



# The Fiscal and Economic Impact of the Wilmington Riverfront

February 2018

**Center for Applied Demography & Survey Research**

**University of Delaware**

---

# **The Fiscal and Economic Impact of the Wilmington Riverfront**

**By**

**Omar J Borla**

**February 2018**

**An Analysis of Delaware's Economy**

**Economic Analysis Studies**

The University of Delaware does not discriminate against any person on the basis of race, color, national origin, sex, gender identity or expression, sexual orientation, genetic information, marital status, disability, religion, age, veteran status or any other characteristic protected by applicable law in its employment, educational programs and activities, admissions policies, and scholarship and loan programs as required by Title IX of the Educational Amendments of 1972, the Americans with Disabilities Act of 1990, Section 504 of the Rehabilitation Act of 1973, Title VII of the Civil Rights Act of 1964, and other applicable statutes and University policies. The University of Delaware also prohibits unlawful harassment including sexual harassment and sexual violence. For inquiries or complaints related to non-discrimination policies, please contact: Director, Institutional Equity & Title IX Coordinator 305 Hullihen Hall, Newark, DE 19716 - 302-831-8063

## Acknowledgements

We would like to thank Megan M. McGlinchey, Executive Director and Francis J. Lucey, Comptroller of the of the Riverfront Development Corporation for helping with data and information. I would also want to thank Sarah Luoma from the Riverfront Development Corporation who dedicated a lot of time to assemble data from the Riverfront and to staff from DelDOT and DNREC for providing information.

## **TABLE OF CONTENTS**

List of Tables .....	vi
List of Figures .....	viii
Executive Summary .....	ix
Introduction.....	xiv
The Riverfront - A Brief History .....	xvi
The Wilmington Riverfront Fiscal Impact.....	1
Fiscal Expenditures .....	1
Expenditures by DelDOT on the Riverfront.....	2
Expenditures by DNREC at the Riverfront. ....	4
Capital Investment by RDC at the Riverfront.....	6
Fiscal Revenues .....	9
Personal Income, Wage, and Head Tax .....	9
Revenues - Bank Franchise Tax .....	14
Real Estate Tax and Real Estate Transfer Tax.....	16
Revenues from Construction Projects.....	19
Revenues from Residents at the Riverfront .....	23
Summary of Revenues .....	26

**TABLE OF CONTENTS (Cont.)**

Forecast of the Fiscal Impact .....	29
The Wilmington Riverfront Economic Impact .....	35
Conclusion .....	41
Appendix A .....	44
Appendix B .....	53
The REMI PI+ Model .....	53
Data and Calculations .....	58

## List of Tables

Table 1 Estimated Expenditures by the Delaware D.O.T (000s 2017 \$).....	3
Table 2: Estimated Expenditures by the Delaware DNREC (000s 2017 \$) .....	5
Table 3: Capital Investment by the RDC During 2011 - 2016 (000s 2017 \$) .....	6
Table 4: Estimated Public Expenditures on Riverfront Projects (000s 2017 \$) .....	8
Table 5: Delaware Bank Franchise Tax Rates (000s 2017 \$).....	14
Table 6: Estimated Bank Franchise Tax Revenues from Riverfront Sources (000s 2017 \$) .....	15
Table 7: Estimated Net Real Estate Tax Revenues From Riverfront Properties (000s 2017 \$)...	18
Table 8: Estimated Construction Investment in Riverfront Projects (000s 2017 \$) .....	20
Table 9: Estimation of Construction Cost for Riverfront Projects (000s 2017 \$) .....	21
Table 10 – Tax Revenues from Residents at the Riverfront (000s of 2017 \$) .....	25
Table 11 Total Estimated Public Revenues due to Net Riverfront Activity (000s of 2017 \$) ....	27
Table 12: Tax Revenues From Riverfront Activity According to Destination (000s 2017 \$) .....	28
Table 13: Forecast of Public Expenditures and Revenues - Net Riverfront Activity (2017 \$) ....	32
Table 14: Forecast - Expenditures and Revenues - State of Delaware - Net Activity (2017 \$) ..	33
Table 15: Summary of the Economic Impact of the Riverfront Activity .....	36
Table 16: Employment by Industry Hierarchy From the Riverfront Economic Impact.....	37
Table 17: Summary of Employment by Occupation From the Riverfront Economic Impact.....	38

**List of Tables (Cont.)**

Table 18: Percentage of Employment by Occupation – Riverfront and New Castle County.....	39
Table A1: Consumer Price Index (CPI-U) - Philadelphia-Wilmington-Atlantic City. ....	45
Table A2: Calculation of Delaware Personal Income Tax Rate Based On Wages & Salaries.....	46
Table A3: Estimated Expenditures by the Delaware D.O.T., 2012-2017 (000s \$) .....	46
Table A4: Estimated Expenditures by the Delaware DNREC, 2012-2017 (000s \$) .....	46
Table A5: Capital Investment (000s \$) by the RDC during 2011 - 2016 .....	47
Table A6: Estimated Public Expenditures on Riverfront Projects (000s \$) .....	47
Table A7: Franchise Bank Revenues (000s \$).....	48
Table A8: Estimated Net Real Estate Tax Revenues From Riverfront Properties (000s \$) .....	48
Table A9: Estimated Construction Investment in Riverfront Projects (000s \$) .....	49
Table A10: Estimation of Construction Cost for Riverfront Projects (000s \$) .....	50
Table A11 Total Estimated Public Revenues due to Net Riverfront Activity (000s \$).....	51
Table A12 Total Estimated Public Revenues due to Gross Riverfront Activity (000s \$) .....	52
Table B1: Data Used as Inputs for the Economic Impact Simulation .....	58

## List of Figures

Figure 1 Smoothed Employment (four-quarters MA) and Average Wages (2017 \$) .....	10
Figure 2: Estimated Income and Wage Tax Revenues- City of Wilmington (000s 2017 \$) .....	12
Figure 3 – Estimated revenues From Head Tax- City of Wilmington (000s 2017 \$) .....	13
Figure 4: Forecast for Public Revenues ( 2017 \$) from Riverfront Activity .....	30
Figure 5: Forecast of Total Public Revenue for the State of Delaware (2017 \$).....	33
Figure B1 – Illustration of block interactions within REMI PI+ model .....	55
Figure B2 – How REMI Forecast the Effect of a Policy .....	57

# Executive Summary

The Center for Applied Demography & Survey Research at the University of Delaware conducted this study to explore the fiscal and economic impact of the activity that takes place on the Wilmington Riverfront. The Riverfront Development Corporation funded this report. Nevertheless, the author is solely responsible for its design and execution.

The Wilmington Riverfront, as it is now, is unrecognizable when compared to just 20 years ago. In the 19<sup>th</sup> century, the Riverfront was full of industrial activity. The Riverfront has been home to many different businesses over the years. For example, Harlan and Hollingsworth, one of the first iron shipyards in the US, built “iron ships, steam boats, and all kind of passenger and freight cars” and machinery in the 1800’s. The Dravo Corporation, also on the Riverfront was a major supplier of military vessels during World War II. Other manufacturers joined those powerhouses by locating at the Riverfront. After WWII, activity at the Riverfront languished and by the 1980’s most businesses had long since abandoned the area, leaving behind a heavily polluted and mostly vacant industrial zone. In the 1990’s, there was a decision to convert the Riverfront into a center of economic activity and tourism. Since then, the plan has evolved and succeeded in developing upscale residences and attracting corporate headquarters and new businesses.

The State of Delaware, the City of Wilmington, New Castle County, and many private companies, made necessary expenditures to transform the Riverfront. As it developed, new activities began to generate financial returns. This report addresses the fiscal impact of the Riverfront. Below is a summary of the most critical facts and findings discussed in the report.

### Change in Economic Conditions on the Riverfront

- Employment on the Riverfront increased from 4,250 in 2011 to an annual average of 5,500 by 2017. By the end of that year, employment was close to 6,000.
- In 1997, the average Riverfront employee had an annual wage of \$31,800<sup>1</sup>. By 2011, the average salary was \$74,000 and reached its peak in 2017 at \$82,000. The increase was partially due to some growth in overall wages but mostly due to the location at the Riverfront of firms employing high-skill high-wage jobs, primarily, executive and professional labor at corporate headquarters of major financial and insurance service companies.
- After controlling for businesses relocating to the Riverfront from other places within the State, those leaving, those that existed on the Riverfront before redevelopment, and those that closed, the Riverfront accounted for 2,000 net new jobs by 2011. By 2017, the

---

<sup>1</sup> All dollar figures presented here are in 2017 dollars unless indicated otherwise. Value adjustment calculated using the Consumer Price Index for All Urban Consumers in the Philadelphia-Wilmington-Atlantic City region.

number of new jobs increased by another 950. Meanwhile, average wages in 1996 of \$31,785, became \$74,100 by 2011, and close to \$82,000 in 2017.

- Since 2011, about 320 new residences are now part of the Riverfront's dwelling offering. Added to the 760 units existing before that year, this raised the total number of units to 1,078 by the end of 2017 including 579 apartments, 105 townhomes, and 394 condominiums. Construction is underway for 68 more units that will increase the total number to 1,146 by the end of 2018 and early 2019. A project for more than 100 additional units will follow. The Westin Hotel, the first at the Riverfront, also began operations in 2014, adding 180 rooms.

## **Public Spending at the Riverfront**

- The transformation of the Riverfront required approximately \$414 million in public investments. The Delaware Department of Transportation contributed \$171 million, primarily funded with the sale of state-issued bonds. The second largest source of investment funds is the money given directly to the Riverfront Development Corporation (\$131 million), also from the annual sale of state-issued bonds.
- The State of Delaware spent approximately \$370 million in the developing the Riverfront since 1996. The City of Wilmington contributed \$27 million, and other sources (e.g., New Castle County, federal sources, non-profits, etc.) \$17 million.
- Much of the public spending on the Riverfront occurred between the late 1990's and the mid 2000's. After accounting for inflation, public expenditures on the Riverfront were lower in 2013 and 2014 than in any other year since 1996.

## **Public Revenues Collected at the Riverfront**

- Total gross public revenues from Riverfront activity (as opposed to a net activity that subtracts companies existing before 1996) amounted to \$524 million since 1996 (see Table A12 in Appendix A). The main contributor is Personal Income Tax (PIT) collections with 50% of the total. Bank franchise taxes reached 21% of the total, even with one less financial institution after the acquisition and relocation of the offices of ING Direct in 2012. City of Wilmington's wage tax was third with 13%.
- Since 1996, Riverfront activity approximately created \$402 million in net public revenues (see Table 8). Annual public revenues in 1996 were \$32,000 but increased to \$27 million in 2011 and \$32 million by 2017<sup>2</sup>. Again, as with gross receipts, PIT supplied the most significant percentage (48%) followed by bank franchise tax with 24% and City of Wilmington's wage tax with 12%.
- The State of Delaware received close to \$297 million in revenues, mainly from PIT collection, since 1996. Bank franchise taxes added another \$95 million during the same period. It is important to highlight that Barclays Bank of Delaware paid \$35 million in total since 2013 as the only banking services company located on the Riverfront.
- The City of Wilmington has received approximately \$78 million in new public funds due to the development that has occurred on the Riverfront since 1996

---

<sup>2</sup> All figures in this report for 2017 are estimates based on second- or third-quarter data.

## **Economic Impact of the Activity at the Riverfront**

Our simulation of the economic impact of the activity at the Riverfront gave the following results:

- Total employment increased by 2,230 jobs in New Castle County and by 2,286 at the state level (56 more jobs than the county.)
- Private Non-farm employment (employment in the private sector only) reached 2,170 and 2,221 in the county and state, respectively. The state received 51 additional jobs.
- The value of output was \$380 million in the county and \$386 million in the state. Those are the value of all the goods and services produced by the firms and their employees located outside of the Riverfront, whose activities relate via input or output to the firms located at the Riverfront.
- Most of the jobs in the county resulting from the activity at the Riverfront were in the Finance and Insurance, Construction, Retail Trade, Health Care, and Professional Scientific, and Technical Services.

## Introduction

The Center for Applied Demography and Survey Research produced two reports measuring the Fiscal Impact of the Wilmington Riverfront. The first two, one by Simon Condliffe<sup>3</sup> and the second by Dan Brown<sup>4</sup> did most of the heavy lifting regarding developing a methodology appropriate to appraising the activity at the Riverfront. In this, the third report, we build on Condliffe and Brown's findings and data extensively.

As in every evaluation of the regional economic development, the central questions are: what are the objectives and how do you measure them. The standard definitions of what the goals of the regional economic development are: the creation of new business and expansion of existing ones as instruments to increase the total number of jobs with a rising trend in wages.

That definition entails the evaluation of any development agency, state-owned or mixed ownership, as a private enterprise where a comparison of revenues and expenditures says if the firm is profitable. The problem is that an economic development process involves the creation of

---

<sup>3</sup> The Fiscal and Economic Impact of the Wilmington Riverfront, Simon Condliffe, CASDR 2009.

<sup>4</sup> Brown 2012.

## **The Fiscal and Economic Impact of the Wilmington Riverfront**

---

many products whose value, while highly regarded by the population, it is almost impossible to quantify monetarily.

The case of the Riverfront Development Corporation fits within that pattern; it invested in the creation of several facilities that are not revenue creators like the Tubman.Garret Park, the Riverwalk, etc. Those amenities, highly valued by visitors and residents of the Riverfront, need investment in maintenance and improvements. Without generating revenues, it is impossible to assess them as a private investment.To tackle that difficulty, we have divided this report into two parts. In the first, we analyze and forecast fiscal revenues and expenditures. In the second part, we conduct an economic impact analysis that measures how regular Riverfront activity impacts the economies of New Castle County and the whole State of Delaware.

In two appendices we plot tables of data used for calculations in the fiscal impact part and an explanation and details of the REMI model used to simulate the economic impact.

