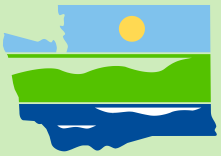

DEPARTMENT OF
ECOLOGY
State of Washington

Economic Vitality and Environmental Cleanup in Washington State:

Qualitative and Quantitative Case Study

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by
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Economic Vitality and Environmental Cleanup in Washington State: ***Qualitative and Quantitative Case Studies***

In 1988, Washington voters approved Initiative 97, known as the Model Toxics Control Act (MTCA). In addition to regulating the cleanup of contaminated sites, MTCA (Chapter 70.105D Revised Code of Washington) provided a grant and loan program to support local municipalities that address these potential liabilities. Funds for the Remedial Action Grant program come from a tax on the first possession of hazardous substances imported to Washington, including petroleum products and pesticides. Over the last 20 years, Remedial Action Grants have been well-utilized by municipalities.

Municipal cleanup projects completed under the Remedial Action Grant program are diverse in nature — ranging from relatively small "dig-and-haul" projects to large public works projects. An increasing number of Remedial Action Grant cleanups represent the first phase of larger community and economic development projects implemented over multiple biennia and requiring a significant amount of investment. These projects demonstrate the potential for considerable direct and indirect benefits toward building sustainable communities. Environmental cleanup using the state's MTCA fund has created a platform for job and tax growth. Viewing the state's cleanup effort as an element of a larger "brownfield" redevelopment lends important additional value to this strategic public investment.

Since its inception in 1988 as a voter initiative, the MTCA program has successfully completed over 6,000 site cleanup projects across Washington State. While these cleanups directly benefit human health and the environment, the MTCA program achieves multiple public policy objectives, such as economic development and community revitalization that are often overlooked and underestimated.

The benefits derived from this state program demonstrate a matured sustainability model that serves the state and local communities well. Environmental protection is the foundation of the program – most of the cleanup sites are adjacent to some of the state's most sensitive environmental assets, such as Puget Sound or inland river systems. Cleanups not only remove or immobilize hazardous materials and contaminants, they often produce other measurable and less-tangible benefits.

Community enhancements are recognized in a number of visible and more subtle ways. Contaminated sites are often blighted properties that detract from the quality of neighborhoods.

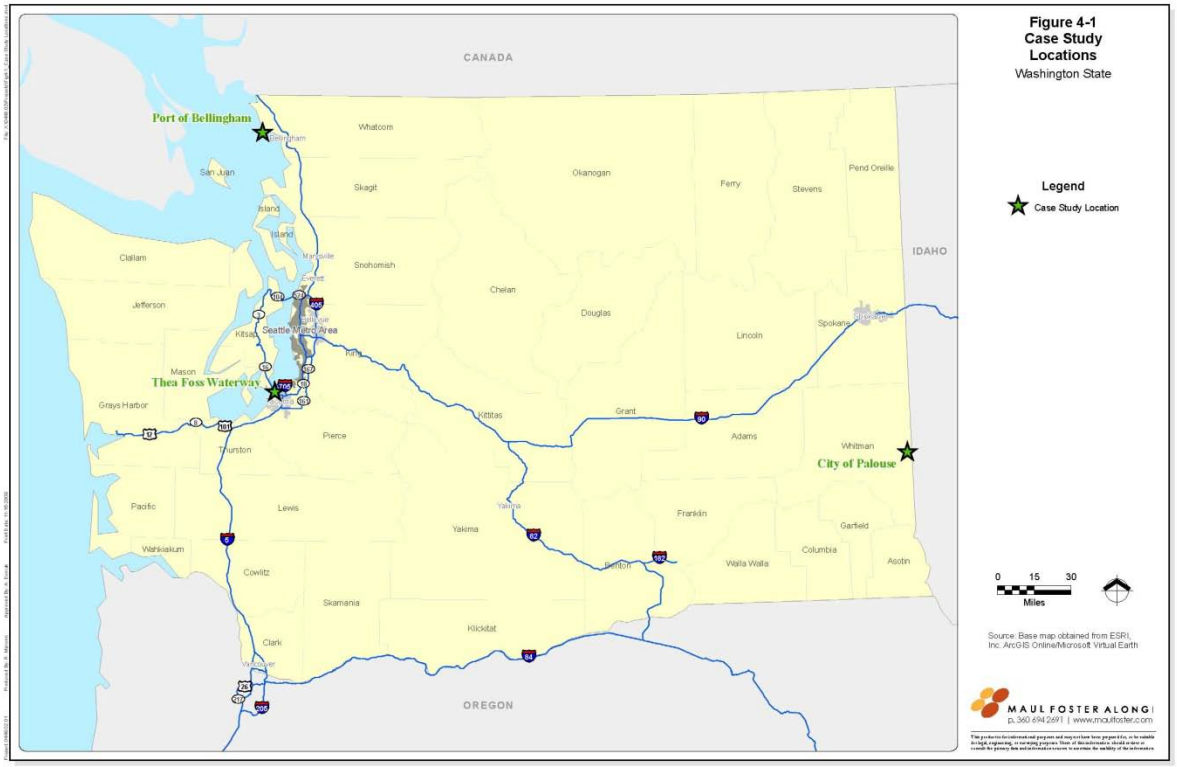
Cleanup projects are central to revitalization of such neighborhoods. In addition, the redevelopment of these sites builds a community's sense of identity and can even help brand an area or entire town. Ecology's efforts in cleanup often increase public recreation opportunities in the form of open space and access to marine and freshwater bodies. Redevelopment of publicly owned sites frequently includes investments that have a strong public purpose and interest, such as education facilities, interpretive centers or community gathering facilities.

