value) x 50% (non-labor share) * 7% (tax rate) = $25,200

Indirect expenditures and sales taxes are then calculated using the county direct output multiplier for construction:

$720,000 (Construction Value) * .4 (Direct Construction Output Multiplier -1) *
7% (tax rate) = $20,130

Thus, total one-time taxes on spending are estimated as $25,200+$20,130 = $45,330

Revised Approach

Under the revised approach, the state final demand output multiplier for the construction industry is used to estimate *indirect* output based on the total construction value. The wholesale/retail share of indirect output generated by construction industry spending is then applied to the indirect output to estimate the *taxable* expenditures. As described earlier in this section, to avoid double counting of expenditures, only sales taxes on the indirect portion of the expenditures are included. The sales tax rate is then applied to this total.

1. $720,000 (Construction Value) x 1.2454 (State Final Demand Output Multiplier for the Construction Industry-1) x 0.6962 (wholesale/retail share) = $624,308 (Taxable Spending)

2. $624,308 (Taxable Indirect Spending) x 7% = $43,702 (Indirect Sales Tax)

One-Time Income Tax Revenues

Original Approach

Under the original approach, direct income is calculated as 50% of total construction costs, and an effective income tax rate of 5% is applied to this total:

$720,000 (Construction Cost) * 50% * 5% = $18,000.

Income taxes on indirect income are then calculated by applying the county-level direct effect earnings multiplier (minus one) to the estimated direct earnings ($360,000), and again applying the 5% effective tax rate.

1. $360,000 (Direct Earnings) * 0.33 (County Direct Effect Earnings Multiplier -1) = $117,504

2. $117,504 (Indirect earnings) x 5% = $5,875

Revised Approach

Under the revised approach, direct income is still calculated as 50% of total construction costs.

$720,000 (Construction Cost) * 50% * 5% = $18,000.

As noted previously, we recommend that a lower effective tax rate of 3% be used, or that JLL's detailed income tax module be used with the appropriate prevailing wage rate and estimated level of construction employment based on that rate. At a 3% effective rate, direct income taxes would total $10,800.

Indirect income taxes are then calculated by applying the state-level final demand earnings multiplier to the total construction cost, subtracting out the direct income, and applying the effective income tax rate.

1. $720,000 (Construction Cost) * 0.6956 (final demand earnings multiplier) = $500,832 (Total Earnings)

2. $500,832 (Total Earnings) - $360,000 (Direct Earnings) = $140,832 (Indirect Earnings)

3. $140,832 (Indirect Earnings) * 5% = $7,042 (Indirect Income Taxes)

Again, we recommend that income taxes on indirect earnings also either be calculated at a lower effective rate of 3% (which would result in estimated indirect income taxes of $4,225 in this case), or that the JLL income tax module be used with estimated employment and per-job earnings calculated as described in the box on page 91.

Total Tax Revenues (Benefits)

Under the original calculation, total annual tax benefits were:

$495,713 (direct income taxes) + $498,836 (indirect income taxes) + $5,550,661 (indirect sales taxes) = $6,545,210

Using the alternative approach, with the resulting lower indirect sales tax revenues and higher indirect income tax revenues results in the following benefits:

$495,713 (direct income taxes) + $687,586 (indirect income taxes) + $1,515,791 (indirect sales taxes) = $2,699,090

Thus, the alternative approach would result in an annual benefit estimate approximately $3.8 million (about 58%) lower than in the current model. The model approach in use at the time would grow benefits at an annual rate of 3% (effectively assuming a 3% real growth rate) and then discount the results to net present value at a 6% rate over 20 years. In the original analysis, this resulted in total estimated benefits of $95.4 million (including one-time benefits, which were de minimis in this case - $69,205) and, based on the total award of $6.26 million, a benefit-cost ratio of over 15. Under these same growth and discounting assumptions, the alternative approach would result in estimated benefits of $39.4 million and a benefit cost ratio of 6.3. If the current parameters of 2.25% annual growth and a 15-year period of benefit calculation are applied, estimated benefits would be $30.1 million and the benefit-cost ratio would be 4.8.