There is one caveat about data and calculations used in this report. We use the Consumer Price Index for Philadelphia-Wilmington-Atlantic City for all Urban Consumers (CPI-U) to convert nominal values into 2017 prices values<sup>5</sup>. Consequently, unless otherwise indicated, all monetary amounts are in 2017 dollars.

---

<sup>5</sup> The index used is included in Appendix A

## **The Riverfront - A Brief History**

The Wilmington Riverfront was a center of activity during The Industrial Revolution that progressed during the XVIII and XIX centuries in the USA. Railroad car manufacturing was the first industry to develop. In 1836, two business partners, Mahlon Betts and Samuel Pusey began manufacturing railcars at a workshop located on West and Water Streets in the actual Riverfront, Later Samuel Harlan joined the company and by 1849 manufacturing of passengers and freight cars were running high. The company began experimenting with shipbuilding, especially steamboats. By late 1800s, the company was a recognized shipbuilder and one of the most important in the US. Other rival companies located in the area. The waterfront of the Christina River and the access to the Delaware River and the ocean was a magnet for those industries. Manufacturing in the actual Riverfront continued expanding. During WWII, the Dravo Corporation built hundred of watercraft for the US Navy and was the largest employer in the State of Delaware. After WWII, demand for the industry began to fade. The Dravo Corporation closed in 1965, and the Riverfront started to dwindle. During the 1980s, the Riverfront was typical Brownfield, with chemical spills, cesspools, junkyards, and crumbling abandoned buildings.

## **The Fiscal and Economic Impact of the Wilmington Riverfront**

---

In the early 1990's, then Governor Carper commissioned a task force to design a plan to revitalize the areas along the Brandywine and Christina Rivers. The task force outlined a blueprint to transform the Wilmington Riverfront into an area with upscale residencies, an urban wildlife refuge, a sports complex, an active nightlife, and most of all, cultural sophistication. As the idea progressed, the Riverfront rose as a feasible location for high-level companies.

In 1995, the state created the Riverfront Development Corporation (RDC) to oversee the development of the Wilmington Riverfront. The RDC initially received \$4.5 million from the State (nominal \$) and ordered to “1) provide financial incentives, including loans and grants to stimulate significant private investments; 2) assist and cooperate in capital development and public works programs funded in conjunction with other governmental agencies; 3) acquire and maintain land and open space; 4) acquire, erect, improve and maintain buildings, structures or other public works; and 5) act generally in a planning and development capacity.”<sup>6</sup>

Private investment began arriving at the Riverfront. AAA and Juniper Bank (later acquired by Barclays Bank) were among the first big players locating at the Riverfront. The Buccini-Pollin Group set their headquarters on the Riverfront and employment began to rise. The Buccini-Pollin

---

<sup>6</sup> The 138<sup>th</sup> General Assembly of the State of Delaware. (1995) “State Senate Bill 260”. State of Delaware. Cited by Brown (2012)

## **The Fiscal and Economic Impact of the Wilmington Riverfront**

---

Group built residential complexes at Christina Landing and Justison Landing improving property values and offering upscale living. New restaurants, as well as retail shops, began opening, and new businesses found the Riverfront as a very suitable place for their location. The latest significant employer was Navient, a division of Fannie Mae, that located at the Riverfront. The BPG group built more residences (Harlan Flats and Harlan Flats Phase II) and a new developer, Capano Residential, began the construction of new residential apartments.

By 2017, the Wilmington Riverfront, under the leadership of the RDC, is on the verge of expanding into the East side of the Christina River and a new era of expansion may begin.

# The Wilmington Riverfront Fiscal Impact

In this section, we summarize our estimates of the expenditures and revenues incurred as a result of the continued development of the Riverfront. Expenditures and transfer of funds by the RDC, State Agencies like DelDOT, DNREC, etc., as well as the City of Wilmington, the Government of New Castle County, and Federal Agencies are considered a public investment. Private investment is that done by developers, business, and firms, in general, to carry on their activities.

## Fiscal Expenditures

We gathered information from RDC, DelDOT, and DNREC detailing investment done within the Riverfront from 2012 to 2017. For previous years, we relied on the data from Brown (2012)<sup>7</sup> and Condliffe (2007)<sup>8</sup>. We also used several annual reports of the Delaware Hazardous Substance Cleanup Act (HSCA) Program and the HSCA Expenditure Plans. However, during the period 2012 – 2017 activity by DNREC on the East side of the Christina River was lower than during previous years as most of the cleanup was already done. Similarly with DelDOT, as the majority of the investment happened before 2009. Nevertheless, beginning in 2015, there was an increase in activity in preparation for the bridge on the Christina River that will join the West and East side of the Riverfront. All three major players are expected to increase their investments on the East side of the Riverfront in preparation for the construction of the Sixers' Sports Center. This

---

<sup>7</sup> Brown (2012)

<sup>8</sup> Condliffe (2007)

private project will reinforce the development of the East Riverfront. But activity on the West side is also expected to accelerate. According to press reports, there are two or three projects for new hotels that will increase the supply of accommodation within the Riverfront as well as construction spending and fiscal revenues.

### **Expenditures by DelDOT on the Riverfront**

The following table summarizes those DelDOT expenditures associated with Riverfront projects done between 2012 and 2017. The most substantial investments were in 2016, with the purchase of Lot K, a parcel of land from Delmarva Power and Light and in 2017 with the preparation (initiated in 2016) for the Bridge on the Christina River. The bridge will join the West side with the East side, facilitating traffic in and out of the Riverfront. At the same time, it will help the development of the east side on the Riverfront while also allowing better access to the Sixer's Sports Complex when completed.

## The Fiscal and Economic Impact of the Wilmington Riverfront

*Table 1 Estimated Expenditures by the Delaware D.O.T (000s 2017 \$)*

	2012	2013	2014	2015	2016	2017	Total (\$)	Total (2017 \$)
<b>Movie Theater Parking - Parcel 6</b>	\$939	\$1,036	\$32	\$0	\$0	\$0	\$1,933	\$2,007
<b>Chase Boulevard</b>	\$0	\$0	\$799	\$0	\$0	\$0	\$785	\$799
<b>Madison Street</b>	\$0	\$81	\$0	\$0	\$0	\$0	\$79	\$81
<b>General Construction Management</b>	\$65	\$215	\$0	\$253	\$165	\$0	\$687	\$699
<b>Highway Bridge</b>	\$0	\$15	\$0	\$0	\$1	\$5,000	\$5,016	\$5,016
<b>Lot K - Purchase of DP&amp;L Parcels</b>	\$0	\$0	\$0	\$0	\$4,023	\$0	\$4,000	\$4,023
<b>Total (Nominal \$)</b>	\$957	\$1,309	\$816	\$251	\$4,165	\$5,000	\$12,499	
<b>Total (2017 \$)</b>	\$1,004	\$1,348	\$831	\$253	\$4,190	\$5,000		\$12,626

Source: CASDR calculations with data provided by DelDOT

## Expenditures by DNREC at the Riverfront.

Between 2012 and 2017, DNREC spent \$916,742 of a \$1,000,000 allocation on the site denominated Justison Landing parcel 7 & 8, which is the location of the Movie Theater and includes the parking area. Justinson Landing parcel 7 and 8 was the most significant remediation project handled by the Department during the period.

A second important project was the clean-up of the **Jablow Property, located at 707 South Market Street**. By the end of 2010, DNREC spent approximately \$639,500 from the \$1,000,000 allocated initially to the site, and the \$360,500 remaining between 2011 and 2017.

Two other projects within the Riverfront, named 900 South Madison Street and M&N Property received \$212,400 in clean-up funds since 2010, and three new projects, the Former Shuster Auto Salvage, the American Tank, and the Wilson Property received \$102,380 since 2016.

DNREC activity will increase at the Riverfront once the development of the East side accelerates. According to private developers, several tracks of land are in the pipeline for reactivation, which will require involvement by DNREC.

## The Fiscal and Economic Impact of the Wilmington Riverfront

*Table 2: Estimated Expenditures by the Delaware DNREC (000s 2017 \$)*

	2012	2013	2014	2015	2016	2017	Total ( \$)	Total (2017 \$)
<b>Jablow Property - 707 South market Street</b>	\$186	\$23	\$4	\$0	\$39	\$59	\$301	\$311
<b>900 South Madison Street</b>	\$1	\$0	\$1	\$0	\$0	\$125	\$127	\$127
<b>M &amp; N Property</b>	\$34	\$0	\$0	\$0	\$0	\$0	\$32	\$34
<b>Movie Theater - Justison Landing parcels 7 &amp; 8</b>	\$553	\$389	\$3	\$0	\$3	\$6	\$917	\$954
<b>Former Schuster Auto Salvage</b>	\$0	\$0	\$0	\$0	\$0	\$18	\$18	\$18
<b>American Tank</b>	\$0	\$0	\$0	\$0	\$31	\$33	\$64	\$64
<b>Wilson Property</b>	\$0	\$0	\$0	\$0	\$0	\$21	\$21	\$21
<b>Total (Nominal \$)</b>	\$737	\$400	\$8	\$0	\$74	\$262	\$1,480	
<b>Total (2017 \$)</b>	\$702	\$388	\$8	\$0	\$73	\$262		\$1,528

Source: CASDR calculations with data provided by DelDOT

## Capital Investment by RDC at the Riverfront

Table 3 below details capital expenditures made by RDC during 2012 – 2016. RDC made valuable investments in land and building purchases during the period. The largest one in 2016 was for the lots at 601 & 787 South Madison Street for \$4.4 million. However, the State transferred \$4 million for that operation. Previous land operations involving the purchase, improvement, and sale of several lots were profitable for RDC. We have to keep in mind that not all capital investments made by RDC can be valued with the same metrics used for private investments. As we discussed in the Introduction, the evaluation of regional development programs, especially those involving remediation, are challenging to appraise given considerable non-monetary benefits.

*Table 3: Capital Investment by the RDC During 2011 - 2016 (000s 2017 \$)*

	2011	2012	2013	2014	2015	2016	Total (2017 \$)
Land and Building Purchases	\$643	\$0	\$0	\$2,162	\$407	\$8,305	\$11,517
Construction and Improvements	\$350	\$923	\$693	\$732	\$3,226	\$1,277	\$7,201
Equipment	\$18	\$0	\$55	\$168	\$126	\$380	\$747
Total (000 2017 \$)	\$1,011	\$923	\$748	\$3,062	\$3,759	\$9,962	\$19,465

Source: CASDR calculations with data provided by RDC

Table 4 shows our estimates of public expenditures on the Riverfront. In 2017 dollars, since 1996, public spending at the Riverfront reached \$414 million and \$336 million (nominal.) The core of the outlays fell on DelDOT from a total of \$171 million spent in 2017 \$; it had invested

## **The Fiscal and Economic Impact of the Wilmington Riverfront**

---

\$105 million between 2004 and 2008 (61% of the total investment since 1996.) As expected, RDC is the second largest investor with \$130 million. 2017 will be the year of the beginning of a new cycle of high investment led by DelDOT with the construction of the bridge over the Christina River and RDC and DNREC also increasing their investment, especially on the East side of the river. However, the amount of private investment, while not estimated yet, will likely exceed public investment. The Sixers' Sports Complex, the two or three hotels plus the second part of the residential construction on 101 Avenue of the Arts (100 apartment units) will amount to sizeable private investment on the Riverfront. One of the advantages for RDC and the agencies involved in the redevelopment is that a large part of the remediation and infrastructure is complete, which will moderate the need for extensive investments in the near- to medium term.

## The Fiscal and Economic Impact of the Wilmington Riverfront

*Table 4: Estimated Public Expenditures on Riverfront Projects (000s 2017 \$)*

	RDC	DelDOT	DNREC	State Other	City of Wilmington	Other Funds	Total (2017 \$)	Total (\$)
1996	\$76	\$0	\$0	\$0	\$0	\$0	\$76	\$50
1997	\$6,640	\$1,790	\$0	\$12,682	\$0	\$0	\$21,112	\$14,150
1998	\$2,954	\$6,646	\$0	\$6,063	\$0	\$738	\$16,402	\$11,105
1999	\$20,232	\$20,326	\$0	\$0	\$4,839	\$0	\$45,397	\$31,413
2000	\$16,890	\$9,673	\$0	\$0	\$91	\$1,478	\$28,132	\$19,987
2001	\$12,332	\$4,846	\$0	\$0	\$32	\$0	\$17,209	\$12,560
2002	\$4,434	\$7,215	\$339	\$1,881	\$0	\$907	\$14,776	\$10,998
2003	\$3,289	\$2,823	\$0	\$0	\$1,842	\$0	\$7,955	\$6,045
2004	\$1,896	\$11,146	\$379	\$506	\$4,551	\$13,769	\$32,248	\$25,508
2005	\$10,949	\$32,938	\$84	\$7,421	\$5,448	\$435	\$57,276	\$47,080
2006	\$6,442	\$27,728	\$0	\$6,442	\$4,440	\$0	\$45,052	\$38,465
2007	\$6,877	\$15,631	\$8,064	\$6,304	\$164	\$0	\$37,039	\$32,316
2008	\$2,217	\$17,762	\$7,825	\$0	\$1,396	\$0	\$29,199	\$26,344
2009	\$2,225	\$317	\$2,215	\$0	\$1,433	\$0	\$6,190	\$5,563
2010	\$2,564	\$0	\$686	\$116	\$951	\$0	\$4,317	\$3,851
2011	\$7,342	\$0	\$131	\$0	\$575	\$0	\$8,047	\$3,014
2012	\$2,708	\$999	\$769	\$0	\$129	\$267	\$4,871	\$5,223
2013	\$3,903	\$1,349	\$412	\$0	\$1,145	\$0	\$6,809	\$5,968
2014	\$3,382	\$831	\$8	\$0	\$112	\$122	\$4,455	\$4,094
2015	\$5,087	\$256	\$0	\$0	\$112	\$0	\$5,455	\$3,413
2016	\$3,785	\$4,218	\$75	\$4,051	\$81	\$0	\$12,211	\$11,389
2017 (est.)	\$4,200	\$5,500	\$262	\$100	\$80	\$0	\$10,142	\$8,142
Total (2017 \$)	\$130,424	\$171,996	\$21,248	\$45,565	\$27,419	\$17,716	\$414,369	
Total (Nom. \$)	\$105,194	\$140,201	\$18,939	\$35,711	\$22,421	\$13,850		\$336,316

Source: CASDR calculations with data provided by RDC, DelDOT, and DNREC

## Fiscal Revenues

In this section, we estimate the fiscal revenues associated with the economic activity on the Riverfront. As laws protect the confidentiality of taxpayers, collection agencies provide no information on tax contributions, except aggregated amounts. Consequently, we have to estimate those revenues by using the information on employment, wages, business expenses, banking activities, property values, property transactions, etc., existing in public sources.