Economic vitality is not only a significant byproduct – it is often the driving force that prompts the cleanup. Economic improvement is captured by:

- The immediate and one-time capital expenditures for cleanup activities, habitat enhancement, infrastructure construction to serve the redeveloped site, and the vertical construction. While the Ecology grants fund a portion of the cleanup and habitat costs, public site owners (grantees) will invest matching funds from local sources or other grants. This public-sector investment often leverages private-sector investment in redevelopment following cleanup.
- The long-term economic lift a project brings in the form of increased tax revenues, higher property values and indirect spending stimulated by a revitalized property. That economic lift is further sustained by job creation from the site that often surpasses previous employment levels on these "blighted" properties.

This section examines these broader benefits of cleanup and redevelopment of environmentally impaired properties in four case studies (see Figure 1-1). The Pacific Wood Treating (PWT) site in Ridgefield is described from a qualitative perspective. Economic models are used to quantitatively assess three other case studies: the Thea Foss Waterway in Tacoma, the Waterfront District in Bellingham and the Palouse Producers property in Palouse.

Figure 1-1 Case Study Locations



The Port of Ridgefield: a Qualitative Case Study

The Port of Ridgefield (Port) is a special purpose district serving northern Clark County in southwestern Washington. Like the state's other 75 port districts, the Port's historic responsibility has been to actively pursue economic development opportunities and related initiatives to improve the quality of life of the residents in the greater Ridgefield area. That role was nearly derailed in 1993 when the Port's major industrial tenant, Pacific Wood Treating (PWT), went bankrupt and left the Port with over $50 million in cleanup liability at the Port's Lake River Industrial site (LRIS).

The Port recognized the huge economic potential in developable land in northern Clark County. But the threat of the site being placed on the federal National Priorities List (NPL) and the strict joint and several liability provisions of the federal Superfund approach would likely have bankrupted the Port.

Ecology and the Port created an innovative funding package and strategy to complete the massive cleanup project. This strategy has allowed the Port to undertake the cleanup and once again focus on job creation and economic development for the greater Ridgefield community.

The LRIS includes about 40 acres located in the city limits of Ridgefield on the banks of Lake River, a tributary of the Columbia River, and Carty Lake in the Ridgefield National Wildlife Refuge (Refuge).

History of Remediation

PWT abandoned hazardous waste and wood-treating chemicals on the property at the time of its bankruptcy. Soil and groundwater were heavily contaminated with wood-treating chemicals including chlorophenolic compounds (e.g., pentachlorophenol [PCP]), polyaromatic hydrocarbons (PAHs), dioxins, volatile organic compounds, and copper, chromium, and arsenic. As a result of PWT's former operations, a roughly 4-acre plume of free product was migrating toward Carty Lake. Surface water runoff from former treated wood storage areas was contaminating stormwater and sediments on the Refuge and in Lake River. Since Ecology began working with the Port, the Port has removed contaminated structures, over 100 tons and 4,500 gallons of hazardous waste, and over 158,000 gallons of abandoned toxic wood-treating chemicals. The Port has completed interim actions to eliminate stormwater runoff onto the Refuge and to remove sources of stormwater contamination. As a result of these interim actions, stormwater quality meets state discharge requirements. The Port completed an emergency action to protect the Refuge, which is described in the following section.

