2.6-1 INTRODUCTION

This section of Chapter 2 assesses whether Project 1, Shaft and Bypass Tunnel Construction would result in significant adverse impacts to the socioeconomic character of the affected area. In accordance with the *New York City Environmental Quality Review (CEQR) Technical Manual* (January 2012) guidelines, this socioeconomic assessment considers five specific factors that can create significant adverse socioeconomic impacts: (1) direct displacement of a residential population on a project site, (2) direct displacement of existing businesses or institutions on a project site, (3) indirect displacement of residential population in a study area, (4) indirect displacement of businesses or institutions in a study area, and (5) adverse effects on specific industries.

In addition, this section includes estimates of the number of employees expected to work on Project 1 and the anticipated resulting economic benefits.

This chapter is organized as follows:

- Section 2.6-2, "Methodology," describes the methodology for the socioeconomic conditions assessment.
- Section 2.6-3, "Socioeconomic Conditions Assessment," describes the potential for Project 1 to result in direct residential or business displacement, indirect residential or business displacement, or adverse effects on specific industries.
- Section 2.6-4, "Economic and Fiscal Benefits," includes estimates of the number of employees expected to work on Project 1 and the anticipated resulting economic benefits.
- Section 2.6-5, "Conclusions," presents conclusions.

2.6-2 METHODOLOGY

As stated in the *CEQR Technical Manual*, a socioeconomic assessment should be conducted if a project may be reasonably expected to create substantial socioeconomic changes within an area that would not be expected in the future without the proposed project. Actions that would warrant a CEQR analysis include the following:

- The direct displacement of a residential population such that the socioeconomic profile of the neighborhood would be substantially altered.
- The direct displacement of substantial numbers of businesses or employees.
- The direct displacement of a business or institution that is unusually important because of its critical social or economic role in the community, and that would have unusual difficulty in relocating successfully because its products or services are uniquely dependent on its location. Such business or institution is of a type or in a location that makes it the subject of other regulations or publicly adopted plans aimed at its preservation; it serves a population uniquely dependant on its services in its present location; or because it is particularly important to neighborhood character.
- The introduction of substantial new development that is markedly different from existing uses, development, and activities within the neighborhood. Such an action could lead to indirect displacement.
- The addition or creation of a retail concentration that may draw a substantial amount of sales from existing businesses within the study area to the extent that certain categories of business close and vacancies in the area increase, thus resulting in a potential for disinvestment on local retail streets and, ultimately, indirect business displacement.
- A project that may adversely affect economic conditions in a specific industry.

If a project would exceed any of these initial thresholds, an assessment of socioeconomic conditions is generally appropriate. Project 1, Shaft and Bypass Tunnel Construction was compared to these thresholds, as described below in section 2.6-3.

2.6-3 SOCIOECONOMIC CONDITIONS ASSESSMENT

As noted in the Final Scope of Work, DEP has acquired or is in the process of acquiring the parcels that make up the west connection site as a result of willing negotiations with property owners, and no property acquisition would be needed for construction of the water main extension or dewatering pipeline. Therefore, no direct displacement of any residents, businesses, or employment associated with those businesses would occur, and direct displacement is not considered further in this section.

The *CEQR Technical Manual* suggests that if a proposed project would entail the construction of a long duration that could affect the access to and therefore viability of a number of businesses, and the failure of those businesses has the potential to affect neighborhood character, a preliminary assessment for construction impacts should be conducted. The *CEQR Technical Manual* further suggests that the potential for a project to result in indirect displacement of businesses or institutions during a construction period is primarily concerned with whether construction activities would affect access to existing businesses, the potential consequences concerning their continued viability, and the potential effects of their loss, if any, on the

character of the area. Since access to all businesses in the areas surrounding Project 1 construction both west and east of Hudson, including the water main extension and dewatering pipeline, would be maintained throughout the construction period, Project 1 is not expected to affect access to businesses in such a way that would threaten their viability. Therefore, an analysis of the potential for Project 1 to result in indirect displacement and effects on specific industries is not warranted, and no further analysis is provided in this section. Given that there would be no direct or indirect displacement, there is no potential for adverse effects on specific industries.

The potential for a project to result in indirect displacement of a residential population in most cases depends on whether a project would increase property values and thus rents throughout the study area, making it difficult for some existing residents to afford their homes. This can occur when a project introduces substantial new permanent development that is markedly different from existing uses, development, and activities within the neighborhood. Project 1 would not have such effects; it would not introduce a new, permanent use that would alter residential market conditions in the study area. Similarly, while Project 1 construction activities may be noisy and perceptible for extended periods of time, those impacts would be temporary and localized, and would not have a substantial effect on residential market conditions.