## Personal Income, Wage, and Head Tax

Our first task is to put together the relevant information about employment and wages located and paid for at the Riverfront. We use data provided by the Delaware Department of Labor<sup>9</sup> The following figure shows the evolution of employment and wages at the Riverfront<sup>10</sup>

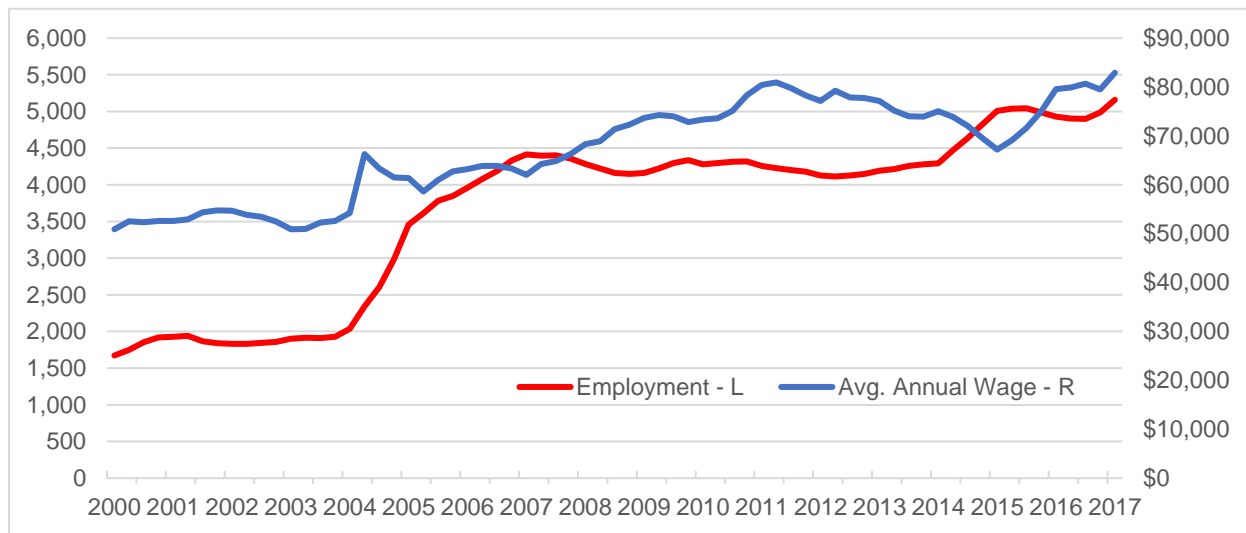
---

<sup>9</sup> Unemployment Insurance Files 2011 – 2017 second quarter

<sup>10</sup> We have connected the new data with the data included in the Brown (2012) report to show the historical evolution.

## The Fiscal and Economic Impact of the Wilmington Riverfront

Figure 1 Smoothed Employment (four-quarters MA) and Average Wages (2017 \$)



Source: CADSR estimates using Delaware Department of Labor Unemployment Insurance Files

Since 2005 the Riverfront had a significant influx of business activity with large corporations coming in. That reflects in the jump in employment, which close to 1,950 in 2000, increased up to 4,300 by the end of 2010, and which reached a peak of near 6,000 by the end of 2017. As seen in Figure 1, employment stabilized around 4,000 from 2010 to the fourth quarter of 2014; it has accelerated again since then.

Wages show an increasing pattern until 2011, stabilizing since then until 2014 and accelerating again to reach \$82,000 per capita by the end of the period.

In Brown (2012)<sup>11</sup> employment and wages are presented as a net percentage of the values existing before the development effort of the Riverfront began, which was about 15% of the employment (and associated wages.) Since then, the number of firms living and coming to the Riverfront reduced the percentage near to 2% by 2017. We adjusted the data and used only the *net employment and wages* in this report.

To calculate revenues from personal income taxes, we used the implicit tax rate published by the Delaware Department of Finances in the Fiscal Notebook for FY2017. However, the implicit tax rates published are related to the Personal Income for the State of Delaware. As the Personal Income data includes proprietors' income and transfers, we have recalculated the tax rates for each year based on Wages and Salaries income. In that way, we can calculate personal income taxes with the existing data. In addition to personal income collected by the State of Delaware, the City of Wilmington collects a wage tax with a rate of 1.25%.

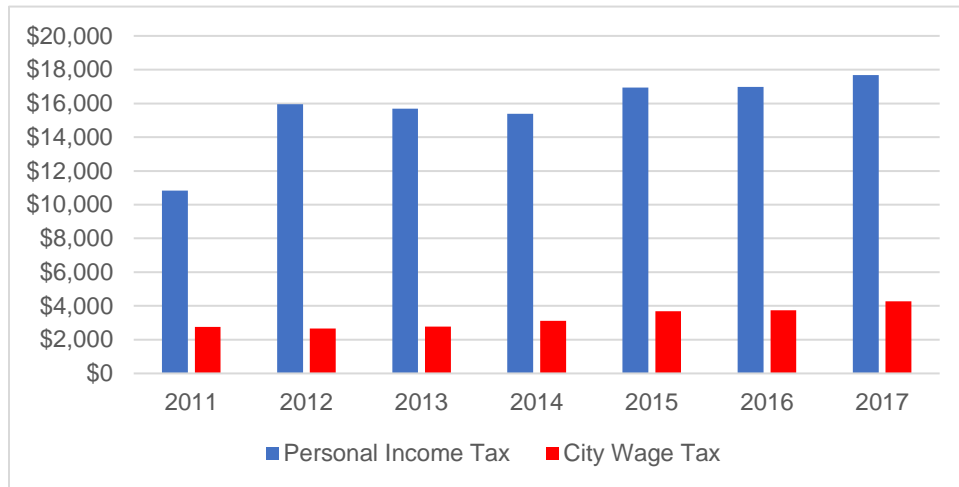
---

<sup>11</sup> Brown (2012) op. cit.

## The Fiscal and Economic Impact of the Wilmington Riverfront

Figure 2 shows our estimates of the personal income tax collected by the State of Delaware and the wage tax levied by the City of Wilmington solely from the activity of firms located at the Riverfront.

*Figure 2: Estimated Income and Wage Tax Revenues- City of Wilmington (000s 2017 \$)*



Source: CADSR using Delaware Department of Labor Unemployment Insurance

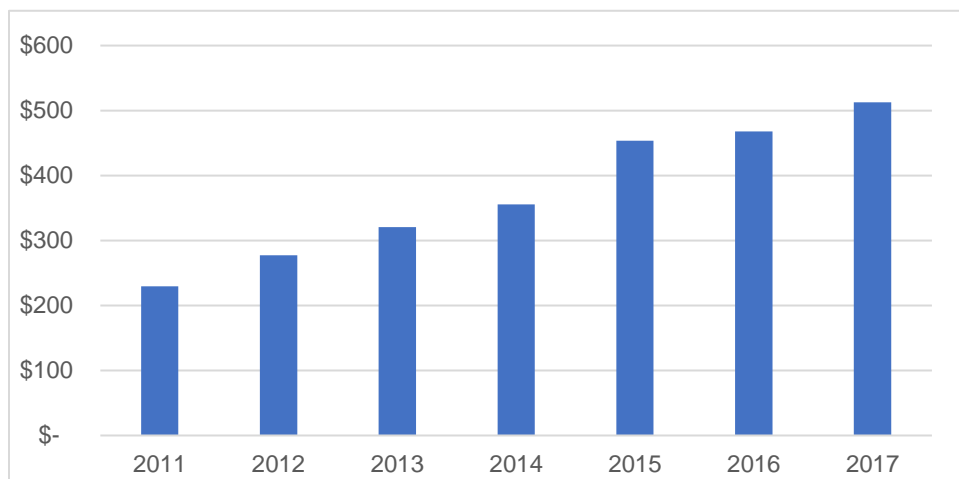
Personal income tax revenues increased from \$11 million in 2011 to \$18 million in 2017. As total wages increased in 2015 due to new corporation locating at the Riverfront<sup>12</sup>, personal income tax rose and set a new floor. The expansion of tax revenues in 2017 is mostly the result of increases in wages, especially in the top of the salary scales, which was a generalized phenomenon not only at the Riverfront but in many parts of the country.

---

<sup>12</sup> Navient Solutions Inc began operations at the Riverfront in 2015

In addition to the wage tax, the City of Wilmington also levies firms with a head tax. This tax charges \$15 per employee beyond the first five employees. Using the previous estimate of employment at the Riverfront, we calculate that the head tax collected \$220,000 in 2011 and \$515,000 in 2017.

*Figure 3 – Estimated revenues From Head Tax- City of Wilmington (000s 2017 \$)*



Source: CADSR using Delaware Department of Labor Unemployment Insurance Files

### Revenues - Bank Franchise Tax

Revenues from the Bank Franchise Tax (BFT) are the second most significant source of funding generated at the Riverfront. The BFT levies banking organizations headquartered or with branches in the State<sup>13</sup>.

Until November 1, 2012, there were two major banks located at the Riverfront: ING Bank and Barclays Bank Delaware. Capital One acquired ING in 2012 and moved the personnel out of the Riverfront. Consequently, BFT collections allocated to the Riverfront fell by more than 40% the following year.

*Table 5: Delaware Bank Franchise Tax Rates (000s 2017 \$)*

<b>Taxable Income Range</b>	<b>Tax Rate</b>
Not Greater than \$20 million	8.70%
\$20 million to \$25 million	6.70%
\$25 million to \$30 million	4.70%
\$30 million to \$650 million	2.70%
More than \$650 million	1.70%

Source: Office of the State Bank Commissioner – State of Delaware

---

<sup>13</sup> There are some statutory provision for building and loan associations but none of those is located at the Riverfront.

We estimate the BFT revenues by applying the corresponding tax rate (see Table 5) to the **Pre-tax Net Operating Income** (PTNOI)<sup>14</sup> accumulated by the end of each year and as reported in the Uniform Bank Performance Report (UBPR) by the Federal Financial Institutions Examination Council (FFIEC)<sup>15</sup>. We assume that banks pay the BFT in years when the PTNOI is positive and pay no tax when they have losses. There are some deductions that banks can apply to reduce their tax payment, but that information is not freely available. Consequently, the amount of tax collection is more of an indication of shifts and trends than of exact amounts.

Table 6 lists our estimates of BFT collections from Riverfront sources.

*Table 6: Estimated Bank Franchise Tax Revenues from Riverfront Sources (000s 2017 \$)*

2011	\$11,525
2012 *	\$11,346
2013	\$6,355
2014	\$5,521
2015	\$8,515
2016	\$7,013
2017	\$7,528
Total (2017 \$)	\$57,804
Total (Nom.)	\$54,508

\* ING Banks moved out of the Riverfront at the end of 2012

Source: CASDR with data from the FFIEC

---

<sup>14</sup> The sum of year-to-date pretax operating income plus net pretax securities gains or losses.

<sup>15</sup> <https://www.ffiec.gov/ubpr.htm>

## **Real Estate Tax and Real Estate Transfer Tax**

There are four taxes charged on a real estate at the Riverfront: City Property Taxes, County Property Taxes, School Property Taxes, and Real Estate Transfer Tax. The assessment value of the land and buildings attached is the basis for all property taxes<sup>16</sup>. The transfer tax is the only that uses the market or transaction value as the basis to calculate the tax.

In the 2012 report<sup>17</sup>, Brown estimated Property Taxes by applying the tax rate to the assessed value of the property. That approach has the limitation of overlooking exemptions that local governments grant to some facilities based on their use. For instance, the Frawley Stadium is considered “exempt commercial,” and the exemption, described as “charitable and benevolent,” is a status that is unclearly defined. Other parcels have similar exemptions. Consequently, we decided to gather County Property and School Property (as well as assessment values) for each

---

<sup>16</sup> All assessed values in New Castle County are based on 1983 market conditions, below market prices.

<sup>17</sup> Brown (2012)

## **The Fiscal and Economic Impact of the Wilmington Riverfront**

---

tax parcel from the New Castle County site<sup>18</sup>. Despite being a time-consuming task, it produces more reliable information. The only estimation necessary is the City Property Tax. In this case, we used the assessment values from New Castle County.

For the Transfer Tax, we also use New Castle County website. It provides information on sale prices with date identification by Tax ID. Consequently, we were able to track sales of condominiums and townhouses. We multiply the sale price by 3%, which is the transfer rate and the City of Wilmington receives 50% of it.<sup>19</sup>

According to our estimates (see Table 7,) since the beginning of the development of the Riverfront, the City of Wilmington collected \$10.3 million in property taxes followed by school districts with \$8.0 million. Slightly more than 50% of property revenues went to the city coffers.

---

<sup>18</sup> [www.nccde.org](http://www.nccde.org) has the capability of looking for each parcel using the Tax ID and it provides the information on County and School property taxes and assessments.

<sup>19</sup> Since August 1, 2017, the Transfer Tax increased from 3% to 4%. All transactions after that date are calculated with 4%.