Threat to Refuge and Lake River

The Refuge provides important habitat for waterfowl, shorebirds, wading birds, passerines, numerous amphibian species, and threatened and endangered species. It is a primary roosting area for tundra swans and lesser sandhill cranes. The Refuge has national significance as part of the regional refuge system in southwestern Washington State and is a destination for eco-tourism, nature conservancy, research, hunting, fishing and archeological investigations of tribal settlements and Lewis & Clark encampments.

Contaminants originating from the former PWT facility had migrated off-site and into Refuge lands. An emergency action was necessary to remove the existing contamination and prevent future contamination.

An Innovative Technical Solution

Ecology classifies the PWT site as one of its most challenging cleanup sites. The emergency action included the installation of a Steam Enhanced Remediation (SER) system for removal of contaminants from the area impacted by PWT's former wood-treating operation. The injection of steam heats groundwater to boiling temperatures and allows for the removal of free product from the groundwater. Using conventional pump-and-treat technology, at ambient temperatures, only a fraction of the free product could be removed, even if operated for 100 years. Using the innovative technology funded by Ecology, the Port has removed close to 25,000 gallons of free product, recovered 465 tons of sludge, and treated over 110 million gallons of contaminated groundwater since SER began in April 2004.

Sustainable Redevelopment Approach

The environmental protection benefits of this project are immeasurable given the national and regional value of the Refuge.

The anticipated redevelopment of the site will generate economic vitality to the local economy as it is redeveloped into mixed uses. Possible site uses include interpretive and research facilities connected with the Refuge and Lake River, commercial job creation and limited residential development. Those uses will regenerate this blighted site and convert it into economic productivity that will likely exceed its former value, tax generation capacity and employment base as a wood treatment facility.

Development plans for the site include strong physical and visual connections to the "Main Street" commercial center to fuel outsider investors' interest in the overall community. Keeping this development goal in mind will result in the project giving "lift" to the existing commercial area and not erode its economic value.

Inherent in this unique cleanup is the ability to transfer this proven technology to other sites with similar conditions throughout the state. A definitive technical knowledge base has been developed as a byproduct of the work and its economic value can be captured and deployed elsewhere.

The availability of the Ecology grant in this case made it possible for the Port to pursue other development efforts during this extended cleanup process. More than 75 acres of Port-owned land have been developed and occupied by new businesses, which now provide over 500 local jobs. Building on the success of Ridgefield's first industrial park, the Port recently purchased 45 acres adjacent to its existing 30-acre parcel at the Ridgefield I-5 junction, creating another contiguous 75-acre parcel of prime industrial and commercial property in the heart of the I-5 Discovery Corridor.

The Discovery Corridor is a roughly 5,000-acre strip of land along I-5 that stretches from the intersection of I-205 and I-5 to the northern boundary of Clark County. This Discovery Corridor is a prime location with three (soon to be four) highway interchanges; access to four deep-water ports within 25 miles; access to Portland International Airport within 20 miles; service by BNSF Rail; availability of nearby research and education facilities at Washington State University-Vancouver, and the presence of over 2 million people within an hour drive. Because the Port and Ecology teamed to address a looming environmental liability, the Port can dedicate its limited resources to harnessing this economic potential.

The quality of life and character of a community is defined by its public spaces as well. The redevelopment of the site includes community enhancements that provide much desired and improved access to the River and the Refuge. In essence, the site cleanup will allow the Ridgefield community to maximize the value of these great natural assets for recreation and its stunning visual presentation. Community enhancements planned for the site include "Main Street" overlooks, new moorage facilities on the river, parks and trails, and a possible bridge connection to the Refuge.

Quantitative Case Studies of Economic Impacts of Cleanup and Redevelopment

The following case studies represent a range of cleanup and redevelopment projects from large, complex sites to smaller, isolated parcels; population size from small to medium to large cities; and geographic breadth.

The economic impacts of these three projects were assessed using the Economic & Fiscal Impact Model for Brownfields Property Reuse prepared for Ecology by E.D. Hovee & Company, LLC. The planned development programs evaluated in the models are adapted from information provided by the Port of Bellingham and Tacoma Foss Development Authority, with the Palouse

development program as prepared by E.D. Hovee & Company, LLC in July 2009. Development costs are based on information as provided or, where not provided, by applying 2009 prevailing costs as derived from the international cost estimating firm Rider Levett Bucknall. Cost estimates as of 2009 are specific to the Pacific Northwest.

