

## 17.0 Social and Economic Resources

### 17.1. Introduction

This chapter defines the social and economic resources pertinent to the Long Bridge Project (the Project), and defines the regulatory context, methodology, and Affected Environment. For each Action Alternative and the No Action Alternative, this chapter assesses the potential short-term and long-term impacts on social and economic resources. This chapter also discusses proposed avoidance, minimization, and mitigation measures to reduce adverse impacts of the Project.

This chapter describes the social and economic resources related to demographics, jobs, current economic conditions, taxes, revenue, community facilities, local government services, and commercial activity. The social and economic impact assessment considered the Project's potential to impact the socioeconomic environment, including community disruption or cohesion, demographic shifts, impacts to existing commerce and new commercial activity, job creation, and tax revenues.

### 17.2. Regulatory Context and Methodology

This section describes the most pertinent regulatory context for evaluating impacts to social and economic resources and summarizes the methodology for evaluating current conditions and the probable consequences of the alternatives. This section also includes a description of the Study Area. **Appendix D1, Methodology Report**, includes the complete list of laws, regulations, and other guidance considered, and a full description of the analysis methodology.

#### 17.2.1. Regulatory Context

The Federal Railroad Administration *Procedures for Considering Environmental Impacts* require that the evaluation of impacts consider “impacts on the socioeconomic environment, including the number and kind of available jobs, the potential for community disruption and demographic shifts, the need for and availability of relocation housing, impacts on commerce, including existing business districts, metropolitan areas, and the immediate area of the alternative, and impacts on local government services and revenues.”<sup>1</sup> The District Department of Transportation *Environmental Manual* also addresses socioeconomic resources.<sup>2</sup>

#### 17.2.2. Methodology

The Local Study Area includes the Project Area, which spans from the midblock between 9th Street SW and 10th Street SW in the District and Long Bridge Park in Arlington County, Virginia, as well as 0.5 miles immediately adjacent to the Project Area. The U.S. 2010 Census block groups are the smallest geographic unit for which all the demographic data collected for this analysis are available; therefore, some analyses that rely on Census information capture data that extends beyond the Local Study Area.

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<sup>1</sup> 64 FR 28550

<sup>2</sup> District Department of Transportation. 2012. *Environmental Manual*, 2nd Edition. Chapter 24: Environmental Justice. Accessed from [http://ddotsites.com/documents/environment/Files/Chapters/Chapter\\_25\\_-\\_Socioeconomic\\_Resources.pdf](http://ddotsites.com/documents/environment/Files/Chapters/Chapter_25_-_Socioeconomic_Resources.pdf). Accessed August 2, 2018.

33 The Local Study Area can be divided into District and Arlington County block groups to capture any  
34 unique conditions between the two jurisdictions. **Figure 17-1** identifies the geographic boundary of the  
35 Local Study Area. The study did not designate a Regional Study Area for social because social impacts of  
36 the Project are not expected to extend beyond the Local Study Area because social impacts typically  
37 relate to the potential for local community disruption or demographic shifts.

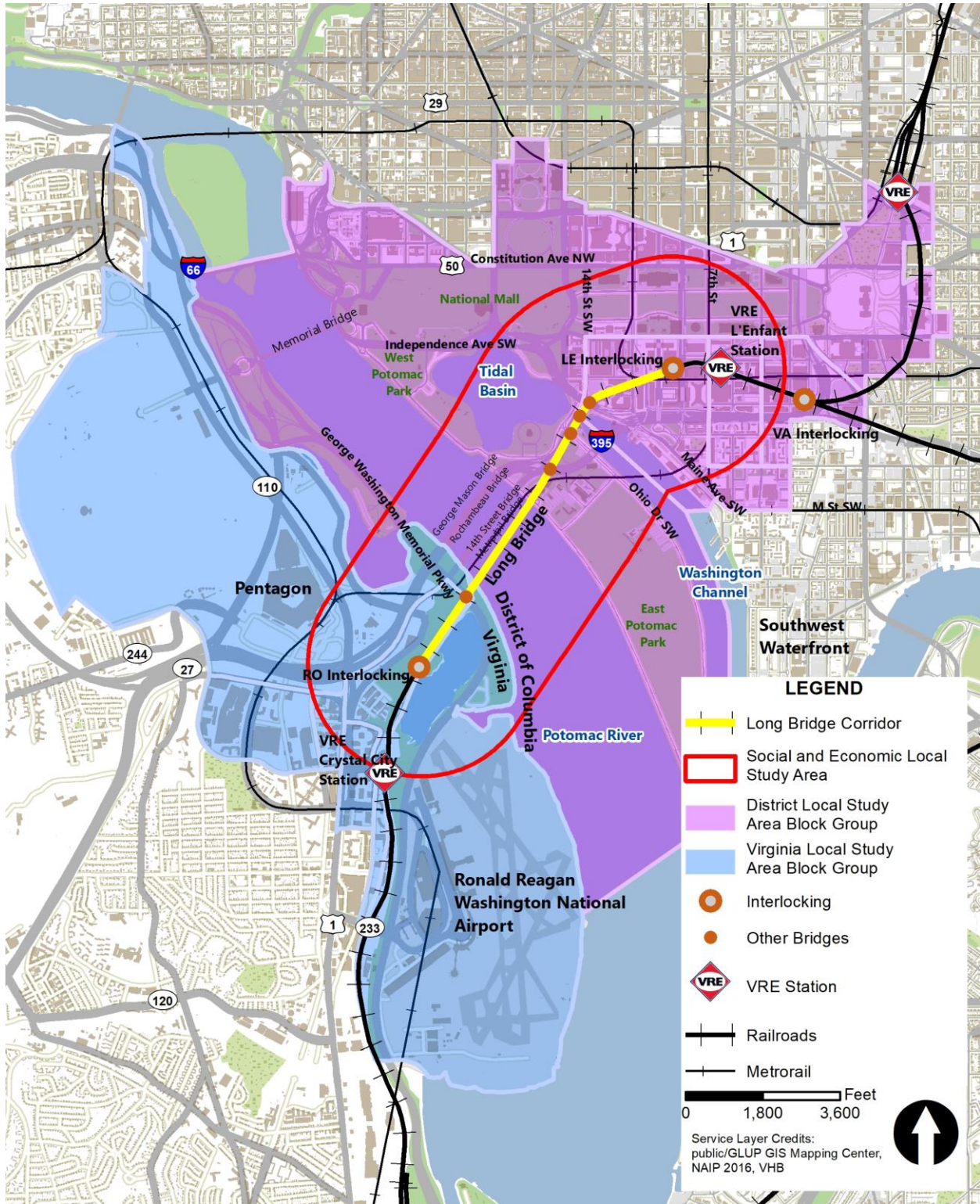
38 The analysis used two Regional Study Areas for economic impacts: Regional Study Area for Taxes, Public  
39 Revenue, and Local Government Services, and a Regional Study Area for Construction Employment.  
40 Given that the District measures tax receipts on a City-wide basis and Arlington County measures tax  
41 receipts on a County-wide basis, **Section 17.3.4, Taxes, Public Revenue, and Local Government**  
42 **Services**, includes discussion using the entirety of the District and Arlington County. Construction  
43 employment benefits are typically felt regionally; therefore, the analysis includes the following  
44 jurisdictions in the Washington Metropolitan Region: the District; Frederick, Montgomery, Calvert,  
45 Charles, and Prince George’s Counties in Maryland; Arlington, Clarke, Culpeper, Fairfax, Fauquier,  
46 Loudoun, Prince William, Rappahannock, Spotsylvania, Stafford, and Warren Counties, and the Cities of  
47 Alexandria, Fairfax, Falls Church, Fredericksburg, Manassas, and Manassas Park in Virginia; and Jefferson  
48 County in West Virginia. The analysis estimated construction employment using IMPLAN, an economic  
49 impact assessment modeling system.