On the cost side of the analysis, as noted previously, we recommend that awards (i.e., costs) be discounted over time in parallel to benefits, resulting in a net present value of costs approximately 26% lower than the undiscounted award. In this case, discounting the award at 6% would result in a net present value of $4.6 million and thus a benefit-cost ratio of approximately 6.5.

Factor Systems is a payment management company, classified under the professional, scientific and technical services industry, moving from Hamilton, NJ to Lawrenceville, NJ in Mercer County.

The project was approved for a $12.9 million Grow NJ award over 10 years. It was projected to create 200 new jobs and retain 228 existing jobs in the state. The project has an estimated capital investment of $7.3 million.

Tax Revenue Benefits	Original Approach	Revised Approach
Ongoing (Annual)		
Indirect Sales (3.5% or 7%)	$3,066,567	$3,017,769
Direct Income (3.1%, based on JLL model)	$1,193,735	$1,193,735
Indirect Income (3.1%, based on JLL model)	$440,369	$556,019
CBT (9%)	-	-
Total Ongoing (Annual)	**$4,700,671**	**$4,767,523**
One-Time		
Direct Sales	$315,000	-
Indirect Sales	$127,103	$707,301
Direct Income (@ 5%)	$112,500	$112,500
Indirect Income (@ 5%)	$41,681	$44,010
Total One-Time	**$596,284**	**$863,811**

Indirect Sales Tax

Original Approach

The indirect sales taxes estimated to be generated by the project annually were calculated using the county-level multipliers as follows:

1. Direct payroll of $38.5 million was multiplied by a county direct effect earnings multiplier of approximately 1.37 to attain a total earnings estimate of $52.73 million.

2. The total earnings were divided by the county final demand earnings multiplier of 0.28 to derive a direct output estimate of approximately $190.8 million

3. This estimate was then multiplied by the final demand output multiplier of 1.46 and the direct output subtracted out to derive an estimate of $87.6 million in indirect output.

4. This amount was then multiplied by the effective tax rate of 3.5% to derive the estimated indirect sales tax revenues of $3.07 million.

As in other cases, the low county-level final demand *earnings* multiplier results in

an overestimate of direct output. However, in this case, the *state* final demand *output* multiplier for the industry is significantly larger than that of the county, so that the alternative approach we suggest results in a *higher* estimate of indirect spending than in the original approach.

Revised Approach

1. Direct payroll of $38.5 million is divided by the national compensation-to-output ratio for the industry of approximately 0.515, producing a direct output estimate of $74.7 million.

2. The state-level final demand output multiplier of approximately 2.2 is then applied and the direct output subtracted from the product to arrive at an estimate of $89.2 million in indirect output.

3. The retail, wholesale and food service shares of indirect expenditures generated by the industry (approximately 0.48) are then applied to generate an estimate of $43.1 million in taxable spending.

4. A 7% tax rate is then applied to the estimated indirect taxable sales to arrive at an annual indirect tax estimate of approximately $3 million – about the same as under the current approach.

Income Tax Revenues

Original Approach

In this example, based on the model revisions adopted in 2017, income-level-specific marginal tax rates were applied to the estimated salaries for the direct jobs, resulting in an effective income tax rate of approximately 3.1% applied to the direct earnings of $38.52 million. Unlike the approach used prior to the revisions, this approach does take into account the effect of interstate commutation on income taxes. The 3.1% effective rate is calculated as the estimated income tax based on employee salaries, less a percentage of interstate commutation derived from Census commutation data.