Where project-specific information is missing or incomplete, interpolations are made based on comparable project experience and brownfields impact modeling process. Impact estimates come from the nationally recognized IMPLAN input-output model. IMPLAN employment, wage and output/revenue multipliers are multicounty, as developed for Ecology as of 2007 (the most recent year available).

The tax rates are specific to each jurisdiction and are compiled from current sources, including local county assessors' offices and the Washington Department of Revenue. Revenue estimates are not made for utility taxes or for development charges or impact fees, which are based on cost of service. All impact estimates are calculated in 2009 dollars, as of complete project build-out.

Net Present Value calculations are estimated over 20 years, assuming an annual discount rate of 5.5 percent. All tax revenues are escalated at an average rate of 3 percent, except property taxes at 1 percent, based on state voter approved ballot measure. All development program cost and impact measures should be considered as order of magnitude estimates and are preliminary and subject to change.

To calculate one-time jobs created by infrastructure construction and vertical build-out, industry standard values were used. Cleanup costs were estimated on forecasted Ecology Remedial Action Grant needs for the Bellingham and Thea Foss projects. The one-time job creation and other economic benefits are understated, as they do not include historical costs or local grantee shares.

Thea Foss Waterway

More than 100 years ago, the Thea Foss Waterway in Tacoma was home to thriving industrial activities served by rail and marine transportation infrastructure. By 1981, changes in the region's economy had left the area blighted and littered with vacant buildings.

In 1996, community leaders who recognized the great potential of a vibrant mixed-use waterfront created the Foss Waterway Development Authority. This special-purpose authority, a creation of the City of Tacoma, took the lead on cleanup and redevelopment of the waterway and set about transforming Tacoma's waterfront.

When full development is complete it will include parks, a residential community, offices,

and retail businesses along 1.5 miles of waterway. A public esplanade will run the full length of the project. Currently, seven of the 15 development sites are being constructed or planned for redevelopment.

Today the area is home to unique uses, including the Museum of Glass; the Chihuly Bridge of Glass; Albers Mill, a restored 1904 mill converted to residential use; and the Thea's Landing residential community and amenities, including small boat moorage and a developing Maritime Center.

To realize this bright future required a massive cleanup of the waterway as part of a U.S. Environmental Protection Agency (EPA) Superfund cleanup of Commencement Bay. The area, identified in 1983 as a cleanup site, had accumulated over 1 million cubic yards of sediments contaminated with pesticides, metals and manmade chemicals.

In 1994, in conjunction with several state and federal agencies as well as private parties, the City of Tacoma volunteered to lead the cleanup effort. From 2002 to 2006, contaminated sediments were dredged and placed behind a contamination berm. Four new habitat sites were developed along with the transformation of urban shorelines to fish-friendly softscapes.

Economic Impact Assessment

According to estimates, the Thea Foss site will generate a Net Present Value of $133.7 million in local and state taxes over a 20-year period, assuming a full build-out of the site (see Table 2-1 through Table 2-3). The Thea Foss Development Authority does not levy taxes; however, it is a creation of the City of Tacoma. The City tax estimate is $27 million over the 20-year forecast period. This analysis does not take into account the Authority's earned revenue for leases and other property revenues.

It is estimated that the state will receive $67.3 million in tax revenues after investing roughly $30.4 million in MTCA funds. This represents a ratio of 2:1 in tax revenues to MTCA funds over the 20-year period (see figure 2.1).

Figure 2-1 Estimated tax revenues generated by redevelopment of Thea Foss Waterway