## The Fiscal and Economic Impact of the Wilmington Riverfront

*Table 7: Estimated Net Real Estate Tax Revenues From Riverfront Properties (000s 2017 \$)*

	City Property	County Property	School Property	Transfer Tax
1996	\$0	\$0	\$0	\$32
1997	-\$13	-\$1	-\$13	\$103
1998	-\$4	-\$1	-\$4	\$123
1999	\$29	\$4	\$33	\$30
2000	\$34	\$6	\$38	\$252
2001	\$40	\$5	\$37	\$0
2002	\$86	\$12	\$83	\$134
2003	\$105	\$14	\$118	\$146
2004	-\$8	-\$1	-\$14	\$169
2005	\$157	\$22	\$227	\$355
2006	\$299	\$41	\$433	\$148
2007	\$439	\$70	\$642	\$21
2008	\$661	\$105	\$898	\$52
2009	\$816	\$162	\$1,108	\$31
2010	\$944	\$164	\$1,210	\$98
2011	\$1,023	\$138	\$366	\$119
2012	\$679	\$143	\$419	\$71
2013	\$789	\$160	\$419	\$204
2014	\$905	\$170	\$417	\$117
2015	\$1,035	\$190	\$448	\$67
2016	\$1,117	\$216	\$508	\$156
2017	\$1,174	\$224	\$525	\$110
Total	\$10,304	\$1,843	\$7,898	\$2,540

Source: CASDR with data from New Castle County government – [www.nccde.org](http://www.nccde.org)

### Revenues from Construction Projects

We estimate that construction and infrastructure investment was close to \$1.3 billion during the 1996 – 2017 period. (See Table 8.) Private investment amounted to \$1.028 billion, which represents 80% of total spending. The Riverfront Development Corporation, DelDOT, and other state agencies including DNREC shared the remaining 20%. Table 8 shows that 60% of the private investment occurred during the 2005 – 2007 period, which coincides with the construction of the largest residential projects (Christina Landing and Justison Landing.)

Private investment slowed down in 2011 but accelerated again from 2012 onward with new projects coming to the scene. For the calculations of private construction investment during the 2012 – 2017 period, we focused on five major projects: The Penn Cinema, the Westin Hotel, the Harlan Flats and Harlan Flats Phase II, and the 101 Avenue of the Arts building. Construction of the first four project finished in 2017, and the first part of the last one will be completed sometime during 2018.

## The Fiscal and Economic Impact of the Wilmington Riverfront

*Table 8: Estimated Construction Investment in Riverfront Projects (000s 2017 \$)*

		Private	RDC Contribution	Other Public Funding	DelDOT Construction	Total
Source:	1997	\$0	\$0	\$5,185	\$1,831	\$7,016
	1998	\$14,817	\$0	\$16,412	\$6,714	\$37,944
	1999	\$23,911	\$5,563	\$0	\$20,773	\$50,247
	2000	\$23,804	\$0	\$8,547	\$9,932	\$42,283
	2001	\$33,332	\$4,611	\$0	\$4,977	\$42,920
	2002	\$2,877	\$0	\$0	\$7,359	\$10,236
	2003	\$24,587	\$0	\$0	\$2,883	\$27,470
	2004	\$15,658	\$0	\$0	\$11,601	\$27,259
	2005	\$154,869	\$0	\$25,285	\$34,229	\$214,383
	2006	\$139,905	\$0	\$0	\$28,801	\$168,706
	2007	\$323,032	\$0	\$2,804	\$15,973	\$341,809
	2008	\$11,462	\$0	\$0	\$18,367	\$29,829
	2009	\$2,771	\$0	\$0	\$316	\$3,087
	2010	\$28,259	\$0	\$0	\$0	\$28,259
	2011	\$1,964	\$160	\$134	\$0	\$2,258
	2012	\$49,584	\$286	\$783	\$1,017	\$51,670
	2013	\$48,691	\$387	\$417	\$1,365	\$50,860
	2014	\$48,124	\$631	\$8	\$842	\$49,605
	2015	\$16,965	\$900	\$0	\$256	\$18,121
	2016	\$32,259	\$226	\$75	\$4,243	\$36,804
	2017	\$32,071	\$162	\$265	\$5,064	\$37,562
Total (2017 \$)		\$1,028,943	\$12,927	\$59,915	\$176,543	\$1,278,329
%		80.49%	1.01%	4.69%	13.81%	

CASDR calculations based on data provided by RDC and Brown (2012)

## The Fiscal and Economic Impact of the Wilmington Riverfront

*Table 9: Estimation of Construction Cost for Riverfront Projects (000s 2017 \$)*

	Labor Cost	Labor Hours	FTE's	Permit Fees	Wage Tax	Head Tax	Gross Receipts	Personal Income Tax
<b>1997</b>	\$2,807	56,130	17.7	\$52	\$26	\$0	\$35	\$85
<b>1998</b>	\$15,178	303,550	97.8	\$312	\$143	\$2	\$210	\$458
<b>1999</b>	\$20,099	401,979	130.9	\$295	\$189	\$2	\$199	\$607
<b>2000</b>	\$16,913	338,265	112.5	\$324	\$159	\$2	\$218	\$510
<b>2001</b>	\$17,168	343,362	117.3	\$379	\$161	\$2	\$256	\$518
<b>2002</b>	\$4,094	81,890	28.7	\$29	\$38	\$0	\$19	\$124
<b>2003</b>	\$10,988	219,757	78.6	\$246	\$103	\$1	\$166	\$332
<b>2004</b>	\$10,904	218,072	79.7	\$157	\$102	\$1	\$106	\$329
<b>2005</b>	\$85,753	1,715,061	652.2	\$1,802	\$806	\$10	\$1,214	\$2,588
<b>2006</b>	\$67,483	1,349,651	533.4	\$1,399	\$634	\$8	\$943	\$2,037
<b>2007</b>	\$136,724	2,734,470	1122.4	\$3,258	\$1,285	\$16	\$2,196	\$4,126
<b>2008</b>	\$7,347	146,938	100.1	\$0	\$69	\$1	\$0	\$222
<b>2009</b>	\$1,235	24,696	10.7	\$28	\$12	\$0	\$19	\$37
<b>2010</b>	\$11,304	226,074	97.7	\$283	\$106	\$1	\$190	\$341
<b>2011</b>	\$903	18,066	8.0	\$23	\$8	\$0	\$15	\$31
<b>2012</b>	\$20,668	413,359	187.0	\$507	\$194	\$2	\$341	\$772
<b>2013</b>	\$20,344	406,881	187.5	\$495	\$191	\$2	\$334	\$765
<b>2014</b>	\$19,842	396,838	185.0	\$488	\$186	\$2	\$329	\$657
<b>2015</b>	\$7,249	144,970	68.5	\$179	\$68	\$1	\$120	\$254
<b>2016</b>	\$14,721	294,430	139.0	\$326	\$138	\$2	\$219	\$499
<b>2017</b>	\$15,025	300,497	142.6	\$325	\$141	\$2	\$219	\$514
<b>Total (2017 \$)</b>	\$506,747	10,134,936	4,097	\$10,903	\$4,763	\$57	\$7,348	\$15,805
<b>Total (Nom.)</b>	\$422,117	10,134,936	4,059	\$9,156	\$3,967	\$47	\$6,170	\$13,231

Source: CASDR estimates

## **The Fiscal and Economic Impact of the Wilmington Riverfront**

---

Table 9 above summarizes our estimates of construction spending. Brown (2012) following Conddliffe (2007) assumed that the labor costs were 40% of the total construction costs, that total labor compensation was \$50 per hour, and nonwage compensation was 33% of the wage rate. The percentage of labor costs within the total cost and the percentage that constitutes nonwage benefits are standard in the industry and widely accepted. The \$50 per hour rate is 20% higher than the estimates of the hourly rate in the construction industry plus nonwage benefits from the Delaware Department of Labor <sup>20</sup>. Consequently, we use the same assumptions. Regarding the expected number of labor hours, we calculate 2080 hours for each full-time equivalent worker (FTE). This assumption implies that 4,100 workers were employed in construction at the Riverfront since 1997 and 910 of them during the 2012 – 2017 period.

In Table 9, column 4 displays the estimate of revenues of permit fees. Since 1997, construction at the Riverfront contributed \$11 million, \$2.3 million of that since 2012. We calculated revenues of permit fees by applying 1% over total construction costs, excluding DelDOT projects. Consequently, the calculations do not consider exemptions or any payments facilities that developers may arrange with the City of Wilmington.

We estimate the City of Wilmington wage tax by taking 1.25% of the total labor cost. The estimated amount in wage tax revenues for the whole period is \$4.8 million - \$919,000 since 2012. The contribution of construction spending on the Riverfront to the collection of the city's

---

<sup>20</sup> Delaware Department of Labor Office of Occupational and Labor market Information. Publication "Delaware Wages 2016" available on: <https://lmi.delawareworks.com/Content/Publications/Delaware%20Wages.php>

## **The Fiscal and Economic Impact of the Wilmington Riverfront**

---

wage tax reached \$4.7 million since 1996 and \$920,000 during the 2012 – 2017 period. We estimate gross receipts by multiplying construction spending (excluding DelDOT's expenditures in construction) by 0.6739%, which gives an estimate of \$7.4 million since 1997 and \$1.6 million since 2012. Finally, we estimate that construction activity at the Riverfront generated \$15.9 million in personal income revenues since 1997 and \$3.4 million since 2012.

### **Revenues from Residents at the Riverfront**

Residents at the Riverfront, either owner of a townhouse or condominium or renter of an apartment, must pay personal income and city wage taxes <sup>21</sup>.

Since 2011, about 320 new residences are now part of the Riverfront's dwelling offering. Added to the 760 units existing before that year, this raised the total number of units to 1,078 by the end of 2017 including 579 apartments, 105 townhomes, and 394 condominiums. Construction is underway for 68 more units that will increase the total number of units to 1,146 by the end of 2018 and early 2019, and a project for more than 100 units will follow.

---

<sup>21</sup> The section 'Real Estate Tax and Real Estate Transfer Tax' includes estimates of property and transfer taxes from owners of townhouses and condominiums at the Riverfront.

## **The Fiscal and Economic Impact of the Wilmington Riverfront**

---

To estimate the fiscal revenues for residents, we needed to calculate residents' income at each kind of residential unit. We began by finding an average market price for condos and townhouses sold during our main period of analysis: 2012 – 2017. As we did when calculating property and transfer taxes, we find sale prices at each residential complex on the website of New Castle County government. With the sale price, we calculate the income necessary to purchase the residence. We apply the concept of a conventional mortgage loan, which requires a 20% down payment, and annual mortgage payments (principal + interest + mortgage insurance + taxes) that do not exceed 30% of the annual income. In the case of rentals, we took a sample of advertisements of apartments for rent and calculated the average rent according to the number of bedrooms, baths, etc. Similarly to the requirement to apply for a mortgage loan, a rental contract requires that the amount of annual rent should not be higher than 28% of the tenant's annual income. Based on those assumptions, we estimate the annual income of a townhouse owner at \$100,257, of a condominium owner at \$93,000, and for an apartment renter at \$60,000<sup>22</sup>.

The details of tax revenues from residents are in Table 10.

---

<sup>22</sup> We have calculated the monthly mortgage payment as Principal + Interest + Taxes. Mortgage insurance it is not necessary as we assume a down payment of 20%

*Table 10 – Tax Revenues from Residents at the Riverfront (000s of 2017 \$)*

	All Residents		New Residents	
	State PIT	City Wage Tax	State PIT	City Wage Tax
2011	\$2,829	\$1,151	\$823	\$921
2012	\$2,830	\$1,134	\$824	\$907
2013	\$2,843	\$1,149	\$827	\$919
2014	\$2,842	\$1,258	\$827	\$1,007
2015	\$2,961	\$1,276	\$862	\$1,021
2016	\$2,946	\$1,297	\$857	\$1,038
2017	\$2,959	\$1,311	\$861	\$1,049
Total (2017 \$)	\$20,210	\$8,577	\$5,881	\$6,861
Total (Nom.)	\$19,699	\$8,365	\$5,732	\$6,692

Source: CASDR calculations

The table above highlights the increase in tax revenues from Delaware’s personal income tax and City of Wilmington’s wage tax. In Brown (2012) there is an adjustment on the estimate of personal income tax and wage tax collection from residents according to the previous residency, e.g., outside of the city, outside of the state, etc<sup>23</sup>. In this analysis that centers on the 2012 – 2017 period, we reproduce that distinction but only as a reference. After five or more years of residency at the Riverfront, the distinction should apply only to tenants at the newest complexes (Harlan Flats, and, partially because of the construction completion date – 2017.)

---

<sup>23</sup> The adjustment was to consider that 80% of new residents moved into the Riverfront from outside the city and 29.1% from other states.

### Summary of Revenues

Table 11 lists the total public revenues generated from the Riverfront activity, including business activity, construction, and residential development. Government coffers received an estimated \$402 million since the beginning of the redevelopment of the Riverfront. The primary source of revenues is the state's personal income tax with \$193 million or 48% of the total. The bank franchise tax was second with \$95 million or 24% of the total. However, after the acquisition of ING Bank in 2012 and the relocation of the Riverfront offices to downtown Wilmington, bank franchise taxes fell almost 45% as only Barclays remained at the Riverfront. Despite remaining large, bank franchise collection could be volatile as it depends not only on the consumers' market conditions (Barclays specializes in the issuance and administration of credit cards) but also on the financial conditions of the bank. For instance, revenues increased by \$3 million by 2015, dropped \$1.5 million the following year, and rose again \$500,000 by 2017.