There is a possibility that due to the extended duration and intensity of the construction that there may be an effect to the short term marketability of residences or lots immediately adjacent to the east and west connection sites. However, this effect, if it were to occur, would be confined to the construction period.

2.6-4 EMPLOYMENT AND POTENTIAL ECONOMIC BENEFITS

Project 1 would provide significant employment opportunities. During construction, Project 1 spending would result in a significant number of construction workers, and additional indirect and induced employment. Project 1 would also create significant wages and salaries, overall effect on the local economy, measured as demand for goods and services, and tax revenues.

2.6-4.1 VALUE OF CONSTRUCTION

Based on preliminary estimates, the construction cost of Phase 1: Site Preparation and Phase 2: Shaft Construction is estimated to equal about $250 million. The construction cost for Phase 3: Tunnel Construction and Phase 4: Bypass Tunnel Lining, Project 1 Demobilization, and Preparation for Project 2B is estimated to equal $651 million. These amounts are for actual construction and exclude design and professional fees, as well as land acquisition and financing costs.

2.6-4.2 METHODOLOGY

OVERVIEW OF THE RIMS II ECONOMIC MODEL

The principal economic model used to estimate the effect on the local economy of Project 1 construction is the Regional Input-Output Modeling System, developed by the U.S. Department of Commerce, Bureau of Economic Analysis. The model uses the most recent economic data from sources such as the U.S. Bureau of Labor Statistics and the U.S. Census Bureau to predict effects on the regional economy from direct changes in spending. The economic region used to analyze Project 1, reflecting where most of the workers and supplies are expected to be drawn from, is the Hudson Valley Region, as defined by the New York State Department of Labor. This region includes Orange and Dutchess Counties, plus Putnam, Rockland, Sullivan, Ulster, and Westchester Counties. The model contains data for the Hudson Valley Region on more than 400 economic sectors, showing how each sector affects every other sector as a result of a change in the quantity of its product or service. The model has been adjusted to reflect the most recent changes in the New York metropolitan area price levels. Using the model and the specific characteristics of Project 1 construction, the total effect was projected for the region.

MEASURES OF ECONOMIC IMPACT

Using RIMS terminology, economic impacts are broken into three components: direct, indirect, and induced.

Direct effects represent the initial benefits to the economy of new investment; e.g., from the construction of a project, such as a bridge, and the corresponding changes in employment and employee compensation.

Indirect effects represent the benefits generated by industries purchasing from other industries as a result of the direct investment; e.g., indirect employment resulting from construction expenditures would include jobs in industries, such as wholesalers, that provide goods and services to the contractors. The sum of these support industry purchases is called the indirect effect.

Induced effects represent the impacts caused by increased income in a region. Direct and indirect effects generate more worker income by increasing employment and/or salaries in certain industries. Households spend some of this additional income on local goods and services, such as food and drink, recreation, and medical services. Benefits generated by these household expenditures are quantified as induced effects.

2.6-4.3 PHASE 1: SITE PREPARATION AND PHASE 2: SHAFT CONSTRUCTION

EMPLOYMENT

The estimated cost of $250 million represents the direct expenditures during Project 1's construction period. As a result of the direct expenditures, as shown in **Table 2.6-1**, the direct

employment from Project 1 construction is estimated at 795 person-years (a person-year is the equivalent of one person working full-time for 1 year), or an average of 329 full-time-equivalent jobs during the approximately 29 month construction period. Of the 795, about 453 person-years, or 57 percent, would be for west of Hudson construction, and about 342 person-years, or 43 percent, would be for east of Hudson construction.

Table 2.6-1
Employment and Economic Benefits from Project 1
Phase 1: Site Preparation and Phase 2: Shaft Construction

	Total Amount in the Hudson Valley Region
Employment (Person-years)*	
Direct (jobs in construction)	795
Indirect (jobs in support industries)	224
Induced (jobs from household spending)	330
Total	1,349
Wages and Salaries (Millions)	
Direct (earnings in construction)	$70.53
Indirect (earnings in support industries)	$19.40
Induced (earnings from household spending)	$23.67
Total	$113.60
Total Economic Output or Demand (Millions)**	
Direct (output from Construction)	$210.25
Indirect (output from support industries)	$76.74
Induced (output from household spending)	$94.82
Total	$381.81

Notes: Detailed amounts may not add to totals due to rounding.
* A person-year is the equivalent of one person working full-time for a year.
** The economic output or total effect on the local economy derived from the direct construction spending.
Sources: The characteristics and construction cost of Project 1, and the Regional Input-Output Modeling System (RIMS II), U.S. Department of Commerce, Bureau of Economic Analysis.