For income taxes on indirect earnings, the indirect income was calculated by applying the direct effect earnings multiplier for the county/industry to the direct earnings (payroll):

1. $38,520,000 (direct earnings) x 1.37 (direct earnings multiplier) - $38,520,000 (direct earnings) = $14,210,028 (indirect earnings)

2. $14,210,028 x 3.1% = $440,369 taxes on indirect earnings

Revised Approach

Using the revised approach, the estimated direct output and state-level final demand earnings multipliers are used to estimate indirect earnings and tax revenues:

1. $74,734,477 (direct output) x .7555 (final demand earnings multiplier) = $56,461,898 (total earnings)

2. $56,461,898 (total earnings) - $38,520,000 (direct earnings) = $17,941,898 (indirect earnings)

3. $17,941,898 (indirect earnings) x 3.1% = $556,019 taxes on indirect earnings.[39]

One-Time Sales Taxes

Original Approach

Under the current approach, 50% of the construction value of $4.5 million is assumed to be non-labor spending, and a 7% sales tax rate (or current level) should be applied to that portion to derive what are considered *direct* sales taxes:

$4.5 million (Construction Value) x 50% (non-labor share) * 7% (tax rate) = $157,500

[Note: In this particular example, there appears to have been an error in the calculation of direct sales taxes, as the 7% rate was applied to the entire Construction Value, resulting in estimated direct sales taxes of $315,000.]

Indirect expenditures and sales taxes are then calculated using the county direct output multiplier for construction:

$4.5 million (Construction Value) * .4 (Direct Construction Output Multiplier -1) * 7% (tax rate) = $127,103

Thus, total one-time taxes on spending are estimated as $315,000+$127,103 = $442,103

Revised Approach

Under the revised approach, the state final demand output multiplier for the construction industry is used to estimate *indirect* output based on the total construction value. The wholesale/retail share of indirect output generated by construction industry spending is then applied to the indirect output to estimate the *taxable* expenditures. As described earlier in this section, to avoid double counting of expenditures, only sales taxes on the indirect portion of the expenditures are included. The sales tax rate is then applied to this total.

1. $4.5 million (Construction Value) x 1.2454 (State Final Demand Output Multiplier for the Construction Industry-1) x 0.6962 (wholesale/retail share) = $3.9 million (Taxable Spending)

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[39] Here, as in the JLL model and for purposes of comparison, we apply the same 3.1% effective rate calculated for the taxes on direct income to the indirect income as well. However, as described in the methodology proposed on page 91, we recommend that a separate approach be used to derive an estimate of average income for the indirect employment, and that the JLL income tax module then be used to derive an appropriate effective income tax rate to apply to those estimated earnings.

2. $3.9 (Taxable Indirect Spending) x 7% = $707,301 (Indirect Sales Tax)

One-Time Income Tax Revenues

Original Approach

Under the original approach, direct income is calculated as 50% of total construction costs, and an effective income tax rate of 5% is applied to this total:

$4.5 million (Construction Cost) * 50% * 5% = $112,500.

Income taxes on indirect income are then calculated by applying the county-level direct effect earnings multiplier (minus one) to the estimated direct earnings ($2.25 million), and again applying the 5% effective tax rate.

1. $2.25 million (Direct Earnings) * 0.37 (County Direct Effect Earnings Multiplier -1) = $833,625

2. $833,625 (Indirect earnings) x 5% = $41,681

Revised Approach

Under the revised approach, direct income is still calculated as 50% of total construction costs.

$4.5 million (Construction Cost) * 50% * 5% = $112,500.

As noted previously, we recommend that a lower effective tax rate of 3% be used, or that JLL's detailed income tax module be used with the appropriate prevailing wage rate and estimated level of construction employment based on that rate. At a 3% effective rate, direct income taxes would total $67,500.

Indirect income taxes are then calculated by applying the state-level final demand earnings multiplier to the total construction cost, subtracting out the direct income, and applying the effective income tax rate.

1. $4.5 million (Construction Cost) * 0.6956 (final demand earnings multiplier) = $3.13 million (Total Earnings)

2. $3.13 million (Total Earnings) - $2.25 million (Direct Earnings) = $880,200 (Indirect Earnings)

3. $880,200 (Indirect Earnings) * 5% = $44,010 (Indirect Income Taxes)

Again, we recommend that income taxes on indirect earnings also either be calculated at a lower effective rate of 3% (which would result in estimated indirect income taxes of $26,406 in this case), or that the JLL income tax module be used with estimated employment and per-job earnings calculated as described in the box on page 91.