50 The Affected Environment documentation identified existing social, demographic, and economic  
51 characteristics of the Local Study Area using data from the U.S. 2010 Census, the 2011–2015 American  
52 Community Survey (ACS) 5-year Estimates, the District of Columbia Office of Tax and Revenue, and the  
53 Arlington County Office of the Treasurer. This section drew from these data sources to build a  
54 socioeconomic profile and establish a baseline for existing social, demographic, and economic  
55 conditions in the Local Study Area.

56 The impact analysis evaluated the No Action and the Action Alternatives to determine whether the  
57 respective alternatives would result in direct and indirect permanent and temporary impacts to each  
58 social and economic resource. The analysis included a discussion of the potential for community  
59 disruption resulting from the Project and impacts on livability in the Local Study Area. In identifying  
60 potential impacts to communities, the communities and demographics analysis drew from the results of  
61 the analyses for air quality (**Chapter 10, Air Quality and Greenhouse Gas Emissions**), noise and vibration  
62 (**Chapter 13, Noise and Vibration**), visual impacts (**Chapter 14, Aesthetics and Visual Resources**), and  
63 traffic (**Chapter 9, Transportation and Navigation**). The analysis also determined potential physical  
64 impacts in the Local Study Area by comparing the proposed limits of disturbance and limits of  
65 construction to mapped community facilities.

66 The assessment of temporary impacts during the construction phase identified the limits of construction  
67 staging and likely phasing scenarios. The analysis evaluated social and economic impacts during the  
68 construction phase based on the following indicators: job creation, direct and indirect construction  
69 spending, potential disruptions to commercial activity, and potential disruptions to community cohesion  
70 and continuity. The analysis used IMPLAN software to estimate construction jobs and construction  
71 impacts.

72 **Figure 17-1** | Local Study Area for Social and Economic Resources



73

## 74 **17.3. Affected Environment**

75 This section describes the existing social, demographic, and economic characteristics of the Local Study  
76 Area. For a complete description of the Affected Environment, see **Appendix D2, Affected Environment**  
77 **Report**.

78 As described in **Chapter 12, Land Use and Property**, the Project is located within relatively dense urban  
79 areas with prominent commercial and institutional districts and smaller but growing concentrations of  
80 residential and mixed-use neighborhoods. Significant employment sectors in the Local Study Area,  
81 including the Local Study Area Block Groups, are the Federal government; services, such as education  
82 institutions, hotels, and museums; and retail trade, including shopping malls. There are more employees  
83 than residents in both the District and Virginia portions of the Local Study Area; however, the Local  
84 Study Area also contains emerging mixed-use neighborhoods such as District Wharf in the District and  
85 Crystal City and Pentagon City in Virginia. These developing urban centers provide a mix of high-rise  
86 residential, commercial, and cultural uses contributing to the economic diversity of the Local Study Area.

### 87 **17.3.1. Demographics**

88 This section outlines the demographic characteristics of the Local Study Area residents within the  
89 District and Virginia block groups. As described below, a large proportion of Local Study Area residents  
90 are in their 20s and 30s and have relatively high incomes. Generally, however, residential uses make up  
91 a small proportion of land uses in the Local Study Area, as described in **Chapter 12, Land Use and**  
92 **Property**. The Virginia portion of the Local Study Area has a small proportion of the area devoted to  
93 residential uses, in portions of Crystal City, Pentagon City, and the neighborhood of Aurora Highlands. In  
94 the District, the Local Study Area mostly consists of public- and government-related land uses, with a  
95 small, but growing, proportion of residential uses, particularly in the Southwest neighborhood and the  
96 recent District Wharf development. In late 2017, the Wharf added 900 residences to the neighborhood;  
97 these new residents have not yet been captured in the ACS data or the analyses based on that data.

#### 98 **17.3.1.1. Age**

99 According to the 2011–2015 ACS 5-Year Estimates, the total population of the Local Study Area in 2015  
100 was 18,101, with 13,620 people residing within the Virginia block groups and 4,481 within the District  
101 block groups (see **Table 17-1**). The total Local Study Area population increased by 694, or 6.2 percent,  
102 from 2010. Most of this increase occurred within the District block groups. The 30- to 39-year-old age  
103 cohort experienced the largest population increase from 2010 (+24.5 percent). The 18- to 21-year-old  
104 age cohort experienced the greatest decline in population from 2010 (-16.4 percent).