As discussed above, when new direct jobs are introduced to an area, those jobs lead to the creation of additional indirect and induced jobs. Indirect employment resulting from construction expenditures would include jobs in industries that provide goods and services to the contractors, and induced employment would include jobs generated by new economic demand from households' spending. Based on the RIMS II model's economic multipliers for Hudson Valley industrial sectors, the Project 1 would generate an additional 224 person-years of indirect employment and 330 person-years of induced employment within the region, bringing the total number of jobs from construction to 1,349 person-years (see Table 2.6-1).

WAGES AND SALARIES

The direct employee wages and salaries during Phases 1 and 2 of the Project 1 construction period are estimated at $70.53 million (see Table 2.6-1). Based on the RIMS II model's economic multipliers for Hudson Valley industrial sectors, the Project 1 would generate an additional $19.40 million of indirect wages and salaries and $23.67 million of induced wages and salaries within the region, Total direct, indirect, and induced employee compensation resulting in the Hudson Valley Region from construction of Phases 1 and 2 is estimated at $113.60 million.

TOTAL EFFECT ON THE REGIONAL COMMUNITY

As indicated above, the total construction cost for Phases 1 and 2 of Project 1 is estimated at approximately $250 million. Based on the RIMS II model for the Hudson Valley Region, the total economic activity that would result from construction of the Phases 1 and 2 is estimated at $381.81 million.

FISCAL EFFECTS

Even though Project 1 would be exempt from sales tax on construction materials, the construction activity would have associated with it tax revenues for New York State, the Metropolitan Transportation Authority (MTA), and Orange and Dutchess Counties. Of these tax revenues, the largest portion would come from personal income taxes, corporate and business taxes, sales tax from workers' expenditures, and numerous related taxes on direct and secondary economic activity. These public sector revenues are estimated to have an order-of-magnitude value of approximately $10.7 million.

2.6-4.4 PHASE 3: TUNNEL EXCAVATION AND PHASE 4: BYPASS TUNNEL LINING, PROJECT 1 DEMOBILIZATION, AND PREPARATION FOR PROJECT 2B

EMPLOYMENT

In addition to the above amounts from Phase 1: Site Preparation and Phase 2: Shaft Construction, Project 1 would generate substantial economic benefits from Phase 3: Bypass Tunnel Excavation and Phase 4: Bypass Tunnel Lining, Project 1 Demobilization, and Preparation for Project 2B. The estimated $651 million for these activities represents the direct expenditure during these phases of the construction period. As a result of the direct expenditures, as shown in **Table 2.6-2**, the direct employment from construction is estimated at 2,156 person-years (a person-year is the equivalent of one person working full-time for 1 year), or an average of 417 full-time-equivalent jobs during the approximately 62 month construction period. As discussed above, when new direct jobs are introduced to an area, those jobs lead to the creation of additional indirect and induced jobs.

Based on the RIMS II model's economic multipliers for Hudson Valley industrial sectors, Phases 3 and 4 would generate an additional 607 person-years of indirect employment and 896 person-years of induced employment within the region, bringing the total number of jobs from construction to 3,6591 person-years (see Table 2.6-2).

WAGES AND SALARIES

The direct employee wages and salaries during Phases 3 and 4 of the Project 1 construction period are estimated at $187.43 million (see Table 2.6-1). Total direct, indirect, and induced

employee compensation resulting in the Hudson Valley Region from construction of these phases of Project 1 is estimated at $301.89 million.

TOTAL EFFECT ON THE REGIONAL COMMUNITY

As indicated above, the total construction cost for the Phases 3 and 4 is estimated at approximately $651 million. Based on the RIMS II model for the Hudson Valley Region, the total economic activity that would result from this construction is estimated at approximately $1 billion ($1,014.64 million).

FISCAL EFFECTS

Like the construction activity in Phases 1 and 2, Phases 3 and 4 would have associated with it tax revenues for New York State, the MTA, and Orange and Dutchess Counties. Of these tax revenues, the largest portion would come from personal income taxes, corporate and business taxes, sales tax from workers' expenditures, and numerous related taxes on direct and secondary economic activity. These public sector revenues are estimated to have an order-of-magnitude value of approximately $28.5 million.