## The Fiscal and Economic Impact of the Wilmington Riverfront

*Table 11 Total Estimated Public Revenues due to Net Riverfront Activity (000s of 2017 \$)*

	Bank Franchise	Personal Income	Real Estate Transfer	Gross Receipts	City Property	Permit Fees	City Head Tax	City Wage Tax	School Property	County Property	State Other	Total
1996	\$0	\$0	\$32	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$32
1997	\$0	\$240	\$103	\$34	-\$13	\$52	\$24	\$73	-\$13	-\$1	\$0	\$498
1998	\$0	\$836	\$123	\$208	-\$4	\$312	\$55	\$287	-\$4	-\$1	\$0	\$1,810
1999	\$0	\$1,246	\$30	\$194	\$29	\$295	\$78	\$428	\$33	\$4	\$0	\$2,337
2000	\$0	\$1,899	\$252	\$213	\$34	\$324	\$100	\$631	\$38	\$6	\$0	\$3,495
2001	\$0	\$3,160	\$0	\$249	\$40	\$379	\$162	\$1,017	\$37	\$5	\$0	\$5,049
2002	\$1,623	\$2,899	\$134	\$19	\$86	\$29	\$142	\$940	\$83	\$12	\$0	\$5,969
2003	\$2,179	\$3,201	\$146	\$162	\$105	\$246	\$161	\$1,051	\$118	\$14	\$0	\$7,384
2004	\$4,780	\$4,231	\$169	\$101	-\$8	\$157	\$180	\$1,321	-\$14	-\$1	\$0	\$10,917
2005	\$6,812	\$8,638	\$355	\$1,168	\$157	\$1,802	\$234	\$2,585	\$227	\$22	\$0	\$21,999
2006	\$6,222	\$10,325	\$148	\$908	\$299	\$1,399	\$295	\$3,274	\$433	\$41	\$8,784	\$32,127
2007	\$6,843	\$13,276	\$21	\$2,149	\$439	\$3,258	\$356	\$4,307	\$642	\$70	\$8,596	\$39,957
2008	\$1,571	\$10,673	\$52	\$0	\$661	\$0	\$283	\$3,547	\$898	\$105	\$0	\$17,788
2009	\$0	\$11,334	\$31	\$19	\$816	\$28	\$268	\$3,738	\$1,108	\$162	\$0	\$17,504
2010	\$7,557	\$12,020	\$98	\$187	\$944	\$283	\$274	\$3,950	\$1,210	\$164	\$0	\$26,685
2011	\$11,525	\$10,826	\$119	\$71	\$1,023	\$23	\$230	\$2,764	\$366	\$138	\$0	\$27,085
2012	\$11,346	\$15,950	\$71	\$328	\$679	\$507	\$277	\$2,670	\$419	\$143	\$0	\$32,390
2013	\$6,355	\$15,687	\$204	\$324	\$789	\$495	\$321	\$2,769	\$419	\$160	\$0	\$27,524
2014	\$5,521	\$15,383	\$117	\$320	\$905	\$488	\$356	\$3,112	\$417	\$170	\$0	\$26,790
2015	\$8,515	\$16,939	\$67	\$114	\$1,035	\$179	\$454	\$3,689	\$448	\$190	\$0	\$31,629
2016	\$7,013	\$16,984	\$156	\$216	\$1,117	\$326	\$468	\$3,739	\$508	\$216	\$0	\$30,744
2017	\$7,528	\$17,679	\$110	\$213	\$1,174	\$325	\$513	\$4,274	\$525	\$224	\$0	\$32,565
Total	\$95,390	\$193,426	\$2,540	\$7,198	\$10,304	\$10,903	\$5,228	\$50,168	\$7,898	\$1,843	\$17,381	\$402,278
%	23.7%	48.1%	0.6%	1.8%	2.6%	2.7%	1.3%	12.5%	2.0%	0.5%	4.3%	

Source: Estimates and Calculations by CADSR

## The Fiscal and Economic Impact of the Wilmington Riverfront

---

Table 12 aggregates the revenues listed in Table 11 by their destination. The State of Delaware receives the largest part due to the personal income and bank franchise taxes. The city is the second highest beneficiary thanks to the wage and head taxes. Also, those taxes increase, although temporarily, during periods of construction. On the lower end are the county and school districts, as their source of revenues is linked to assessment values, that do not update very often, or to changes in the tax rates, which are a matter of taxpayers' uneasiness.

*Table 12: Tax Revenues From Riverfront Activity According to Destination (000s 2017 \$)*

	City	State	Other	Total
1996-2010	\$42,653	\$128,020	\$22,779	\$193,452
2011	\$4,096	\$22,482	\$504	\$27,083
2012	\$4,915	\$27,660	\$561	\$33,135
2013	\$3,981	\$22,469	\$579	\$27,029
2014	\$4,431	\$21,283	\$588	\$26,302
2015	\$5,720	\$25,602	\$638	\$31,960
2016	\$5,857	\$24,292	\$725	\$30,874
2017	\$6,166	\$25,475	\$748	\$32,390
Total (2017 \$)	\$77,820	\$297,284	\$27,122	\$402,225
%	19.3%	73.9%	6.7%	

Source: CASDR calculations

## Forecast of the Fiscal Impact

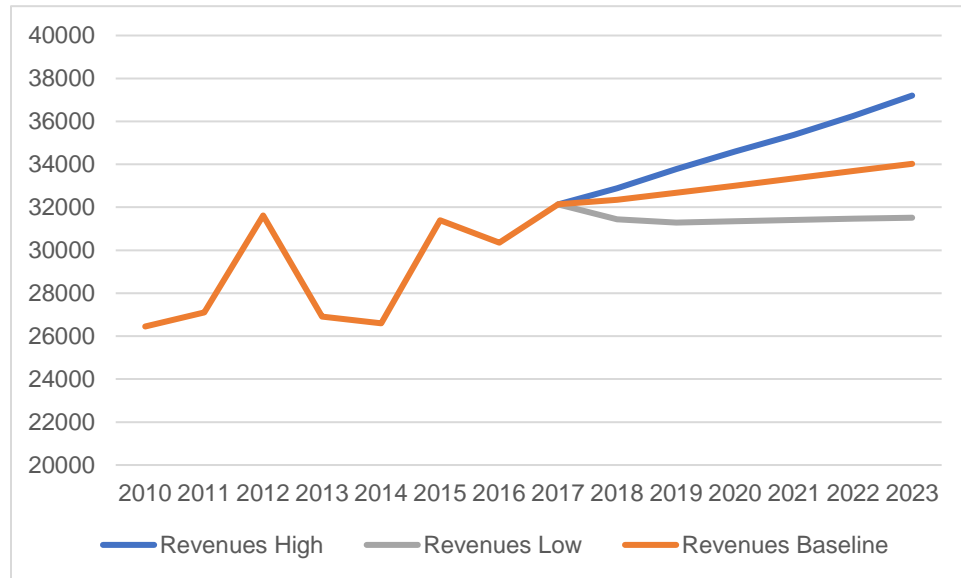
In this section, we forecast fiscal revenues and expenditures beyond the year 2017. That forecast is our estimate of the fiscal impact of the Riverfront. The forecast has some limitations. The first one is the possibility of new construction, which appeared in press reports but about which no precise information is available at the time of this report. Among those construction projects are the Sixers' Sports Arena, to be built on the East side of the Christina River, and several hotels on the West side, which will increase the level of activity at the Riverfront in the years ahead. By omitting new construction from the forecast, we focus on endogenous employment and wages growth as well as the evolution of the bank franchise tax.

For drivers of employment growth, we use three different forecasts: the Congressional Budget Office (CBO), The Delaware Population Consortium (DPC), and the Delaware Department of Labor (through the Office of Occupational and Labor Market Information -OOLMI.) An important caveat is in order about those forecasts. None of them make special considerations about the possible impact on investment and consumption of the tax reform approved last year. If, as expected, the tax reform acts as an incentive to personal consumption and firms' investment, the forecast may end up conservative.

## The Fiscal and Economic Impact of the Wilmington Riverfront

The CBO predicts an average in real GDP of 1.8% growth for each year between 2018 and 2023<sup>24</sup>. Meanwhile, the DPC expects an average increase in employment of slightly less than 1%, and the OOLMI lower than DPC. We used the three forecast as optimistic, baseline, and pessimistic according to their expected growth rates (from highest to lowest.)

*Figure 4: Forecast for Public Revenues ( 2017 \$) from Riverfront Activity*



Source: CASDR – Values on the left axis are in thousands of dollars of 2017.

Figure 4 above shows the three forecasts. The baseline forecast assumes that employment at the Riverfront will follow the growth estimated by the DPC, setting also the path for personal income tax, the city wage tax, and the city head tax revenues. Bank franchise tax grows at an

<sup>24</sup> Following Brown (2012), we also make the assumption that employment growth follows the same pattern than real GDP growth, which requires a constant labor productivity.

## **The Fiscal and Economic Impact of the Wilmington Riverfront**

---

average rate of 1.1% per year<sup>25</sup>. Under this scenario, fiscal revenues increase from \$31 million to \$34 million by 2023.

The optimistic forecast (blue line) predicts growth in fiscal revenues from \$32 million to \$37 million, one million higher than during the previous seven years. Employment increases at the same rate that the real GDP in the CBO forecast. Also, bank franchise tax revenues expand at a 5% annual rate.

The third forecast, the pessimistic, follows the OOLMI employment projections (0.08% per year.) Under this scenario, bank franchise tax revenues will be almost flat on average for the whole period. Under this scenario, fiscal revenues from the Riverfront activity falls every year posting a total loss of \$600,000 in 2017\$<sup>26</sup>.

---

<sup>25</sup> As we indicated before, bank franchise taxes are very volatile. In our case, that volatility could be also worse because there is only one bank at the Riverfront.

<sup>26</sup> Fiscal revenues could increase in nominal terms if there an important acceleration in inflation but not in 2017 prices.

## The Fiscal and Economic Impact of the Wilmington Riverfront

*Table 13: Forecast of Public Expenditures and Revenues - Net Riverfront Activity (2017 \$)*

	Total Public Expenditures	Revenues Baseline	Revenues Pessimistic	Revenues Optimistic
2015	\$392,017,142	\$307,444,919	\$307,444,919	\$307,444,919
2016	\$404,227,741	\$337,803,203	\$337,803,203	\$337,803,203
2017	\$414,369,487	\$369,939,864	\$369,939,864	\$369,939,864
2018	\$435,087,961	\$402,292,876	\$401,386,085	\$402,828,927
2019	\$452,491,479	\$434,973,635	\$432,673,799	\$436,614,036
2020	\$472,401,104	\$467,985,440	\$464,022,533	\$471,211,277
2021	\$493,659,154	\$501,331,655	\$495,430,307	\$506,592,182
2022	\$520,316,748	\$535,015,679	\$526,895,116	\$542,847,375
2023	\$545,291,952	\$569,040,945	\$558,414,928	\$580,050,902

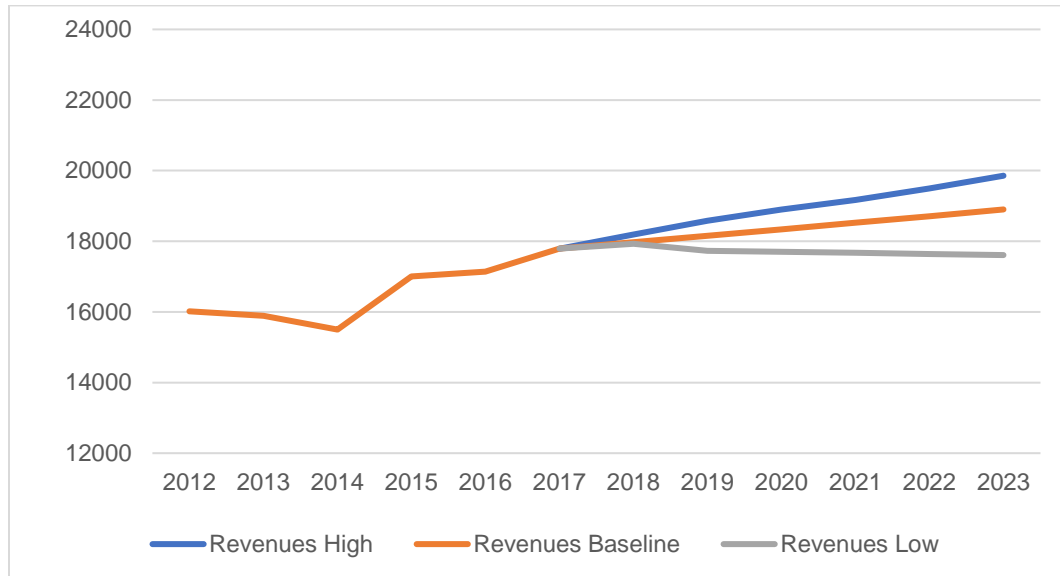
Source: CASDR calculations.

Table 13 shows the result of the forecast of fiscal expenditures and revenues from net Riverfront activity. The shadow area, from 2021 and beyond, shows that, according to our forecast, total fiscal revenues should be enough to pay for all accumulated public expenditures since the beginning of the redevelopment of the Riverfront in 1996. It should be noticed that all accumulated public expenditures are included, even though some spending, for instance on the Riverwalk or the Tubman-Garrett Park is for non-revenues generating projects.

In Figure 5 we forecast revenues only for the State of Delaware. Following the same scenarios than for total Riverfront revenues, the State of Delaware will collect fiscal revenues at an average of \$15.7 million in the baseline scenario, \$15 million in the pessimistic, and \$16.2 million in the optimistic. However, as can be seen in Table 14, by the end of the forecast period, the State would not be able to recover all accumulated expenditures in any of the scenarios.

## The Fiscal and Economic Impact of the Wilmington Riverfront

*Figure 5: Forecast of Total Public Revenue for the State of Delaware (2017 \$)*



Source: CADSR

*Table 14: Forecast - Expenditures and Revenues - State of Delaware - Net Activity (2017 \$)*

	Public Expenditures	Revenues Baseline	Revenues Pessimistic	Revenues Optimistic
2015	\$347,042,783	\$160,399,732	\$160,399,732	\$160,399,732
2016	\$359,172,360	\$177,462,257	\$177,462,257	\$177,462,257
2017	\$369,234,106	\$195,196,234	\$195,196,234	\$195,196,234
2018	\$387,695,811	\$213,111,689	\$213,078,584	\$213,321,593
2019	\$403,203,644	\$231,209,330	\$230,759,082	\$231,839,733
2020	\$420,944,604	\$249,490,997	\$248,413,781	\$250,668,784
2021	\$439,887,111	\$267,958,568	\$266,040,348	\$269,769,517
2022	\$463,641,015	\$286,613,939	\$283,636,424	\$289,195,355
2023	\$485,895,784	\$305,459,025	\$301,199,619	\$308,985,536

Source: CADSR

The main difference with the situation depicted in Figure 4 and Table 13, is that the State depends only on the collection of personal income, bank franchise, and half of real estate transfer tax. Meanwhile, in the case of the whole Riverfront, the City of Wilmington collects a head tax, wage tax, and property tax. Also, New Castle County and the school districts collect property taxes.