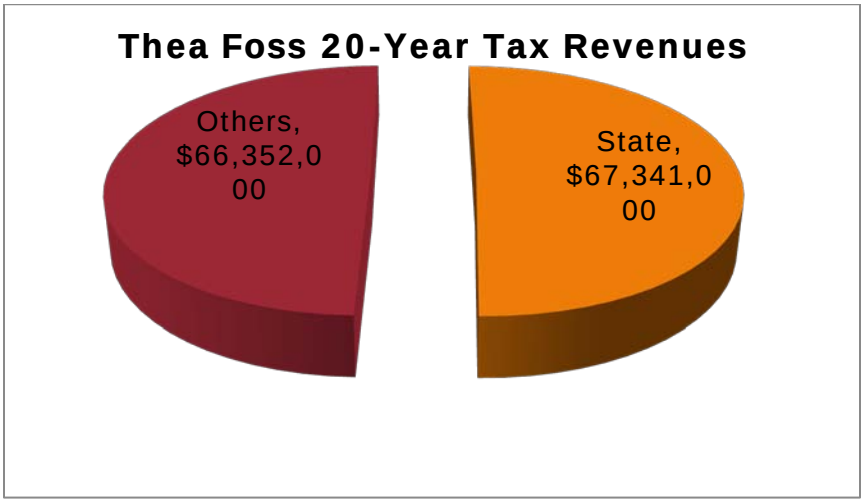


Table 2-1 Economic Impact Modeling—Washington Brownfields Reuse, Tacoma Thea Foss Waterway Projects, Tax Revenues by Type

STATE AND LOCAL TAX REVENUE ITEM	Rate Applied	Unit of Measure (U/M)	Calculated As	Annual Taxes @ Build-Out	Cumulative NPV - 20 Years	Comments
One-Time Tax Revenues						
Real Estate Excise Tax (REET)	1.78%	of transactions	$251,015,625	-	$4,235,150	Initial property purchase and condo sales
Sales Tax on Construction	8.4%	of construction	$299,265,168	-	$23,827,750	Estimated from construction budget
Subtotal One-Time Taxes				**-**	**$28,062,900**	
Ongoing Tax Revenues						Annual revenues estimated in 2009 $$
Business and Occupation Tax	0.986%	of gross volume	$50,120,700	$494,270	$7,064,080	State rate weighted by business type
Incremental Property Tax*	$11.6206	per $1,000 TAV	$370,000,000	$4,299,620	$51,514,220	Calculated on property value @ buildout
Real Estate Excise Tax (REET)	1.78%	of transaction	$48,744,400	$867,650	$12,400,350	From condo + commercial resales
Sales Tax w/On-Site Business	8.4%	of taxable sales	$25,442,700	$2,031,110	$30,544,380	On retail and other taxable businesses
Other Taxes (if applicable)	4.0%	added w/lodging	$5,304,000	$212,160	$2,728,950	Not applied with options considered
Marine State and Local Taxes		Pro rate estimate		$99,330	$1,378,260	Estimate from BST/Bellingham analysis
Subtotal Annual Tax Revenues				**$8,004,140**	**$105,630,240**	
Net Present Value (NPV)					**$133,693,140**	One-time + ongoing over 20 years
Discount Rate Applied	5.5%	assumed cost of public borrowing / opportunity cost				
Inflation Rate	3.0%	assumed rate applied to market value and taxable retail sales				
Cap on Annual TAV Appreciation	1.0%	on property tax increases	Property, sales and B&O tax sources			
Residential Turnover Rate	15.0%	annual homeowner sales				
Commercial Turnover Rate	5.0%	annual sales of on-site commercial property				

* Note: Annual tax at build-out is based on full collections without property tax abatement.

Table 2-2 Economic Impact Modeling—Washington Brownfields Reuse, Tacoma Thea Foss Waterway Projects, Tax Revenues by Jurisdiction

TAX REVENUE ALLOCATIONS BY JURISDICTION	Annual Taxes @ Build-Out	Cumulative NPV - 20 Years	Comments
ESTIMATED ONE-TIME TAXES			
State of Washington		$21,483,630	Sales tax and REET
City		$4,026,280	Sales tax and REET
County		$567,340	Sales tax on construction
Transit		$1,701,980	Sales tax on construction
Other		$283,670	Pierce Zoo and Parks
Total One-Time Taxes		**$28,062,900**	Sales tax on construction + REET
		-	
ESTIMATED ANNUAL REVENUES			
State of Washington	$3,414,550	$45,857,500	Property, sales and B&O tax sources
City	$1,580,450	$23,002,630	Property and sales tax
County	$436,580	$5,348,270	Property and dedicated sales tax
Port	$67,660	$810,640	Property tax
Schools	$1,776,720	$21,287,080	Property tax
Public Transit	$152,660	$2,181,790	
Regional Library	-	-	Property tax
Other Special Districts	$476,190	$5,764,070	Property tax—EMS
Marina State and Local Taxes	$99,330	$1,378,260	Based on BST analysis
Total Ongoing Tax Revenues	**$8,004,140**	**$105,630,240**	Property, sales and B&O tax sources
TOTAL NET PRESENT VALUE (NPV) (One-Time + Ongoing Revenues)		**$133,693,140**	One-time + ongoing revenues

Notes: Annual taxes assuming no property tax abatement.