Table 2.6-2
Employment and Economic Benefits from Phase 3: Tunnel Construction and Phase 4: Bypass Tunnel Lining, Project 1 Demobilization, and Preparation for Project 2B

	Total Amount in the Hudson Valley Region
Employment (Person-years)*	
Direct (jobs in construction)	2,156
Indirect (jobs in support industries)	607
Induced (jobs from household spending)	896
Total	3,659
Wages and Salaries (Millions)	
Direct (earnings in construction)	$187.43
Indirect (earnings in support industries)	$51.56
Induced (earnings from household spending)	$62.90
Total	$301.89
Total Economic Output or Demand (Millions)**	
Direct (output from Construction)	$558.73
Indirect (output from support industries)	$203.93
Induced (output from household spending)	$251.99
Total	$1,014.64

Notes: Detailed amounts may not add to totals due to rounding.
***** A person-year is the equivalent of one person working full-time for a year.
** The economic output or total effect on the local economy derived from the direct construction spending.
Sources: The characteristics and construction cost of Project 1, and the Regional Input-Output Modeling System (RIMS II), U.S. Department of Commerce, Bureau of Economic Analysis.

2.6-5 CONCLUSIONS

2.6-5.1 SOCIOECONOMIC CONDITIONS ASSESSMENT

An assessment was undertaken to determine whether Project 1 would result in direct residential or business displacement, indirect residential or business displacement, or adverse effects on specific industries.

DEP has acquired or is in the process of acquiring the parcels that make up the west connection site as a result of willing negotiations with property owners, and no property acquisition would be needed for construction of the water main extension or dewatering pipeline. No acquisition of property would be needed for construction at the east connection site. Therefore, no direct displacement of any residents, businesses, or employment associated with those businesses would occur either west or east of the Hudson.

The potential for a project to result in indirect displacement of businesses or institutions during a construction period is primarily concerned with whether construction activities would affect access to existing businesses, the potential consequences concerning their continued viability, and the potential effects of their loss, if any, on the character of the area. Since access to all businesses in the area surrounding areas of Project 1 construction, including the water main extension and dewatering pipeline, would be maintained throughout the construction period, Project 1 is not expected to affect access to businesses in such a way that would threaten their viability. Therefore, Project 1 is not anticipated to result in indirect displacement. Given that there would be no direct or indirect displacement, there is no potential for adverse effects on specific industries.

Project 1 would not result in indirect displacement of a residential population as it would not introduce a new, permanent use that would alter residential market conditions in the study area. Similarly, while Project 1 construction activities may be noisy and perceptible for extended periods of time, those impacts would be temporary and localized, and would not have a substantial effect on residential market conditions.

There is a possibility that due to the extended duration and intensity of the construction that there may be an effect to the short-term marketability of residences or lots immediately adjacent to the east and west connection sites. However, this effect, if it were to occur, would be confined to the construction period.

2.6-5.2 EMPLOYMENT AND POTENTIAL ECONOMIC BENEFITS

Based on preliminary estimates, the construction cost of Phase 1: Site Preparation and Phase 2: Shaft Construction is estimated to equal about $250 million. The construction cost for Phase 3: Tunnel Construction and Phase 4: Bypass Tunnel Lining, Project 1 Demobilization, and Preparation for Project 2B is estimated to equal $651 million.

Based on these costs, Project 1 is estimated to result in the following from all four phases of construction.

EMPLOYMENT

The direct employment from Project 1 construction is estimated at approximately 2,951 person-years (a person-year is the equivalent of one person working full-time for 1 year.), or an average of 393 full-time-equivalent jobs during the 7½ years of construction. As discussed above, when new direct jobs are introduced to an area, those jobs lead to the creation of additional indirect and induced jobs.

Based on the RIMS II model's economic multipliers for Hudson Valley industrial sectors, Project 1 would generate an additional 831 person-years of indirect employment and 1,226 person-years of induced employment within the region, bringing the total number of jobs from construction to 5,008 person-years.

WAGES AND SALARIES

The direct employee wages and salaries from Project 1 are estimated at $257.96 million. Total direct, indirect, and induced employee compensation resulting in the Hudson Valley Region from construction of these phases of Project 1 is estimated at $415.49 million.

TOTAL EFFECT ON THE REGIONAL COMMUNITY

The total economic activity that would result from Project 1 construction is estimated at approximately $1.4 billion ($1,396.45 million).

FISCAL EFFECTS

Project 1 would have associated with it tax revenues for New York State, the MTA, and Orange and Dutchess Counties. Of these tax revenues, the largest portion would come from personal income taxes, corporate and business taxes, sales tax from workers' expenditures, and numerous related taxes on direct and secondary economic activity. These public sector revenues are estimated to have an order-of-magnitude value of approximately $39.2 million. ✷