#### 105 **17.3.1.2. Race**

106 As described in **Chapter 20, Environmental Justice**, of the total 18,101 residents in the Local Study Area  
107 in 2015, 10,569, or approximately 58.4 percent, were White. Black or African Americans made up  
108 approximately 16.3 percent of the 2015 Local Study Area population. The Black or African American  
109 population made up a more significant portion of the population within the District block groups at  
110 35.9 percent, compared with the Virginia block groups at 9.8 percent. The Asian Local Study Area (both  
111 the District and Virginia) population was 2,628 (14.5 percent) and the Hispanic or Latino population was  
112 1,222 (6.8 percent) in 2015.

113 **Table 17-1** | Local Study Area Population by Age

Age Cohort	2010			2015			Percent Change
	DC	VA	Total	DC	VA	Total	Total
Under 18 Years	216	842	1,058	308	848	1,156	9.3%
18 to 21 Years	63	248	311	20	240	260	-16.4%
22 to 29 Years	926	4,557	5,483	922	4,134	5,056	-7.8%
30 to 39 Years	834	3,006	3,840	1,440	3,342	4,782	24.5%
40 to 49 Years	522	1,663	2,185	448	1,899	2,347	7.4%
50 to 64 Years	759	2,027	2,786	766	1,882	2,648	-5.0%
65 Years and Over	480	1,264	1,744	577	1,275	1,852	6.2%
<b>Total</b>	<b>3,800</b>	<b>13,607</b>	<b>17,407</b>	<b>4,481</b>	<b>13,620</b>	<b>18,101</b>	<b>4.0%</b>

*Source: 2010 U.S. Census, 2011–2015 ACS 5-year Estimates*

114 **17.3.1.3. Median Household Income**

115 The median household income for the Virginia block groups is \$102,037, comparable to the median  
 116 household income of \$104,869 for Arlington County. The median household income for the District  
 117 block groups is \$97,125, compared with a median household income of \$76,405 for the entire District.<sup>3</sup>

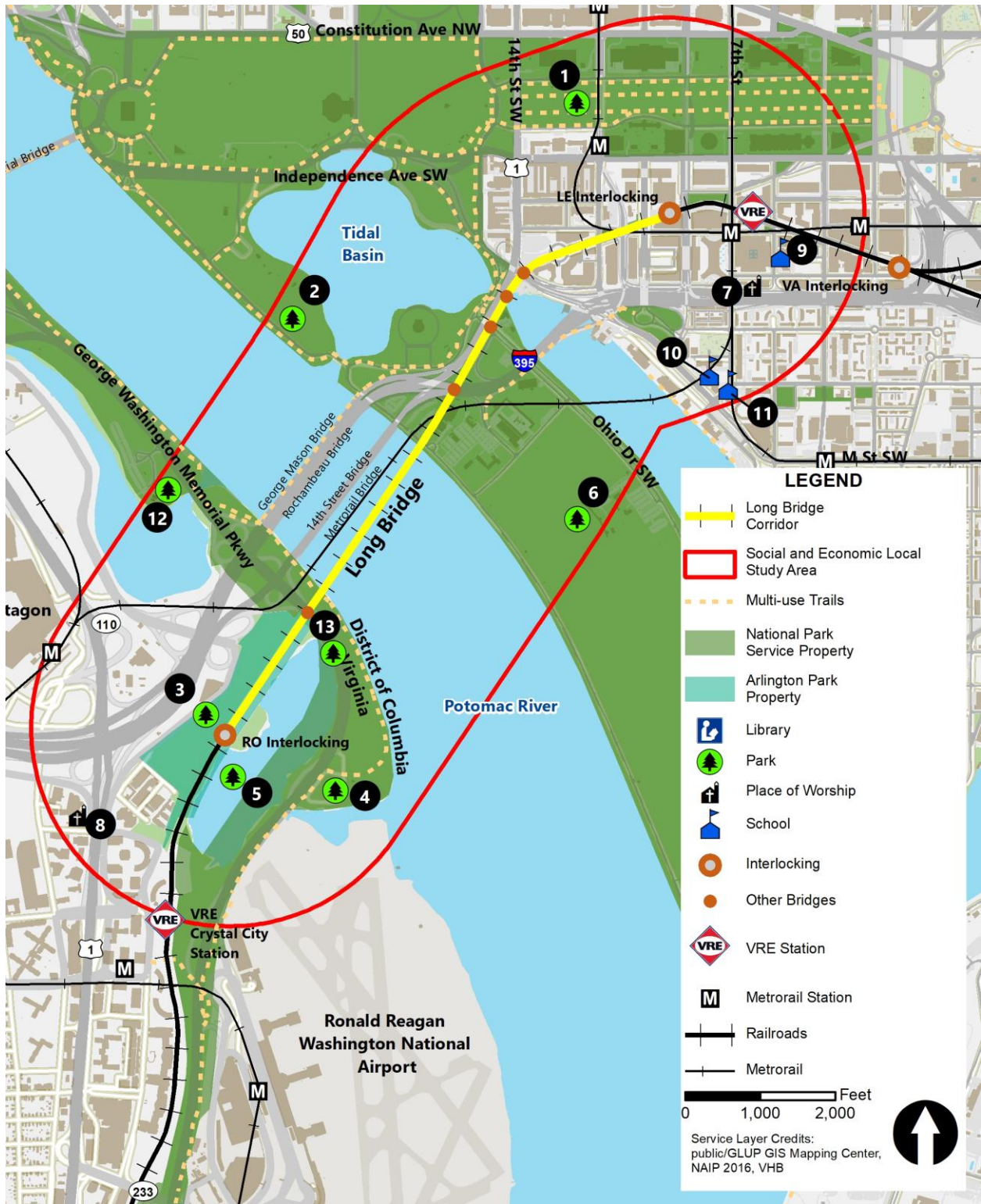
118 **17.3.2. Community Facilities**

119 Community facilities considered in this analysis include schools, libraries, community centers,  
 120 recreational facilities, places of worship, emergency service centers, and childcare centers that are  
 121 located within the Local Study Area. As the Project is located within relatively dense urban areas with  
 122 prominent commercial and institutional districts, community facilities are largely concentrated closer to  
 123 adjacent residential areas, including the residential areas of Crystal City in Virginia and the Southwest  
 124 neighborhood in the District. **Figure 17-2** and **Table 17-2** show community facilities with the  
 125 corresponding map identification numbers.