Table 2-3 Economic Impact Modeling—Washington Brownfields Reuse, Tacoma Thea Foss Waterway Projects, Economic Multiplier Benefits

ECONOMIC INDICATOR	Direct Impact	Economic Multiplier	Multiplier Impact*
Construction Impacts			
On-Site Employment	2,285	1.71	3,911
Total Payroll	$135,076,933	1.60	$216,142,800
Average Annual Wage	$59,100	-	$55,300
Business Revenue	$391,765,200	1.55	$607,236,100
Ongoing Operations			
On-Site Employment	1,036	1.47	1,524
Total Payroll	$43,724,200	1.60	$69,955,200
Average Annual Wage	$42,200	-	$45,900
Business Revenue	$101,133,830	1.55	$156,977,500
*Note: Calculated as sum of direct, indirect, and induced effects.			

Former Palouse Producers

The former Palouse Producers site is located in the City of Palouse (population 1,100) in Whitman County. It is roughly two miles west of the Idaho border and within 16 miles of Pullman, home of Washington State University. This roughly 20,000-square-foot site has been the home of commercial activity since the late 1800s. Most recently, the now-defunct Palouse Producers agricultural suppy firm used it as a bulk fuel storage site.

In 1985, Ecology cited Palouse Producers for allowing petroleum spills that threatened the adjacent Palouse River. Emergency action cleanup activities removed contaminated soils. But recent sampling conducted through an EPA Targeted Brownfields Assessment revealed that pockets of contaminants remained, including heavy metals and petroleum products.

Although the site is less than a half-acre in size, it represents a significant part of the City's small Main Street commercial district. Its current state detracts from the vitality of Main Street, but its redevelopment can create a significant boost to the local economy. Its location on the North Fork Palouse River also creates exciting opportunities to connect the City to its waterfront. In 2009, Ecology provided the City with an Integrated Planning Grant to plan for cleanup and redevelopment of the property. The grant is funding development of a community-based and market-driven vision for future use of the property.

Cleanup costs are estimated at about $343,000. Additional site testing and development analysis are under way to determine a more specific course of action. Ecology expects the City to attempt to acquire the site and seek a Remedial Action Grant to pay for cleanup.

Potential future uses of the site include mixed-use commercial, limited housing and public access to the river. The development potential will capitalize on the unique nature of the community; its investment in infrastructure, including the downtown streetscape; its location in the heart of a vital agricultural region; and its proximity to Washington State University.

Economic Impact Assessment

According to estimate, the Palouse Producers site will generate a Net Present Value of $1.9 million in local and state taxes over a 20-year period, assuming a full build-out of the site (see Figure 1-1). The City itself would receive an estimated $282,000 in taxes (see Table 3-1 through Table 3-3). The site cleanup is estimated to cost $343,000, which illustrates that a community in this economic condition will require a Remedial Action Grant to address the financial impacts of assuming cleanup responsibility. This analysis, however, does not include any revenues associated with property leases to the City, nor does it include other City transactional or capital costs. It is only a tax comparison.

The state, on the other hand, theoretically could see over 4:1 tax revenues to MTCA funds over the period.

Figure 3-1 Estimated tax revenues generated by redevelopment of the Palouse Producers property