## The Wilmington Riverfront Economic Impact

In this section, we simulate how the activity at the Riverfront impacts the economy of the New Castle County and the whole State of Delaware. We use the REMI PI v2.1, which is a dynamic forecasting and policy analysis tool of the economy of Delaware, capable of simulating and estimating causal relationships. The version of the model we use is capable of simulating and measuring the economic impact of any policy decision at the level of a county or the whole state. In our case, we run the model with all the variables within New Castle County. (Details of inputs for the REMI model and how it works are in Appendix B.)

As the primary information available from the Riverfront are data on employment and wages, we focus the selection of inputs for the simulation on those. The last complete year with data from the unemployment insurance files is 2016, and we focus the analysis on that year. As part of the input for the simulation, we include private investment in construction that was in progress during that year (\$15 million, according to our calculations.) To avoid problems of double accounting, we focused the simulation of the economic impact only on the activity of the private sector. As workers and firms pay taxes, including any spending from the government will distort the result of the simulation as that spending would create more taxes.

## The Fiscal and Economic Impact of the Wilmington Riverfront

There are two limitations in the calculation of the data for the simulation. First, not all Riverfront workers live in the state, and there is no precise information about how many live outside the state. We make an adjustment based on the Bureau of Economic Analysis' estimate of employment and wages by place of residence vs. place of work. BEA estimates that 6% of the workers are from out of state. We adjusted the amount in annual wages by NAICS<sup>27</sup> by that percentage, and we assume that workers spent that percentage of wages outside of the state. Second, to measure the economic impact properly, we decided to use as input only the new employment during the year netting out the amount of employment from previous years. We adjusted the average wages according to the adjusted number of employees<sup>28</sup>.

Table 15 shows the result of the economic impact simulation for 2016 within New Castle County

*Table 15: Summary of the Economic Impact of the Riverfront Activity*

Category	Units	County	State
Total Employment	Thousands (Jobs)	2.230	2.286
Private Non-Farm Employment	Thousands (Jobs)	2.170	2.221
Residence Adjusted Employment	Thousands	1.724	1.861
Population	Thousands	0.508	0.552
Labor Force	Thousands	0.472	0.513
Output	Billions of Fixed (2016) Dollars	0.380	0.386

The Source: CADSR with REMI model simulation

---

<sup>27</sup> North American Industry Classification System. Details on Appendix A

<sup>28</sup> The details of calculation are included in Appendix A.

## The Fiscal and Economic Impact of the Wilmington Riverfront

Total employment in New Castle County increased by 2,230 thanks to the economic activity at the Riverfront. Full- and part-time equivalent employees, indistinctly, form that figure of employment, as REMI consider both classes of employees equal. It also includes government employment and farm employment (almost non-existing in this case.) For our analysis, the most important number is Private Non-Farm Employment, a number that reached 2,170. The estimated increase in the population of 508 and the increase in the labor force of 472 are necessary to support the added level of employment. The total value of output created by the rise in employment, wages, and private investment at the Riverfront during 2016 is \$380 million.

At the state level, total employment increased by 56 additional total jobs and 51 in non-farm. As expected, the core of the impact of the activity at the Riverfront is within New Castle County.

*Table 16: Employment by Industry Hierarchy From the Riverfront Economic Impact*

Category	Units	County	State
Finance and Insurance	(Jobs)	672	673
Construction	(Jobs)	574	586
Retail Trade	(Jobs)	203	216
Health Care and Social Assistance	(Jobs)	128	135
Professional, Scientific, and Technical Services	(Jobs)	103	104
Real Estate and Rental and Leasing	(Jobs)	98	100
Other Services, except Public Administration	(Jobs)	85	89
Administrative and Waste Management Services	(Jobs)	81	83
Accommodation and Food Services	(Jobs)	70	75
Information	(Jobs)	48	48

Source: CADSR with REMI model simulation

Table 16 shows the distribution of employment by industry resulting from the economic impact on the Riverfront activity. Employment in the Finance and Insurance industry is at the top of the list of the ten sectors with the largest increase in employment, 672 in the county. The result is

## The Fiscal and Economic Impact of the Wilmington Riverfront

unsurprising as the highest increase in employment at the Riverfront was in that industry.

Construction follows with 574 at the county level. However, that employment is temporary and lasts as long as the construction. Most of the industries with higher employment require a significant proportion of high-skill high-wage employees.

Table 17 lists employment originated in Riverfront economic activity by main occupation categories. Almost all new occupations are in New Castle County, and the majority of those occupations are for highly-skilled workers.

*Table 17: Summary of Employment by Occupation From the Riverfront Economic Impact*

Category	Units	County	State
Sales, office, and administrative occupations	(Jobs)	745	745
Management, business, and financial occupations	(Jobs)	437	442
Construction and extraction occupations	(Jobs)	380	380
Building, grounds cleaning, maintenance, and other services	(Jobs)	108	108
Computer, mathematical, architecture, and engineer occupations	(Jobs)	97	98
Healthcare occupations	(Jobs)	82	86
Transportation and material moving occupations	(Jobs)	81	81
Food preparation and serving related occupations	(Jobs)	74	74
Production occupations	(Jobs)	44	44
Arts, design, entertainment, sports, and media occupations	(Jobs)	31	31
Education, training, and library occupation	(Jobs)	30	32
Protective service occupations	(Jobs)	19	20
Legal occupations	(Jobs)	15	15
Community and social service occupations	(Jobs)	12	13
Life, physical, and social science occupations	(Jobs)	7	7
<b>Total</b>		<b>2,162</b>	<b>2,176</b>

Source: CADSR with REMI model simulation

## The Fiscal and Economic Impact of the Wilmington Riverfront

*Table 18: Percentage of Employment by Occupation – Riverfront and New Castle County*

	<b>Riverfront</b>	<b>County</b>
Sales, office, and administrative occupations	34.5%	28.4%
Management, business, and financial occupations	20.2%	12.5%
Construction and extraction occupations	17.6%	3.1%
Building, grounds cleaning, maintenance, and other services	5.0%	6.4%
Computer, mathematical, architecture, and engineer occupations	4.5%	6.3%
Healthcare occupations	3.8%	9.7%
Transportation and material moving occupations	3.7%	6.6%
Food preparation and serving related occupations	3.4%	8.1%
Production occupations	2.0%	2.7%
Arts, design, entertainment, sports, and media occupations	1.4%	1.0%
Education, training, and library occupations	1.4%	5.2%
Protective service occupations	0.9%	2.2%
Legal occupations	0.7%	1.3%
Community and social service occupations	0.6%	1.5%
Life, physical, and social science occupations	0.3%	1.4%

Source: CASDR calculations with REMI and OOLMI data.

The Riverfront has a more extensive concentration in the top three occupations than the county at large. (See Table 18.) The difference in the employment distribution correlates with differences in wages. For instance, the same data file from OOLMI has an average hourly compensation for Management, business, and financial occupations of \$108, for Sales, office, and administrative occupations of \$38, and for Construction of \$25. However, those percentages, while giving some idea of the income within the largest occupational groups, do not necessarily represent the situation at the Riverfront as many of the management positions with lower salaries are service industries not located at the Riverfront.

The economic impact analysis of the activity at the Riverfront shows that its positive influence extends beyond the Riverfront into New Castle County and the State of Delaware. 973 additional jobs at the Riverfront during the year 2016 created 2,230 jobs in the county (a total of 2,286 in the state), \$380 million in output, and required substantial increases in population and labor force to support that level of economic activity. The distribution of new occupations at the county indicates that the jobs created are well-paid and highly-skilled, given the kind of industries located and expanding at the Riverfront.

From an economic perspective, the impact of the redevelopment of the Riverfront lives up and even exceed the expectations of all those involved in the project.

## Conclusion

We just analyzed the fiscal and economic impact of the continued development of the Wilmington Riverfront between 2012 and 2017. This report is the third analyzing the Riverfront. The first by Simon Condliffe covered the period 1996 – 2009. The second, by Daniel Brown, rebuilt some of the previous analysis by Condliffe by using net values of employment and wages (netting out existing jobs and wages from companies that exist at the beginning of the redevelopment in 1996,) and by using values converted into constant dollars of 2011. In our report, we continued with Brown's approach of using net values and real dollars, but values are at 2017 prices.

In this report, we divided the analysis into two parts. First, we analyzed and forecasted the Riverfront's fiscal impact. Second, we conducted an economic impact analysis by estimating the influence that the economic activity at the Riverfront had on the economies of New Castle County and the State of Delaware.

We estimated that during the 2012 – 2017 period, total accumulated public revenues were \$154 million in 2017 dollars. By adding the estimated revenues from 1996 to 2011, total public revenues increased to \$402million, also in 2017 dollars. Public spending at the Riverfront during

the 2012 – 2017 period reached \$44 million and \$414 million since 1996. Less public investment during the most recent period was found to be the result of the most substantial remediation and infrastructure investment being in the early years of the redevelopment.

As we analyzed in the fiscal forecasting section, there is still a gap between public revenue and spending, which could close in the years ahead. However, as stated in the Introduction and other parts of this report, there are two ways of measuring the benefits and costs of a regional economic development project. The first, resembling a private firm, comparing investments and revenues dollar per dollar. The second, also comparing investments with revenue that includes activities that are not revenue-generating. This characteristic of many investments done by the RDC is impossible to quantify. How do we put a value on the enjoyment and satisfaction of visitors and residents of the Riverfront strolling on the Tubman-Garret Park or the Riverwalk? Some activities, like a visit to the Children's Museum, generate revenue but those revenues are not indicative of the extent of the benefits provided by the investment. A visit by school groups may be free or highly subsidized, nulling the possibility of a reliable way to appraise it. By choosing the first way to measure the redevelopment of the Riverfront, we estimate public revenues in a very conservative way. Consequently, the evolution of public revenue is more indicative of a trend than of absolute values.

To compensate somehow for the limitations of the fiscal balance, we conducted an economic impact analysis of the Riverfront. We used the REMI model (see Appendix B) to perform the

## **The Fiscal and Economic Impact of the Wilmington Riverfront**

---

simulation. We calculated the net increase in employment and wages and the amount of private investment in 2016 and used those amounts as inputs for the model. Non-farm employment of 2,170 in the county and 2,221 total for the state resulted from the economic activity at the Riverfront in that year. \$380 million in the county and \$386 million in the whole state also resulted from the operation of firms and workers located in the Riverfront.

By looking at the whole set of results from the economic impact analysis, the conclusions about the economic feasibility of the Wilmington Riverfront and the management and investment by the RDC are undeniable. When all the impacts, fiscal and economic, direct and indirect (secondary) are in the equation, the redevelopment of the Wilmington Riverfront was a wise and profitable investment decision.

## Appendix A

This appendix shows some of the tables in the main body of the report in nominal values instead of 2017 prices. These tables are for reference only as they do not reflect the actual purchasing power of the dollar amounts spent and collected at the Riverfront. Also, included in this appendix is information about some methodological procedures and definitions used in the calculations of the fiscal impact part of the report, with some of them referenced in the footnotes.

## The Fiscal and Economic Impact of the Wilmington Riverfront

---

*Table A1: Consumer Price Index (CPI-U) - Philadelphia-Wilmington-Atlantic City.*

<b>Year</b>	<b>Index</b>
1996	162.8
1997	166.5
1998	168.2
1999	171.9
2000	176.5
2001	181.3
2002	184.9
2003	188.8
2004	196.5
2005	204.2
2006	212.1
2007	216.7
2008	224.1
2009	223.3
2010	227.7
2011	233.8
2012	238.1
2013	240.9
2014	244.1
2015	243.9
2016	245.3
2017	248.4

Source: US Department of Labor – Bureau of Labor Statistics.