126 Several types of facilities in the Local Study Area may serve high concentrations of children, including the  
 127 schools and open space or recreational facilities identified above, particularly the open spaces with  
 128 fields or playground equipment. In addition, though not identified above, a number of childcare  
 129 facilities, including day care centers and pre-school programs, exist within the Local Study Area in both  
 130 the Virginia and District block groups.

<sup>3</sup> ESRI Business Analyst. 2017. Community Profile, Forecasts for 2017. Accessed December 6, 2017.

131 **Figure 17-2** | Community Facilities in the Local Study Area



132

133 **Table 17-2** | Community Facilities in the Local Study Area

Map ID	Name	Facility Type
1	National Mall	Park
2	West Potomac Park	Park
3	Long Bridge Park	Park
4	Gravelly Point	Park
5	Roaches Run Waterfowl Sanctuary	Park
6	East Potomac Park	Park
7	Saint Dominic Catholic Church	Place of Worship
8	Great Commission Community Church	Place of Worship
9	Washington Global Public Charter School	School
10	Jefferson Middle School Academy	School
11	AppleTree Early Learning Public Charter School	School
12	Mount Vernon Trail	Park
13	George Washington Memorial Parkway	Park

134

135 **17.3.3. Employment, Commercial Activity, and Current Economic**  
 136 **Conditions**

137 Both the Virginia and District portions of the Local Study Area have substantially more employees than  
 138 residents. Dominant employers in the Local Study Area include the Federal government, hotels, retail  
 139 stores and shopping malls, cultural and educational institutions, and Federal contractors. **Table 17-3**  
 140 shows the number of businesses and employees in each business sector in the Local Study Area. Long  
 141 Bridge itself does not directly generate any employment.

142 **17.3.3.1. Arlington, Virginia**

143 The Virginia part of the Local Study Area has 23,432 employees at 1,150 businesses. The sectors with the  
 144 most employees include services (50.9 percent of employees); retail trade (27.3 percent); finance,  
 145 insurance, real estate (6.7 percent); and manufacturing and defense contractors (4.4 percent).  
 146 Subcategories with the most employees in the services sector are hotels and lodging, legal services, and  
 147 other services.<sup>4</sup> These data only include civilian employees and therefore do not include an additional  
 148 23,000 employees at the Pentagon. Significant economic centers in the Virginia portion of the Local  
 149 Study Area include Crystal City, Pentagon City, the Pentagon, and Ronald Reagan Washington National  
 150 Airport.

151 **17.3.3.2. District of Columbia**

152 The District part of the Local Study Area has 81,797 employees and 1,800 businesses. The leading  
 153 sectors in terms of employment include government (20.6 percent of employees), services  
 154 (24.6 percent), and retail trade (5.0 percent). Subcategories with the most employees in the services

<sup>4</sup> ESRI. Undated. Business Summary. Accessed December 6, 2017.

155 sector are educational institutions and libraries, motion pictures and amusements, and other services,  
 156 which includes research institutions and museums.<sup>5</sup>

157 Significant economic centers in the District portion of the Local Study Area include the developing  
 158 District Wharf neighborhood, the Portals development, and L’Enfant Plaza. The middle and northern  
 159 portions of the Local Study Area on the District side of the Potomac River are mostly comprised of the  
 160 National Mall, the White House, the United States Capitol, memorials, monuments, museums, and  
 161 Federal offices. The primary economic sectors in this area are government services and tourism.

162 **Table 17-3 |** Local Study Area Employment

Industry Sector	District of Columbia			Arlington County, Virginia <sup>1</sup>		
	Businesses	Employees	Employees %	Businesses	Employees	Employees %
Agriculture and Mining <sup>2</sup>	5	3,639	4.4%	2	5	0.0%
Construction	27	341	0.4%	35	860	3.7%
Manufacturing	28	2,422	3.0%	27	1,035	4.4%
Transportation	27	2,258	2.8%	24	458	2.0%
Communication	20	796	1.0%	14	484	2.1%
Wholesale Trade	15	141	0.2%	18	244	1.0%
Retail Trade	191	4,100	5.0%	346	6,405	27.3%
Finance, Insurance, Real Estate	97	1,563	1.9%	125	1,575	6.7%
Services	515	20,099	24.6%	427	11,920	50.9%
Government	687	45,950	56.2%	16	230	1.0%
Unclassified Establishments	188	488	0.6%	116	216	0.9%
<b>Total</b>	<b>1,800</b>	<b>81,797</b>	<b>100.0%</b>	<b>1,150</b>	<b>23,432</b>	<b>100.0%</b>

Source: ESRI Business Summary accessed on December 6, 2017. Sector is by Standard Industrial Classification (SIC) Codes.

Notes: <sup>1</sup> U.S. Census data and ESRI estimates count civilian employees, which excludes people on active duty in the United States Armed Forces. The Pentagon is the headquarters of the United States Department of Defense and the approximately 23,000 people employed there are not included in U.S. Census data or ESRI estimates.

<sup>2</sup> Industry sector includes agriculture, mining, and forestry, and would include government jobs with the U.S. Department of Agriculture (USDA) and National Park Service (NPS).

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<sup>5</sup> ESRI. Undated. Business Summary. Accessed December 6, 2017.



164 **17.3.4. Taxes, Public Revenue, and Local Government Services**

165 **17.3.4.1. Arlington, Virginia**

166 Arlington County, Virginia, is the local governing entity that collects revenues and provides local  
167 services. Arlington collected approximately \$1.2 billion in revenues in Fiscal Year (FY) 2017. The largest  
168 revenue source is real estate taxes. The 2017 real estate property base tax rate was \$0.983 per \$100 of  
169 assessed value. Arlington cannot have differentiated rates for different property types without state  
170 authorization. The second largest revenue source was the personal property tax, levied on tangible  
171 property of individuals and businesses. The 2017 personal property and business tangible tax rate was  
172 \$5 per \$100 of assessed value. The 2017 sales tax was 1 percent, and the tax on food and beverages was  
173 4 percent on top of the sales tax.<sup>6</sup>

174 Some revenue streams are dedicated to specific funds, but the majority is allocated to the general fund.  
175 Government services include police, fire, public safety communications and emergency management,  
176 public education, human services, parks and recreation, environmental services, and water and  
177 sanitation services. Several of these services are described in **Chapter 16, Parks and Recreation; Chapter**  
178 **18, Security and Safety; and Chapter 19, Public Health, Elderly, and Persons with Disabilities.**

179 **17.3.4.2. District of Columbia**

180 The District provides services and collects revenues typical of states and local municipalities. The  
181 District's largest revenue sources are real property taxes, individual income taxes, sales taxes, and gross  
182 receipts taxes. In FY 2017, the District estimated it would collect approximately \$8.4 billion in revenue  
183 from taxes, fees, and other sources. Real property tax rates vary according to property type.