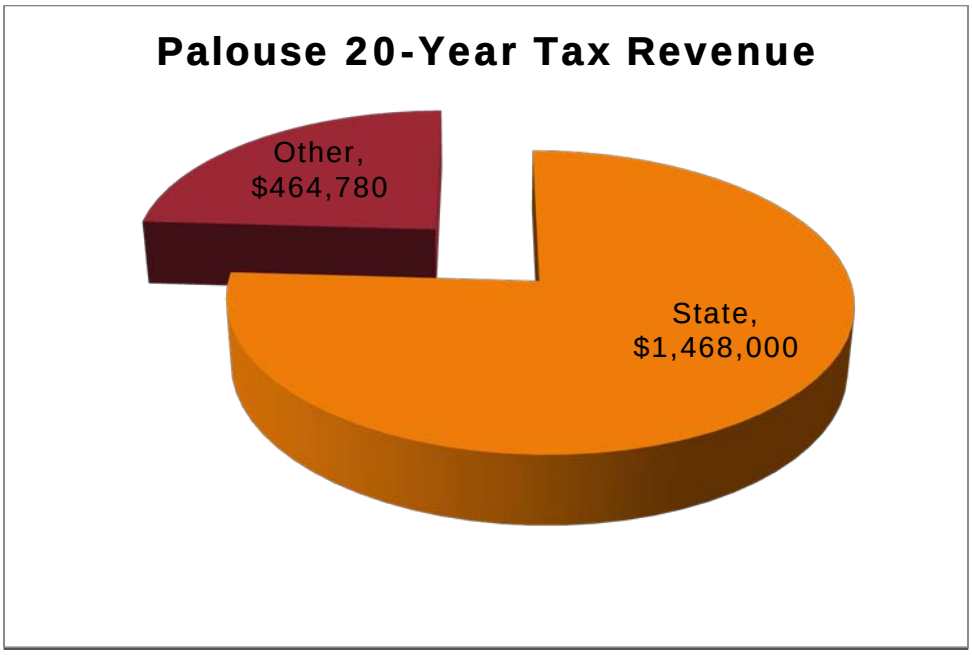


Table 3-1 Economic Impact Modeling—Washington Brownfields Reuse, Palouse Producers Site, Tax Revenues by Type

STATE AND LOCAL TAX REVENUE ITEM	Rate Applied	Unit of Measure (U/M)	Calculated As	Annual Taxes @ Build-out 100% Taxes	Annual Taxes @ Build-out w/Abatement	Cumulative NPV - 20 Years	Comments
One-Time Tax Revenues							
Real Estate Excise Tax (REET)	1.53%	of transactions	$1,217,500	-	-	$17,700	Initial property purchase and condo sales
Sales Tax on Construction	7.8%	of construction	$2,614,700	-	-	$193,300	Estimated from construction budget
Subtotal One-Time Taxes				**-**	**-**	**$211,000**	
Ongoing Tax Revenues							Annual revenues estimated in 2009 $$
Business and Occupation Tax	0.471%	of gross volume	$1,350,000	$6,360	$6,360	$90,900	State rate weighted by business type
Incremental Property Tax*	$14.0170	per $1,000 TAV	$2,208,700	$30,960	$9,100	$234,000	Calculated on property value
Real Estate Excise Tax (REET)	1.53%	of transaction	$272,100	$4,160	$4,160	$59,500	From condo + commercial resales
Sales Tax w/On-Site Business	7.8%	of taxable sales	$1,200,000	$93,600	$93,600	$1,337,700	On retail and other taxable businesses
Other Taxes (if applicable)	2.0%	added w/lodging	-	-	-	-	Not applied with options considered
Subtotal Annual Tax Revenues				**$135,080**	**$113,220**	**$1,722,100**	
Net Present Value (NPV)						**$1,933,100**	One-time + ongoing over 20 years

Discount Rate Applied	5.5%	assumed cost of public borrowing / opportunity cost	
Inflation Rate	3.0%	assumed rate applied to market value and taxable retail sales	
Cap on Annual TAV Appreciation	1.0%	assumed rate applied to market value and taxable retail sales	
Residential Turnover Rate	15.0%	annual homeowner sales	Property, sales and B&O tax sources
Commercial Turnover Rate	5.0%	annual sales of on-site commercial property	

* Note: Annual tax at build-out is based on full collections without property tax abatement.
The net present value (NPV) calculation includes deduction for abatement in the first 8 years after project completion.

Table 3-2 Economic Impact Modeling—Washington Brownfields Reuse, Palouse Producers Site, Tax Revenues by Jurisdiction

TAX REVENUE ALLOCATIONS BY JURISDICTION	Annual Taxes @ Build-out 100% Taxes	w/Abatement	Cumulative NPV - 20 Years	Comments
ESTIMATED ONE-TIME TAXES				
State of Washington			$175,900	Sales tax and REET
City			$27,680	Sales tax and REET
County			$7,410	Admin share of City sales tax
Transit			-	
Other			-	
Total One-Time Taxes			**$210,990**	Sales tax on construction + REET
ESTIMATED ANNUAL REVENUES				
State of Washington	$92,590	$89,240	$1,292,410	Property, sales and B&O tax sources
City	$22,080	$15,440	$254,430	Property and sales tax
County	$7,130	$4,640	$78,940	Property and dedicated sales tax
Port	$890	$260	$6,930	Property tax
Schools	$10,410	$3,060	$81,060	Property tax
Public Transit	-	-	-	
Regional Library	$1,070	$310	$8,330	Property tax
Other Special Districts	$910	$270	$7,090	Property tax—EMS
Total Ongoing Tax Revenues	**$135,080**	**$113,220**	**$1,722,100**	Property, sales and B&O tax sources
TOTAL NET PRESENT VALUE (NPV) (One-Time + Ongoing Revenues)			**$1,933,090**	One-time + ongoing revenues

Notes: Annual taxes @ 100% equals revenues assuming no property tax abatement.
NPV calculation deducts for abatement in the first 8 years after project completion.