Total Tax Revenues (Benefits)

Under the original calculation, total annual tax benefits were:

$1,193,735 (direct income taxes) + $440,369 (indirect income taxes) + $3,066,567 (indirect sales taxes) = $4,700,671

Using the alternative approach, with the resulting higher indirect sales tax revenues and higher indirect income tax revenues results in the following benefits:

$1,193,735 (direct income taxes) + $556,019 (indirect income taxes) + $3,017,769 (indirect sales taxes) = $4,767,523

Thus, the alternative approach would result in an annual benefit estimate approximately $66,852 higher than in the current model. The model approach in use at the time would grow benefits at an annual rate of 2.25% (effectively assuming a 2.25% real growth rate) and then discount the results to net present value at a 6% rate over 15 years. In the original analysis, this resulted in total estimated benefits of $52.9 million (including one-time benefits) and, based on the total award of $12.9 million, a benefit-cost ratio of 4.1. Under these same growth and discounting assumptions, the alternative approach would result in estimated benefits of $53.7 million and a benefit cost ratio of 4.2.

On the cost side of the analysis, as noted previously, we recommend that awards (i.e., costs) be discounted over time in parallel to benefits, resulting in a net present value of costs approximately 26% lower than the undiscounted award. In this case, discounting the award at 6% over 10 years would result in a net present value of $9.5 million and thus a benefit-cost ratio of approximately 5.7.

APPENDIX VI: ALTERNATIVE BENEFIT-COST MODEL PARAMETERS

Appendix VI is in digital form and was previously provided to JLL. It is intended primarily to serve as a reference document as any of the proposed modeling changes are adopted. It contains a set of spreadsheets providing the county-level RIMS II multipliers used in some Grow NJ benefit-cost analyses, as well as examples of the state-level RIMS II multipliers that would be used in the alternative modeling approaches described above. The spreadsheets also provide estimates on a county/industry basis of the difference in estimated annual sales and income tax benefits per dollar of income from Grow NJ jobs when calculated using the current approach and when using the proposed alternatives.

As noted in Appendix V, the state-level multiplier examples shown in the spreadsheets are based on older RIMS II multipliers and are provided only for illustrative purposes, though the state-level inter-industry relationships are unlikely to have changed significantly, and the most potentially impactful modeling changes rely not on RIMS II state multipliers but rather on national data (compensation-to-output ratios). In addition, the county-level multipliers used in the JLL model have been updated since the model's inception, and those shown in the spreadsheet may not correspond to those cited in the examples presented in Appendix V.