184 Some revenue streams are dedicated to specific funds or services; however, most revenue is allocated  
185 to the District's general fund. Government services include police, fire, emergency medical services,  
186 public education, human services, child and family services, parks and recreation, environmental  
187 protection, public health services, and sanitation services. Several of these services are described in  
188 **Chapter 16, Parks and Recreation; Chapter 19, Public Health, Elderly, and Persons with Disabilities;**  
189 **and Chapter 18, Security and Safety.** The District also provides other governmental services typical of  
190 state and local governments.

191 **17.4. Permanent or Long-Term Effects**

192 This section discusses the permanent or long-term effects following the construction of the No Action  
193 Alternative and Action Alternatives on social and economic resources within the Local and Regional  
194 Study Areas. For a complete description of the permanent or long-term effects, see **Appendix D3,**  
195 **Environmental Consequences Report.**

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<sup>6</sup> FY 2017 Proposed Budget. County Board Work Session Presentation. March 3, 2016.

## 196 17.4.1. Social

197 This section discusses potential permanent direct and indirect impacts to demographics, community  
198 facilities and local government services, property acquisition and displacement, and potential  
199 community disruption.

### 200 17.4.1.1. No Action Alternative

201 The No Action Alternative includes transportation projects in the Local Study Area likely to be  
202 implemented by 2040 including several railroad projects. Some of these projects, including  
203 improvements to the Virginia Railway Express (VRE) L'Enfant Station would improve community  
204 cohesion by making public transportation easier to access and more efficient. The Boundary Channel  
205 Drive Interchange Project would also enhance community cohesion by improving safety and  
206 accommodating various modes of transportation including pedestrian and bicycle facilities. These  
207 projects would have a positive impact on community cohesion and community livability. Adverse social  
208 impacts are not anticipated due to these projects.

### 209 17.4.1.2. Action Alternative A (Preferred Alternative)

210 Action Alternative A would not cause any permanent direct or indirect adverse impact to demographics,  
211 community facilities other than parks (schools, libraries, community centers, places of worship,  
212 emergency service centers, and childcare centers), or local government services. Action Alternative A  
213 would result in no direct or indirect displacement of residences or businesses. Action Alternative A  
214 would have minor permanent indirect beneficial impacts on social resources in the Local Study Area by  
215 enabling the expansion of train service to the local communities. For example, as stated in **Chapter 9,**  
216 **Transportation and Navigation**, the Maryland Area Rail Commuter (MARC) plans to run through service  
217 to Virginia, and VRE is expected to increase frequency with the additional capacity provided by Action  
218 Alternative A.

219 While Action Alternative A would require the acquisition or transfer of lands with Long Bridge Park, the  
220 George Washington Memorial Parkway, and East Potomac Park, the acquisition or transfer of these  
221 lands would not constitute a direct impact to social resources because the use and integrity of the parks  
222 would not change (see **Chapter 12, Land Use and Property**, and **Chapter 16, Recreation and Parks**, for  
223 further discussion).

224 Action Alternative A would not directly or indirectly cause community disruption or adversely affect  
225 community cohesion. Community disruption is the combined effect of physical impacts on the local  
226 community including barriers to community cohesion and impacts to livability in the Local Study Area.  
227 Action Alternative A would not cause permanent adverse impacts to the roadway network, traffic, the  
228 bicycle and pedestrian network, or vibration; therefore, these resources would not contribute to direct  
229 or indirect adverse impacts to communities. Action Alternative A would have permanent minor adverse  
230 direct effects to local and regional air quality, but these effects would not adversely impact  
231 communities, either directly or indirectly, see **Chapter 10, Air Quality and Greenhouse Gases**.

232 Action Alternative A would cause adverse direct impacts to the noise and the visual environment and a  
233 loss of parking in the Local Study Area. These impacts would affect a few specific locations but would  
234 not directly or indirectly affect livability or diminish overall quality of life in the existing communities in  
235 the Local Study Area. These impacts would not result in overall community disruption, and they would

236 not lessen community cohesion because they would not render buildings or community facilities  
237 unusable or uninhabitable. For additional information regarding adverse impacts to noise and visual  
238 conditions, see **Chapter 13, Noise and Vibration**, and **Chapter 14, Aesthetics and Visual Resources**.

### 239 **17.4.1.3. Action Alternative B**

240 Action Alternative B would cause the same permanent direct and indirect impacts to social resources as  
241 Action Alternative A.

## 242 **17.4.2. Economic**

243 This section discusses potential permanent direct and indirect impacts to jobs, the regional economy,  
244 tax/public revenue, and commercial activity.

### 245 **17.4.2.1. No Action Alternative**

246 The No Action Alternative would not cause any direct or indirect impacts to commercial activity in the  
247 Local Study Area. It would not cause direct or indirect impact to taxes or public revenues. Positive  
248 impacts from indirect job growth may occur.

249 In the No Action Alternative, train operators would increase train volumes in the Long Bridge Corridor  
250 from 76 trains per day to 112 trains per day. Additional trains would contribute to increased passenger  
251 trips, multimodal connectivity and freight activity in the region. The Long Bridge Corridor has insufficient  
252 capacity to effectively support the expected increase in train volume, which could lead to economic  
253 losses to the region due to the delayed movement of passengers and goods. The No Action Alternative  
254 would also not support the desired service levels for intercity passenger and commuter rail services. The  
255 No Action Alternative would not generate any new direct jobs, though indirect jobs may be created due  
256 to the increased train volume.