## The Fiscal and Economic Impact of the Wilmington Riverfront

*Table A2: Calculation of Delaware Personal Income Tax Rate Based On Wages & Salaries*

	2011	2012	2013	2014	2015	2016	2017
1- Tax Collection	\$986	\$1,096	\$1,131	\$1,040	\$1,140	\$1,112	\$1,142
2 - Personal Income	\$38,767	\$40,379	\$41,487	\$42,984	\$45,032	\$45,467	\$46,659
<b>3 -Tax Rate PI</b>	<b>2.54%</b>	<b>2.71%</b>	<b>2.72%</b>	<b>2.42%</b>	<b>2.53%</b>	<b>2.45%</b>	<b>2.45%</b>
4 - Wages & Salaries	\$21,355	\$22,046	\$22,608	\$23,628	\$24,497	\$24,677	\$25,109
<b>5 - Tax Rate W&amp;S</b>	<b>4.62%</b>	<b>4.97%</b>	<b>5.00%</b>	<b>4.40%</b>	<b>4.65%</b>	<b>4.51%</b>	<b>4.55%</b>

Source: 1 – Tax Collection by Delaware Department of Revenues  
 2 – Delaware Personal Income by Bureau of Economic Analysis  
 3 -Personal Income Tax Rate calculated by the Delaware Department of Revenues  
 4 – Wages & Salaries from Personal Income Tables by the Bureau of Economic Analysis  
 5 – Personal Income tax rate from Wages & Salaries. CASDR Calculations

*Table A3: Estimated Expenditures by the Delaware D.O.T., 2012-2017 (000s \$)*

Location	2012	2013	2014	2015	2016	2017	Total ( \$)
Movie Theater Parking - Parcel 6	\$895	\$1,006	\$32	\$0	\$0	\$0	\$1,933
Chase Boulevard	\$0	\$0	\$785	\$0	\$0	\$0	\$785
Madison Street	\$0	\$79	\$0	\$0	\$0	\$0	\$79
General Construction Management	\$62	\$209	\$0	\$251	\$164	\$0	\$687
Highway Bridge	\$0	\$15	\$0	\$0	\$1	\$5,000	\$5,016
Lot K - Purchase of DP&L Parcels	\$0	\$0	\$0	\$0	\$4,000	\$0	\$4,000
Total (Nominal \$)	\$957	\$1,309	\$816	\$251	\$4,165	\$5,000	\$12,499

Source: Delaware Department of Transportation

*Table A4: Estimated Expenditures by the Delaware DNREC, 2012-2017 (000s \$)*

Location	2012	2013	2014	2015	2016	2017	Total (\$)
Jablow Property - 707 South market Street	\$177	\$22	\$4	\$0	\$39	\$59	\$301
900 South Madison Street	\$1	\$0	\$1	\$0	\$0	\$125	\$127
M & N Property	\$32	\$0	\$0	\$0	\$0	\$0	\$32
Movie Theater - Justison Landing parcels 7 & 8	\$527	\$378	\$3	\$0	\$3	\$6	\$917
Former Schuster Auto Salvage	\$0	\$0	\$0	\$0	\$0	\$18	\$18
American Tank	\$0	\$0	\$0	\$0	\$31	\$33	\$64
Wilson Property	\$0	\$0	\$0	\$0	\$0	\$21	\$21
<b>Total (Nominal \$)</b>	<b>\$737</b>	<b>\$400</b>	<b>\$8</b>	<b>\$0</b>	<b>\$74</b>	<b>\$262</b>	<b>\$1,480</b>

Source: Delaware Department of Natural Resources and Environment

## The Fiscal and Economic Impact of the Wilmington Riverfront

*Table A5: Capital Investment (000s \$) by the RDC during 2011 - 2016*

Item	2011	2012	2013	2014	2015	2016	Total (\$)
Land and Building Purchases	\$605			\$2,124	\$400	\$8,200	\$11,329
Construction and Building Improvements	\$330	\$884	\$672	\$719	\$3,167	\$1,261	\$7,033
Equipment	\$17		\$53	\$165	\$124	\$375	\$734
Total (\$)	\$951	\$884	\$725	\$3,008	\$3,690	\$9,836	\$19,096

Source: Riverfront Development Corporation

*Table A6: Estimated Public Expenditures on Riverfront Projects (000s \$)*

	RDC	DelDOT	DNREC	State Other	City of Wilmington	Other Funds	Total (\$)
1996	\$50	\$0	\$0	\$0	\$0	\$0	\$50
1997	\$4,450	\$1,200	\$0	\$8,500	\$0	\$0	\$14,150
1998	\$2,000	\$4,500	\$0	\$4,105	\$0	\$500	\$11,105
1999	\$14,000	\$14,065	\$0	\$0	\$3,348	\$0	\$31,413
2000	\$12,000	\$6,873	\$0	\$0	\$64	\$1,050	\$19,987
2001	\$9,000	\$3,536	\$0	\$0	\$23	\$0	\$12,560
2002	\$3,300	\$5,370	\$253	\$1,400	\$0	\$675	\$10,998
2003	\$2,500	\$2,145	\$0	\$0	\$1,400	\$0	\$6,045
2004	\$1,500	\$8,817	\$300	\$400	\$3,600	\$10,891	\$25,508
2005	\$9,000	\$27,074	\$69	\$6,100	\$4,478	\$358	\$47,080
2006	\$5,500	\$23,674	\$0	\$5,500	\$3,791	\$0	\$38,465
2007	\$6,000	\$13,637	\$7,035	\$5,500	\$143	\$0	\$32,316
2008	\$2,000	\$16,025	\$7,059	\$0	\$1,259	\$0	\$26,344
2009	\$2,000	\$285	\$1,991	\$0	\$1,288	\$0	\$5,563
2010	\$2,350	\$0	\$629	\$106	\$872	\$0	\$3,957
2011	\$6,910	\$0	\$123	\$0	\$541	\$0	\$7,574
2012	\$2,595	\$957	\$737	\$0	\$123	\$256	\$4,669
2013	\$3,785	\$1,309	\$400	\$0	\$1,110	\$0	\$6,603
2014	\$3,323	\$816	\$8	\$0	\$110	\$120	\$4,377
2015	\$4,993	\$251	\$0	\$0	\$110	\$0	\$5,354
2016	\$3,738	\$4,165	\$74	\$4,000	\$80	\$0	\$12,057
2017 (est.)	\$4,200	\$5,500	\$262	\$100	\$80	\$0	\$10,142
Total (\$)	\$105,194	\$140,201	\$18,939	\$35,711	\$22,421	\$13,850	\$336,316

Source: CADSR with data provided by RDC

## The Fiscal and Economic Impact of the Wilmington Riverfront

*Table A7: Franchise Bank Revenues (000s \$)*

2011	\$14,148
2012	\$15,088
2013	\$5,977
2014	\$5,329
2015	\$8,206
2016	\$6,838
2017	\$7,528
Total (\$)	\$63,113

Source: CADSR calculations with data from Federal Financial Institutions Examination Council

*Table A8: Estimated Net Real Estate Tax Revenues From Riverfront Properties (000s \$)*

	City Property	County Property	School Property	Transfer Tax
1996	\$0	\$0	\$0	\$11
1997	-\$9	-\$1	-\$9	\$35
1998	-\$3	-\$1	-\$3	\$42
1999	\$20	\$3	\$23	\$11
2000	\$24	\$4	\$27	\$90
2001	\$29	\$4	\$27	\$0
2002	\$64	\$9	\$62	\$50
2003	\$80	\$11	\$90	\$56
2004	-\$6	-\$1	-\$11	\$67
2005	\$129	\$18	\$187	\$146
2006	\$255	\$35	\$370	\$63
2007	\$383	\$61	\$560	\$9
2008	\$596	\$95	\$810	\$24
2009	\$733	\$146	\$996	\$14
2010	\$865	\$150	\$1,109	\$45
2011	\$963	\$130	\$345	\$56
2012	\$651	\$137	\$401	\$34
2013	\$765	\$155	\$406	\$99
2014	\$889	\$167	\$410	\$58
2015	\$1,016	\$186	\$440	\$33
2016	\$1,103	\$214	\$502	\$77
2017	\$1,174	\$224	\$525	\$55
Total	\$9,720	\$1,746	\$7,266	\$1,071

Source: CASDR calculations

## The Fiscal and Economic Impact of the Wilmington Riverfront

*Table A9: Estimated Construction Investment in Riverfront Projects (000s \$)*

	Private	RDC Contribution	Other Public Funding	DelDOT Construction	Total
1997	\$0	\$0	\$3,398	\$1,200	\$4,598
1998	\$9,931	\$0	\$11,000	\$4,500	\$25,431
1999	\$16,190	\$3,767	\$0	\$14,065	\$34,021
2000	\$16,472	\$0	\$5,914	\$6,873	\$29,258
2001	\$23,682	\$3,276	\$0	\$3,536	\$30,494
2002	\$2,100	\$0	\$0	\$5,370	\$7,470
2003	\$18,300	\$0	\$0	\$2,145	\$20,445
2004	\$11,900	\$0	\$0	\$8,817	\$20,717
2005	\$122,500	\$0	\$20,000	\$27,074	\$169,574
2006	\$115,000	\$0	\$0	\$23,674	\$138,674
2007	\$275,800	\$0	\$2,394	\$13,637	\$291,831
2008	\$0	\$0	\$0	\$16,025	\$16,025
2009	\$2,500	\$0	\$0	\$285	\$2,785
2010	\$25,400	\$0	\$0	\$0	\$25,400
2011	\$1,800	\$147	\$123	\$0	\$2,070
2012	\$46,667	\$270	\$737	\$957	\$48,630
2013	\$46,667	\$371	\$400	\$1,309	\$48,746
2014	\$46,667	\$612	\$8	\$816	\$48,103
2015	\$16,667	\$884	\$0	\$251	\$17,802
2016	\$31,667	\$222	\$74	\$4,165	\$36,127
2017	\$31,667	\$160	\$262	\$5,000	\$37,088
Total (\$)	\$861,574	\$9,708	\$44,309	\$139,701	\$1,055,292

Source: CADSR calculations

## The Fiscal and Economic Impact of the Wilmington Riverfront

*Table A10: Estimation of Construction Cost for Riverfront Projects (000s \$)*

	Labor Cost	Labor Hours	FTE's	Permit Fees	Wage Tax	Head Tax	Gross Receipts	Personal Income Tax
1997	\$1,839	\$36,784	18	\$34	\$17	\$0	\$23	\$56
1998	\$10,172	\$203,448	98	\$209	\$96	\$1	\$141	\$307
1999	\$13,608	\$272,168	131	\$200	\$128	\$2	\$134	\$411
2000	\$11,703	\$234,067	113	\$224	\$110	\$1	\$151	\$353
2001	\$12,198	\$243,952	117	\$270	\$115	\$1	\$182	\$368
2002	\$2,988	\$59,764	29	\$21	\$28	\$0	\$14	\$90
2003	\$8,178	\$163,564	79	\$183	\$77	\$1	\$123	\$247
2004	\$8,287	\$165,733	80	\$119	\$78	\$1	\$80	\$250
2005	\$67,830	\$1,356,595	652	\$1,425	\$637	\$8	\$960	\$2,047
2006	\$55,470	\$1,109,393	533	\$1,150	\$521	\$6	\$775	\$1,674
2007	\$116,733	\$2,334,652	1122	\$2,782	\$1,097	\$13	\$1,875	\$3,523
2008	\$6,410	\$128,200	62	\$0	\$60	\$1	\$0	\$193
v2009	\$1,114	\$22,281	11	\$25	\$10	\$0	\$17	\$34
2010	\$10,160	\$203,200	98	\$254	\$95	\$1	\$171	\$307
2011	\$828	\$16,560	8	\$21	\$8	\$0	\$14	\$29
2012	\$19,452	\$389,042	187	\$477	\$183	\$2	\$321	\$727
2013	\$19,498	\$389,968	187	\$474	\$183	\$2	\$320	\$733
2014	\$19,241	\$384,820	185	\$473	\$181	\$2	\$319	\$637
2015	\$7,121	\$142,419	68	\$176	\$67	\$1	\$118	\$249
2016	\$14,451	\$289,020	139	\$320	\$136	\$2	\$215	\$490
2017	\$14,835	\$296,707	143	\$321	\$139	\$2	\$216	\$507

Source: CADSR calculations

## The Fiscal and Economic Impact of the Wilmington Riverfront

*Table A11 Total Estimated Public Revenues due to Net Riverfront Activity (000s \$)*

	Bank Franchise	Personal Income	Real Estate Transfer	Gross Receipts	City Property	Permit Fees	City Head Tax	City Wage Tax	School Property	County Property	State Other	Total
1996	\$0	\$0	\$21	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$21
1997	\$0	\$161	\$69	\$23	-\$9	\$34	\$16	\$49	-\$9	-\$1	\$0	\$333
1998	\$0	\$566	\$83	\$141	-\$3	\$209	\$37	\$194	-\$3	-\$1	\$0	\$1,223
1999	\$0	\$862	\$21	\$134	\$20	\$200	\$54	\$296	\$23	\$3	\$0	\$1,613
2000	\$0	\$1,349	\$179	\$151	\$24	\$224	\$71	\$448	\$27	\$4	\$0	\$2,477
2001	\$0	\$2,306	\$0	\$182	\$29	\$270	\$118	\$742	\$27	\$4	\$0	\$3,678
2002	\$1,208	\$2,158	\$100	\$14	\$64	\$21	\$106	\$700	\$62	\$9	\$0	\$4,442
2003	\$1,656	\$2,433	\$111	\$123	\$80	\$183	\$122	\$799	\$90	\$11	\$0	\$5,608
2004	\$3,781	\$3,347	\$134	\$80	-\$6	\$119	\$142	\$1,045	-\$11	-\$1	\$0	\$8,630
2005	\$5,599	\$7,100	\$292	\$960	\$129	\$1,425	\$192	\$2,125	\$187	\$18	\$0	\$18,027
2006	\$5,312	\$8,815	\$126	\$775	\$255	\$1,150	\$252	\$2,795	\$370	\$35	\$7,500	\$27,385
2007	\$5,970	\$11,583	\$18	\$1,875	\$383	\$2,782	\$311	\$3,758	\$560	\$61	\$7,500	\$34,801
2008	\$1,417	\$9,629	\$47	\$0	\$596	\$0	\$255	\$3,200	\$810	\$95	\$0	\$16,049
2009	\$0	\$10,187	\$28	\$17	\$733	\$25	\$241	\$3,360	\$996	\$146	\$0	\$15,733
2010	\$6,927	\$11,018	\$90	\$171	\$865	\$254	\$251	\$3,621	\$1,109	\$150	\$0	\$24,456
2011	\$10,847	\$10,189	\$112	\$67	\$963	\$19	\$216	\$2,602	\$345	\$130	\$0	\$25,489
2012	\$10,874	\$15,287	\$68	\$314	\$651	\$1,200	\$266	\$2,559	\$401	\$137	\$0	\$31,758
2013	\$6,163	\$15,212	\$198	\$314	\$765	\$0	\$311	\$2,685	\$406	\$155	\$0	\$26,211
2014	\$5,424	\$15,112	\$115	\$314	\$889	\$0	\$349	\$3,057	\$410	\$167	\$0	\$25,839
2015	\$8,359	\$16,628	\$65	\$112	\$1,016	\$500	\$445	\$3,622	\$440	\$186	\$0	\$31,373
2016	\$6,925	\$16,770	\$154	\$213	\$1,103	\$450	\$462	\$3,691	\$502	\$214	\$0	\$30,485
2017	\$7,528	\$17,679	\$110	\$213	\$1,174	\$150	\$513	\$4,274	\$525	\$224	\$0	\$32,390
Total	\$87,990	\$178,392	\$2,143	\$6,196	\$9,720	\$9,215	\$4,730	\$45,623	\$7,266	\$1,746	\$15,000	\$368,020