APPENDIX VII: INDUSTRY OPERATING SURPLUS TO COMPENSATION RATIOS

Ratio of Gross Operating Surplus to Compensation by
Industry New Jersey, 2015

Industry	Gross Operating Surplus	Compens -ation	Ratio: Gross Operating Surplus/ Compensation
All industry total	204,464	308,636	0.662
Private industries	195,898	253,500	0.773
Agriculture, forestry, fishing, and hunting	412	389	1.059
Farms	304	247	1.231
Forestry, fishing, and related activities	108	142	0.761
Mining	162	131	1.237
Oil and gas extraction	10	7	1.429
Mining, except oil and gas	155	97	1.598
Support activities for mining	-2	28	-0.071
Utilities	5,583	2,188	2.552
Construction	9,557	12,509	0.764
Manufacturing	18,533	22,985	0.806
Durable goods manufacturing	3,456	10,171	0.340
Wood products manufacturing	11	125	0.088
Nonmetallic mineral products manufacturing	382	736	0.519
Primary metals manufacturing	46	390	0.118
Fabricated metal products	377	1,459	0.258
Machinery manufacturing	231	1,224	0.189
Computer and electronic products manufacturing	1,053	2,600	0.405
Electrical equipment, appliance, and components manufacturing	375	634	0.591
Motor vehicles, bodies and trailers, and parts manufacturing	(D)	(D)	-
Other transportation equipment manufacturing	(D)	(D)	-
Furniture and related products manufacturing	81	329	0.246
Miscellaneous manufacturing	776	2,269	0.342
Nondurable goods manufacturing	15,076	12,814	1.177
Food and beverage and tobacco products manufacturing	1,776	2,169	0.819
Textile mills and textile product mills	94	252	0.373
Apparel and leather and allied products manufacturing	5	270	0.019
Paper products manufacturing	133	1,023	0.130
Printing and related support activities	382	959	0.398
Petroleum and coal products manufacturing	2,781	519	5.358
Chemical products manufacturing	9,487	6,605	1.436
Plastics and rubber products manufacturing	418	1,017	0.411
Wholesale trade	16,130	22,063	0.731
Retail trade	8,302	18,381	0.452
Transportation and warehousing	6,746	10,750	0.628
Air transportation	1,662	1,734	0.958
Rail transportation	(D)	(D)	-
Water transportation	351	151	2.325
Truck transportation	1,625	2,412	0.674
Transit and ground passenger transportation	785	982	0.799
Pipeline transportation	16	62	0.258
Other transportation and support activities	(D)	(D)	-
Warehousing and storage	579	1,788	0.324
Information	14,137	9,240	1.530
Publishing industries, except Internet (includes software)	3,462	2,908	1.191
Motion picture and sound recording industries	981	473	2.074
Broadcasting and telecommunications	7,930	4,442	1.785
Data processing, internet publishing, and other information services	1,764	1,416	1.246
Finance, insurance, real estate, rental, and leasing	81,563	30,863	2.643

Finance and insurance	8,584	26,639	0.322
Federal Reserve banks, credit intermediation, and related services	(D)	(D)	-
Securities, commodity contracts, and investments	208	8,615	0.024
Insurance carriers and related activities	4,850	11,174	0.434
Funds, trusts, and other financial vehicles	(D)	(D)	-
Real estate and rental and leasing	72,979	4,224	17.277
Real estate	68,540	2,951	23.226
Rental and leasing services and lessors of intangible assets	4,439	1,272	3.490
Professional and business services	20,777	64,195	0.324
Professional, scientific, and technical services	12,294	36,350	0.338
Legal services	2,378	4,041	0.588
Computer systems design and related services	1,224	9,133	0.134
Miscellaneous professional, scientific, and technical services	8,692	23,176	0.375
Management of companies and enterprises	2,091	14,473	0.144
Administrative and waste management services	6,392	13,371	0.478
Administrative and support services	5,958	12,388	0.481
Waste management and remediation services	434	984	0.441
Educational services, health care, and social assistance	6,805	39,810	0.171
Educational services	347	5,158	0.067
Health care and social assistance	6,458	34,652	0.186
Ambulatory health care services	4,945	16,200	0.305
Hospitals and nursing and residential care facilities	1,121	15,667	0.072
Social assistance	391	2,784	0.140
Arts, entertainment, recreation, accommodation, and food services	4,600	11,544	0.398
Arts, entertainment, and recreation	1,400	2,744	0.510
Performing arts, spectator sports, museums, and related activities	827	1,259	0.657
Amusements, gambling, and recreation industries	574	1,485	0.387
Accommodation and food services	3,200	8,800	0.364
Accommodation	1,510	2,376	0.636
Food services and drinking places	1,689	6,423	0.263
Other services, except government	2,590	8,452	0.306
Government	8,566	55,136	0.155
Federal civilian	1,183	5,582	0.212
Federal military	1,233	1,174	1.050
State and local	6,150	48,380	0.127
Addenda:			
Natural resources and mining	574	520	1.104
Trade	24,432	40,444	0.604
Transportation and utilities	12,330	12,939	0.953
Private goods-producing industries	28,663	36,014	0.796
Private services-providing industries	167,235	217,486	0.769

Legend / Footnotes:

Note-- NAICS Industry detail is based on the 2007 North American Industry Classification System (NAICS).

(D) Not shown in order to avoid the disclosure of confidential information; estimates are included in higher level totals.

Last updated: November 21, 2017 -- revised statistics for 2014-2016.

Source: U.S. Bureau of Economic Analysis.