### 257 **17.4.2.2. Action Alternative A (Preferred Alternative)**

#### 258 **Jobs**

259 Action Alternative A would have a negligible permanent indirect beneficial impact on employment in the  
260 region through indirect job creation.

261 Action Alternative A would not create any direct permanent jobs; therefore, it would not create any  
262 direct impact. Once in operation, Action Alternative A would result in greater capacity, enabling railroad  
263 operators (Amtrak, VRE, and MARC) to run additional trains between Virginia and the District. As  
264 described in **Chapter 9, Transportation and Navigation**, greater capacity would allow a 71 percent  
265 increase in passenger train volumes compared to the No Action Alternative. Action Alternative A would  
266 indirectly result in job creation by enabling expansion of railroad service, requiring railroad operators to  
267 hire more employees. Also, improved commuting would expand the labor pool for the economic centers  
268 located in the Local Study Area and would provide more access to employment opportunities for those  
269 who live in the Local Study Area.

270

## 271 **Regional Economy**

272 Action Alternative A would not directly impact the regional economy. Action Alternative A, however,  
273 would enable the expansion of railroad service, which would result in negligible indirect beneficial  
274 effects to the regional economy. The expanded railroad capacity would allow for more efficient  
275 movement of passengers, commuters and goods between Virginia and the District. With the additional  
276 capacity, MARC would run through service to Virginia, allowing more efficient access from Maryland to  
277 employment centers and tourist destinations in Arlington and the District. The Project would enable  
278 expanded economic activity and tourism within the Regional Study Area, generating a positive market  
279 response to the increased capacity.

## 280 **Tax/Public Revenue**

281 Action Alternative A would not directly impact taxes or public revenue in Virginia or the District because  
282 railroad infrastructure itself does not generate or impact tax or public revenue. Action Alternative A  
283 would be anticipated to have a moderate permanent indirect beneficial impact on tax revenue due to  
284 the increased economic activity described above. As noted in the Northern Virginia Transportation  
285 Commission's September 2017 report, *The Value of Metrorail and Virginia Railway Express to the*  
286 *Commonwealth of Virginia*, the presence of Metrorail and VRE currently supports an additional 85,000  
287 households and 130,500 jobs in Northern Virginia, resulting in more than \$600 million annually in sales  
288 and income tax revenue.<sup>7</sup>

## 289 **Commercial Activity**

290 Action Alternative A would result in moderate adverse direct impacts to Washington Marina and minor  
291 adverse direct impacts to the National Park Service (NPS) due to the loss of parking spaces. Impacts are  
292 assessed based on whether the loss of parking would be anticipated to financially affect the business or  
293 entity. Action Alternative A would also indirectly benefit commercial activity in the region through  
294 increased ability to efficiently and reliably move commercial goods and commuters throughout the  
295 Regional Study Area. Action Alternative A would not cause any other impacts to commercial activity in  
296 the Local Study Area. While the Mandarin Oriental Hotel and Portals V development would experience  
297 noise impacts, these businesses were constructed long after the railroad bridge was built and have  
298 always experienced train noise. Operations of these businesses are not expected to be impacted by  
299 noise due to Alternative A.

300 Washington Marina, located adjacent to the existing tracks and Maine Avenue SW, would permanently  
301 lose approximately one-third of the approximately 88 existing spaces. The exact number of spaces  
302 removed, and the exact impacts to Washington Marina, would be determined as final design advances  
303 and through further coordination with Washington Marina. The loss of parking spaces would constitute  
304 a moderate direct adverse impact on Washington Marina without mitigation measures. With mitigation  
305 measures, including reconfiguration of the existing surface parking after the replacement pedestrian  
306 bridge is complete, the net loss of parking spaces would be negligible.

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<sup>7</sup> Northern Virginia Transportation Commission, *The Value of Metrorail and Virginia Railway Express to the Commonwealth of Virginia*. September 2017. Accessed from <http://www.novatransit.org/uploads/studiesarchive/2017%20Economic%20Value%20of%20Transit.pdf>. Accessed August 16, 2019.

307 NPS Parking Lot C, located in East Potomac Park, would permanently lose approximately 50 of the  
308 existing 67 metered parking spaces. This lot is one of three parking lots in the immediate area, which  
309 contain a total of approximately 250 parking spaces. The exact number of spaces removed, and exact  
310 impact due to loss of revenue, would be determined as final design advances and through further  
311 coordination with NPS. It is anticipated that the loss of parking spaces would result in a minor adverse  
312 direct impact to NPS due to loss of revenue associated with loss of metered parking spaces, with or  
313 without mitigation measures. Mitigation would include reconfiguration of the parking after construction  
314 to maximize the number of metered spaces. The surface parking area is currently lightly used except  
315 during special events such as the annual blooming of the Japanese cherry blossom plantings. Therefore,  
316 loss of parking is not anticipated to affect normal operations of the park. Minor adverse impact is  
317 anticipated because NPS would lose some revenue from loss of metered spaces during peak usage. NPS  
318 parking lots in East Potomac Park became metered in 2017; parking in these areas was free prior to  
319 2017. Parking Lots B and C combined contain 143 parking spaces that raise approximately \$30,000  
320 annually in revenue. Therefore, the permanent loss of 50 parking spaces would correlate to a loss of  
321 \$10,490 in revenue per year, if parking could not be accommodated in other NPS parking lots.

### 322 **17.4.2.3. Action Alternative B**

323 Permanent direct and indirect impacts to economic resources due to Action Alternative B would be the  
324 same as impacts due to Action Alternative A.

## 325 **17.5. Temporary Effects**

326 This section discusses the direct or indirect temporary effects of the No Action Alternative and Action  
327 Alternatives during construction, based on conceptual engineering design. For the complete technical  
328 analysis of the potential temporary impacts to social and economic resources, see **Appendix D3,**  
329 **Environmental Consequences Report.**

### 330 **17.5.1. Social**

331 This section discusses potential temporary direct and indirect impacts to demographics, community  
332 facilities and local government services, property acquisition and displacement, and potential  
333 community disruption.