Source: CADSR Calculations

## The Fiscal and Economic Impact of the Wilmington Riverfront

*Table A12 Total Estimated Public Revenues due to Gross Riverfront Activity (000s \$)*

	Bank Franchise	Personal Income	Real Estate Transfer	Gross Receipts	City Property	Permit Fees	City Head Tax	City Wage Tax	School Property	County Property	State Other	Total
1996	\$0	\$1,085	\$21	\$0	\$268	\$0	\$134	\$445	\$306	\$48	\$0	\$2,307
1997	\$0	\$1,293	\$69	\$23	\$281	\$34	\$152	\$523	\$298	\$47	\$0	\$2,720
1998	\$0	\$1,701	\$83	\$141	\$287	\$209	\$175	\$670	\$303	\$48	\$0	\$3,617
1999	\$0	\$2,000	\$21	\$134	\$310	\$200	\$194	\$772	\$346	\$52	\$0	\$4,029
2000	\$0	\$2,487	\$179	\$151	\$314	\$224	\$212	\$924	\$354	\$53	\$0	\$4,898
2001	\$0	\$3,459	\$0	\$182	\$379	\$270	\$260	\$1,223	\$397	\$52	\$0	\$6,222
2002	\$1,920	\$3,407	\$100	\$14	\$414	\$21	\$253	\$1,215	\$508	\$57	\$0	\$7,909
2003	\$2,524	\$3,713	\$111	\$123	\$430	\$183	\$274	\$1,328	\$448	\$60	\$0	\$9,194
2004	\$5,319	\$4,745	\$134	\$80	\$344	\$119	\$311	\$1,632	\$701	\$48	\$0	\$13,433
2005	\$7,293	\$8,810	\$292	\$960	\$479	\$1,425	\$437	\$2,869	\$913	\$66	\$0	\$23,544
2006	\$6,413	\$11,344	\$126	\$775	\$629	\$1,150	\$498	\$3,104	\$1,104	\$85	\$7,500	\$32,728
2007	\$6,902	\$14,390	\$17	\$1,875	\$757	\$2,782	\$559	\$4,102	\$1,322	\$121	\$7,500	\$40,327
2008	\$571	\$13,485	\$47	\$0	\$970	\$0	\$530	\$3,735	\$1,509	\$155	\$0	\$21,002
2009	\$8,146	\$14,267	\$28	\$17	\$1,107	\$25	\$510	\$3,914	\$1,662	\$221	\$0	\$29,897
2010	\$7,548	\$15,265	\$90	\$171	\$1,295	\$254	\$777	\$4,205	\$775	\$225	\$0	\$30,605
2011	\$10,847	\$14,059	\$112	\$0	\$1,372	\$0	\$448	\$3,602	\$345	\$130	\$0	\$30,915
2012	\$10,874	\$19,144	\$68	\$0	\$894	\$0	\$464	\$3,268	\$401	\$137	\$0	\$35,250
2013	\$6,163	\$19,445	\$198	\$314	\$1,013	\$0	\$541	\$3,399	\$406	\$155	\$0	\$31,635
2014	\$5,424	\$19,224	\$115	\$314	\$1,137	\$0	\$606	\$3,836	\$410	\$167	\$0	\$31,234
2015	\$8,359	\$21,051	\$65	\$112	\$1,256	\$500	\$771	\$4,504	\$440	\$186	\$0	\$37,244
2016	\$6,925	\$21,130	\$154	\$213	\$1,320	\$450	\$798	\$4,551	\$502	\$214	\$0	\$36,257
2017	\$7,528	\$22,169	\$110	\$213	\$1,362	\$150	\$883	\$5,224	\$525	\$224	\$0	\$38,388
Total (Nom.)	\$102,755	\$237,674	\$2,142	\$5,814	\$16,616	\$7,996	\$9,788	\$59,044	\$13,974	\$2,551	\$15,000	\$473,354

Source: CADSR calculations

## Appendix B

### The REMI PI+ Model

The REMI PI+ Model is a dynamic forecasting and policy analysis tool of the economy of Delaware, capable of simulating and estimating causal relationships. Contrary to other models, especially Input-Output models (RIMS II, IMPLAN,) REMI incorporates several modeling approaches, combining the strengths of econometric, Input-Output, and dynamic models while overcoming the limitations of each of them individually. The result is a comprehensive model that answers “what if...?” questions about the economy.

At its core, the REMI model incorporates the entire inter-industry relationships found in input-output models. REMI models are dynamic; they demonstrate economic changes over time, allowing firms and individuals to modify their behavior in response to changing economic conditions. General Equilibrium Economic Theory is the basis for the modeling of those responses.

## **The Fiscal and Economic Impact of the Wilmington Riverfront**

---

The REMI model used in this economic impact analysis is a regionalized version of a benchmarked national model. There are ten geographic sub-regions formed by counties and their aggregations that account for all regional economic activity. The core region is the State of Delaware and its three counties. Salem County and the combination of Burlington, Camden, and Gloucester counties represent the State of New Jersey. Bucks, Montgomery, and Philadelphia counties (combined), and Delaware and Chester counties (combined) are the counties included from Pennsylvania. For Maryland, Cecil County, Harford County, and a combination of 10 counties in Maryland and Virginia complete the remaining part of the Delmarva Peninsula. Although each sub-region is treated in the model as an independent, wholly functioning economy, which interacts with other sub-region and the nation. To simulate the economic impact of the Riverfront, we consider only two regions: New Castle County and the State of Delaware. The rest of the counties listed above, interact with New Castle, Kent, and Sussex counties but the results are not part of the economic impact of the Riverfront<sup>29</sup>.

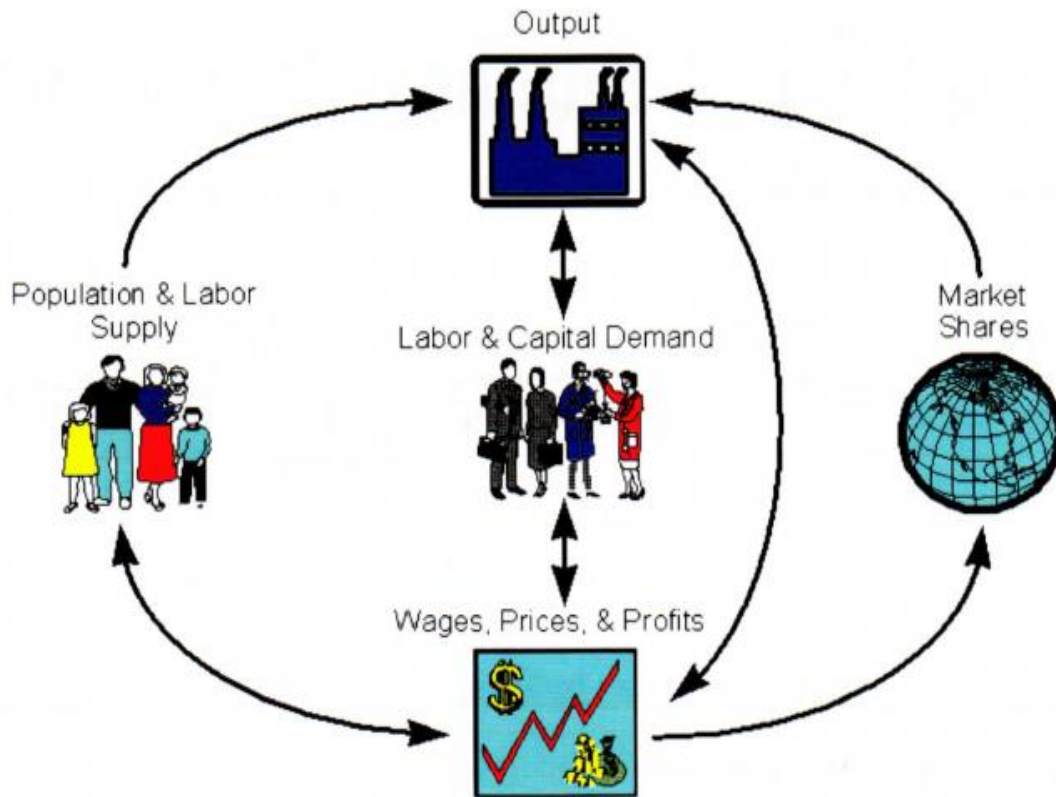
The model relies on common economic assumptions: firms maximize profits and households maximize utility. In addition to Input-Output relationships, the model contains many equations that describe the structure of the economy in mathematically and statistical terms. Those equations belong to any of five major components or blocks: Output, Population & Labor

---

<sup>29</sup> The surrounding counties of New Jersey, Pennsylvania, Maryland, and Virginia interact within the model as some workers at the Riverfront are resident in those states.

Supply, Labor and Capital Demand, Market Share, and Wages, Prices, & Profits. The figure below illustrates the interaction within the five blocks.

*Figure B1 – Illustration of block interactions within REMI PI+ model*



Economic criteria define the equations within each block: business use labor, capital, and fuel as inputs to supply goods and services. Households and business provide inputs for production and demand goods and services. Equilibria in the different markets calculate wages, prices, and profits.

The REMI PI+ is a general equilibrium model with feedback, which means that describes the economy as it changes over time: variations in population, demographics, and wages exert influence over the labor supply. Changes in today's labor supply also affect that supply in future years. Those adjustments are not instantaneous and occur gradually, instead of statistically jumping from one equilibrium to another. That characteristic is another of REMI's advantages versus Input-Output models.

The general equilibrium capacity of the model includes the multiplier effect through successive iterations and equilibria in other parts of the economy. Consequently, the multiplier effect is the cumulative impact of any change in the economy. As an example: a purchase of one dollar of retail sales will increase construction in 28 cents plus sales in manufacturing in 30 cents plus sales in utilities, etc. The summation of the different inputs in the dollar spent in retail could exceed that amount by several factors.

Figure B2 – How REMI Forecast the Effect of a Policy

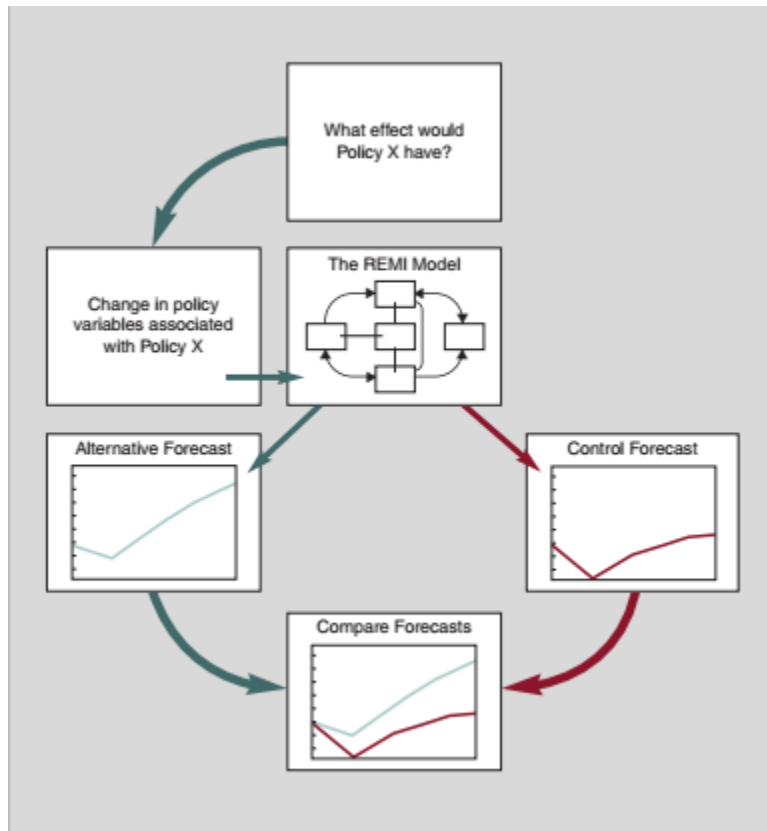


Figure 3 displays how REMI handles the calculations. REMI includes, by default, a Control Forecast. That forecast does not necessarily need to verify in the future as it acts only as a reference. When the policy modeler introduces a change in policy variables (input variables), the model simulates the results and stores them in the Alternative Forecast. Finally, REMI compares both, the Control and Alternative forecasts and the difference is the result of the change in Policy x.

## The Fiscal and Economic Impact of the Wilmington Riverfront

In this report, we employ the REMI PI+ model to visualize and understand the economic effect of Riverfront activity on the economy of New Castle County and the State of Delaware.

### Data and Calculations

The following table lists the number of employees, and the amount of wages paid to them used as input for the REMI's economic impact simulation. Employment and wages are coded according to the NAICS that represents the primary activity of the firm.

*Table B1: Data Used as Inputs for the Economic Impact Simulation*

Industry	Employment	Compensation
Construction	119	\$3,518,376
Retail trade	30	\$888,361
Water Transportation	1	\$32,183
Motion picture and sound recording industries	34	\$158,538
Internet publishing and broadcasting	1	\$49,658
Banks - Credit intermediation and related activities	50	\$4,864,442
Securities, commodity contracts, investments	559	\$21,689,667
Real Estate	57	\$2,187,235
Rental and leasing services	7	\$124,857
Professional, Scientific, and Technical Services	23	\$1,416,060
Management of Companies and Enterprises	2	\$3,760
Administrative and Support Services	11	\$469,686
Ambulatory Health Care Services	33	\$1,153,460
Performing arts and spectator sports	1	\$11,493
Museums, Historical Sites, and Similar Institutions	6	\$91,777
Amusement, Gambling, and Recreation Industries	1	\$10,633
Accommodation	12	\$192,351
Repair and Maintenance	21	\$418,799
Membership associations and organizations	5	\$110,224

Source: CASDR calculations