#### 334 **17.5.1.1. No Action Alternative**

335 Construction of the No Action Alternative projects could have temporary adverse impacts to the  
336 transportation network, noise conditions, visual resources, and air quality in the Local Study Area, as  
337 described in **Chapter 9, Transportation and Navigation; Chapter 10, Air Quality and Greenhouse Gases;**  
338 **Chapter 13, Noise and Vibration;** and, **Chapter 14, Aesthetics and Visual Resources.** These impacts  
339 could result in adverse direct impact to communities in the Local Study Area but would be temporary  
340 and would cease upon project completion.

#### 341 **17.5.1.2. Action Alternative A (Preferred Alternative)**

342 Action Alternative A would not result in temporary direct or indirect impacts to community  
343 demographics, community facilities, or local government services. No temporary displacement or  
344 property acquisition of residences, businesses, or community facilities other than parks would occur.

345 Moderate temporary direct adverse impacts, due to construction, to GWMP and East Potomac Park are  
346 described in **Chapter 12, Land Use and Property** and **Chapter 16, Recreation and Parks**. Use of the parks  
347 for construction would not constitute a direct impact to community facilities because the community  
348 would still have access to the full range of recreational opportunities within the parks.

349 Community disruption refers to a population's ability to navigate their way around their community.  
350 Temporary moderate adverse direct impacts due to community disruption would occur at varying  
351 locations and for varying durations during the construction period. Community disruption would be due  
352 to temporary impacts to traffic and pedestrian and bicycle facilities during construction. Temporary  
353 construction impacts that would most affect community disruption would occur around Maine Avenue  
354 SW. **Chapter 9, Transportation and Navigation**, further describes these impacts. These impacts would  
355 disrupt community cohesion and wayfinding by creating longer travel times and rerouting travel  
356 patterns. These effects, however, would be temporary and would cease upon project completion. Most  
357 impacts would not last the full duration of the 5-year construction period because construction locations  
358 would shift.

### 359 **17.5.1.3. Action Alternative B**

360 Despite the longer overall construction duration of Action Alternative B (up to 8 years 3 months versus  
361 up to 5 years in Action Alternative A), the construction duration would be similar at the locations with  
362 greater impacts to community disruption. Therefore, Action Alternative B has similar temporary impacts  
363 as Action Alternative A.

### 364 **17.5.2. Economics**

365 This section discusses potential temporary direct and indirect impacts to jobs, the regional economy,  
366 tax/public revenue, and commercial activity.

#### 367 **17.5.2.1. No Action Alternative**

368 Construction jobs and regional benefits associated with construction could have a temporary beneficial  
369 direct impact due to construction of the transportation projects included in the No Action Alternative.  
370 These impacts would be beneficial because these projects would support employment and business  
371 spending in the construction industry. The benefits would be commensurate with construction costs.  
372 Any adverse impacts to economic conditions due to construction are likely to be temporary.

#### 373 **17.5.2.2. Action Alternative A (Preferred Alternative)**

##### 374 **Jobs and Regional Economy**

375 Action Alternative A would cause minor temporary direct and indirect beneficial impacts to employment  
376 and the regional economy. Construction jobs and regional benefits associated with construction would  
377 occur for the estimated 5-year construction period. Construction employment benefits are typically felt  
378 regionally, especially in a metropolitan area where construction workers often live outside of the city  
379 and construction materials and business-to-business transactions also may take place outside of the city.  
380 Further, significant infrastructure projects, such as this Project, require specialized labor and equipment  
381 that would require a regional approach. The analysis of construction employment benefits used  
382 IMPLAN, a regional input-output model software system, and includes the following jurisdictions in the

383 Washington Metropolitan Area: the District; Frederick, Montgomery, Calvert, Charles, and Prince  
 384 George’s Counties in Maryland; Arlington, Clarke, Culpeper, Fairfax, Fauquier, Loudoun, Prince William,  
 385 Rappahannock, Spotsylvania, Stafford, and Warren Counties, and the Cities of Alexandria, Fairfax, Falls  
 386 Church, Fredericksburg, Manassas, and Manassas Park in Virginia; and Jefferson County in West  
 387 Virginia.<sup>8</sup>

388 The projection of construction employment, wages, and economic output is based on estimated  
 389 construction costs, including both hard and soft construction costs. Action Alternative A is estimated to  
 390 cost approximately \$1.9 billion (in 2019 dollars) over a construction period of 5 years.

391 The analysis defined jobs as full- and part-time annual average jobs for both employees and self-  
 392 employed workers, including seasonal workers. **Table 17-4** shows construction jobs estimated annually  
 393 and categorized as direct jobs (the number of construction jobs), indirect jobs (jobs supported by  
 394 business-to-business transactions), and induced jobs (jobs supported by the household spending of  
 395 direct wages). The analysis estimates that the Project would support an average of approximately 1,822  
 396 direct jobs annually and 1,239 indirect and induced jobs annually, for a total of 3,061 jobs annually.  
 397 Direct jobs would occur primarily within the construction and architectural, engineering, and related  
 398 services industries, while the indirect and induced jobs would occur in industries such as wholesale  
 399 trade; restaurants; real estate; hospitals; retail; and services to buildings. These jobs are calculated  
 400 based on multipliers and datasets for various industries identified in IMPLAN and reflect typical spending  
 401 patterns by these industries and workers.

402 **Table 17-4 | Annual Construction Employment, Action Alternative A**

	Annual Jobs	Annual Labor Income	Annual Value Added	Annual Total Output
<b>Direct Effect</b>	1,822	\$146,391,519	\$177,651,493	\$299,229,546
<b>Indirect Effect</b>	441	\$34,838,259	\$50,329,256	\$78,567,865
<b>Induced Effect</b>	799	\$44,424,818	\$78,135,238	\$123,281,734
<b>Total Effect</b>	3,061	\$225,654,596	\$306,135,988	\$501,079,145
<i>Source: IMPLAN</i>				

403  
 404 Project construction would produce an estimated \$226 million in annual labor income (employee  
 405 compensation and proprietor income). Annual value added—the combination of labor income, other  
 406 property type income and indirect business taxes—would be approximately \$306 million. Annual total  
 407 output, or the value of production, would be approximately \$501 million. These economic outputs  
 408 would spread benefits throughout the Washington Metropolitan Region.

<sup>8</sup> These jurisdictions are used because they comprise the Washington-Arlington-Alexandria, DC-VA-MD-WV, metropolitan statistical area as defined by the United States Office of Management and Budget and used by the U.S. Census Bureau.

409 **Tax/Public Revenues**

410 Temporary direct or indirect impacts to taxes and other public revenues are not anticipated.

411 **Commercial Activity**

412 Construction of Action Alternative A would cause major temporary adverse direct impacts to the  
413 Washington Marina without mitigation, and minor temporary adverse direct commercial impacts to  
414 NPS due to loss of revenue from NPS Parking Lots B and C.

415 Action Alternative A would require the demolition of the pedestrian bridge across Maine Avenue SW  
416 near the Mandarin Oriental Hotel that provides access to the Washington Marina and other waterfront  
417 locations. The pedestrian bridge would be replaced with a comparable permanent structure. Prior to the  
418 replacement of the pedestrian bridge, pedestrians would be rerouted using existing sidewalks, so there  
419 would still be access between the Mandarin Oriental Hotel and Washington Marina.

420 In addition to the permanent loss of parking at the Washington Marina and NPS Parking Lot C in East  
421 Potomac Park, temporary loss of additional parking spaces is expected to occur at both locations for  
422 purposes of construction staging and may last for the duration of construction. This would include  
423 temporary closure of most of the surface parking at the Washington Marina and would also include  
424 temporary closure of all parking at NPS Parking Lot B and NPS Parking Lot C. Loss of parking at  
425 NPS Parking Lots B and C would result in a temporary loss of revenue for NPS from the metered parking  
426 spaces, constituting a temporary minor adverse direct economic impact.

427 Temporary parking for Washington Marina would be established offsite for the duration of construction  
428 (the location of temporary parking for the marina will be identified later in the planning process as final  
429 design progresses and in coordination with the marina). Construction would have a potentially major  
430 direct impact to Washington Marina, considering both the temporary loss of parking and the  
431 inconvenience of the temporary removal of the pedestrian bridge for approximately 5 years. These  
432 impacts would be inconvenient for Washington Marina and its patrons and could result in the loss of  
433 patrons. However, with mitigation measures in place, such as temporarily relocated parking and  
434 pedestrian access, temporary adverse impacts, such as a loss of patrons, to Washington Marina would  
435 be considered minor.

436 **17.5.2.3. Action Alternative B**

437 Major temporary direct adverse impacts to the Washington Marina due to construction of Action  
438 Alternative B would be the same as those due to Action Alternative A as the construction duration near  
439 the Washington Marina will be the same. The minor adverse direct impacts anticipated to NPS due to  
440 loss of revenue from the closure of NPS Parking Lots B and C would be felt for an additional 3 years  
441 because Action Alternative B has a construction period of 8 years and 3 months. The higher cost and  
442 longer construction period for Action Alternative B would result in additional construction employment  
443 and economic benefit as discussed below.



444 **Jobs and Regional Economy**

445 Action Alternative B would cause minor beneficial direct and indirect effects to employment and the  
 446 regional economy. Action Alternative B is estimated to cost approximately \$2.8 billion over a  
 447 construction period of 8 years and 3 months.

448 The analysis defined jobs as full- and part-time annual average jobs for both employees and self-  
 449 employed workers, including seasonal workers. **Table 17-5** shows construction jobs estimated annually  
 450 and categorized as direct jobs (the number of construction jobs), indirect jobs (jobs supported by  
 451 business-to-business transactions), and induced jobs (jobs supported by the household spending of  
 452 direct wages). The analysis estimates that the Project would support an average of approximately 1,683  
 453 direct jobs annually and 1,145 indirect and induced jobs annually, for a total of 2,829 jobs annually.  
 454 Direct jobs would occur primarily within the construction and architectural, engineering and related  
 455 services industries while the indirect and induced jobs would occur in industries such as wholesale  
 456 trade; restaurants; real estate; hospitals; retail; and services to buildings. The analysis calculated these  
 457 jobs based on multipliers and datasets for various industries identified in IMPLAN and reflect typical  
 458 spending patterns by these industries and workers.

459 **Table 17-5** | Annual Construction Employment, Action Alternative B

	Annual Jobs	Annual Labor Income	Annual Value Added	Annual Total Output
<b>Direct Effect</b>	1,683	\$135,312,946	\$164,120,086	\$276,479,729
<b>Indirect Effect</b>	407	\$32,202,304	\$46,526,598	\$72,588,564
<b>Induced Effect</b>	738	\$41,063,000	\$72,222,394	\$113,952,472
<b>Total Effect</b>	2,829	\$208,578,250	\$282,869,078	\$463,020,765

*Source: IMPLAN*

460 Project construction would produce an estimated \$209 million in annual labor income (employee  
 461 compensation and proprietor income). Annual value added—the combination of labor income, other  
 462 property type income and indirect business taxes—would be approximately \$283 million. Annual total  
 463 output, or the value of production, would be approximately \$463 million. These economic outputs  
 464 would spread benefits throughout the Washington Metropolitan Region.  
 465

466 **17.6. Avoidance, Minimization, and Mitigation**

467 This section describes proposed mitigation for the impacts to social and economic resources.

468 **17.6.1. Social**

469 The Project would result in impacts to parks, but no other community facilities. Mitigation measures for  
 470 impacts to parks are discussed in **Chapter 16, Recreation and Parks**. Action Alternative A would not  
 471 result in other impacts to social resources; therefore, no additional mitigation measures are proposed.

472                    **17.6.2. Economic**

473                    The Project would result in impacts to specific businesses, including the Washington Marina, NPS  
474                    Parking Lots B and C, the Mandarin Oriental Hotel, and the Portals V development. These impacts are  
475                    due to a loss of parking, change in access, and noise. Mitigation measures for these impacts are  
476                    discussed in **Chapter 9, Transportation and Navigation; Chapter 12, Land Use and Property; Chapter**  
477                    **13, Noise and Vibration; and Chapter 16, Recreation and Parks.** In addition, the Virginia Department of  
478                    Rail and Public Transportation, the project sponsor for final design and construction, would continue to  
479                    coordinate with the Washington Marina and NPS to develop appropriate mitigation for adverse  
480                    temporary and permanent impacts to these establishments due to the Project, including potential loss  
481                    of revenue and patrons due to the temporary and permanent removal of parking.