Table 3-3 Economic Impact Modeling—Washington Brownfields Reuse, Palouse Producers Site, Economic Multiplier Benefits

ECONOMIC INDICATOR	Direct Impact	Economic Multiplier	Multiplier Impact*
Construction Impacts			
On-Site Employment	20.2	1.88	38.0
Total Payroll	$997,880	1.69	$1,682,200
Average Annual Wage	$49,400	-	$44,300
Business Revenue	$3,182,500	1.61	$5,123,800
Ongoing Operations			
On-Site Employment	19.6	1.38	27.0

Bellingham Waterfront

The Bellingham Waterfront is a multiagency redevelopment effort in this city of 75,000 residents located in northwest Washington within 18 miles of British Columbia. Ecology originally selected this project as a demonstration pilot program to realize more integrated and comprehensive remediation of baywide cleanups. Since then, this remediation and reuse effort has become one of the state's largest undertakings.

There are five independent cleanup sites in the planning area of 228 acres. Responsible parties include the Port of Bellingham, the City of Bellingham, Georgia Pacific Corporation, other private parties, and the State of Washington. The area-wide effort began in the mid-1990s, but coalesced in 2005 when the Port acquired 135 acres from Georgia Pacific in exchange for undertaking a prescribed cleanup remedy for the corporation's historical contamination of sediments in the Whatcom Waterway and upland sites.

Critical to the effort's financial feasibility was the receipt of a series of Remedial Action Grants from Ecology to augment local funds to complete the remediation. The estimated need for state participation is about $45 million to $55 million. The Port obtained cost cap insurance to protect the community from project cost creep, which required a prefunding of 50 percent of the calculated cost of remediation. Georgia Pacific bore the cost of the insurance risk premium, which protected both the Port and the corporation. While the Port assumed the cleanup responsibility, it did not indemnify Georgia Pacific from any environmental liability. The corporation will retain its share of liability if the costs exceed the insurance limits, which is not expected. As a component of the insurance product, an Environmental Impairment Liability (EIL) policy is in place. This policy protects the insured against the discovery of any unknown contaminants, third-party claims and regulatory changes imposed on the cleanup.

The Port entered into interlocal agreements with the City of Bellingham to jointly plan the redevelopment of the site. Such planning includes amendments to local land-use regulations and the installation of needed infrastructure by the City to accommodate new mixed-use investments from the historical industrial uses. Expected uses include mixed use, residential and commercial build-out, accompanied by new marine facilities, open spaces, trails, and habitat development.

Two unique public interest outcomes are worthy of mention. One is the Port and Western Washington University's creation of a public development corporation to pursue the construction of new university facilities on the waterfront through joint ventures with private developers. The other is the creation of an Innovation Zone, and more specifically a technology center, to pursue research and education of "lab-to-market" opportunities focused on marine innovation. The center is a cooperative effort of the Port, Western Washington University and Bellingham Technology College funded by a $1 million grant from the state.

Because of the significant investment in required infrastructure, the City of Bellingham was selected to be in the first pilot tax increment program of the state, Local Infrastructure Finance Tax (LIFT). This financing program captures the marginal tax increase from the accelerated appraised value of property within the district and matches it with state funding. It is expected that new infrastructure attracts new private investment that otherwise would not materialize.

Economic Impact Assessment

According to estimates, the Bellingham site will generate a Net Present Value of $477.3 million in local and state taxes over a 20-year period, assuming a full build-out of the site (see Figure 4-1). It is estimated that the Port and City, the principal local investors, will receive $4.6 million and $73.1 million, respectively, in tax generation (see Table 4-1 through Table 4-3). This analysis does not take into account the City's participation in the pilot LIFT program with the state, nor does the analysis estimate the Port and/or City's revenues for property leases (as property owners).

The state, on the other hand, theoretically could see $305.9 million against the MTCA investment estimated between $45 million and $55 million. In either cleanup cost scenario, this represents a ratio of 6:1 or 7:1 in tax revenues to MTCA funds over the period.

Figure 4-1 Estimated Tax Revenues Generated by Redevelopment of the Bellingham Waterfront District

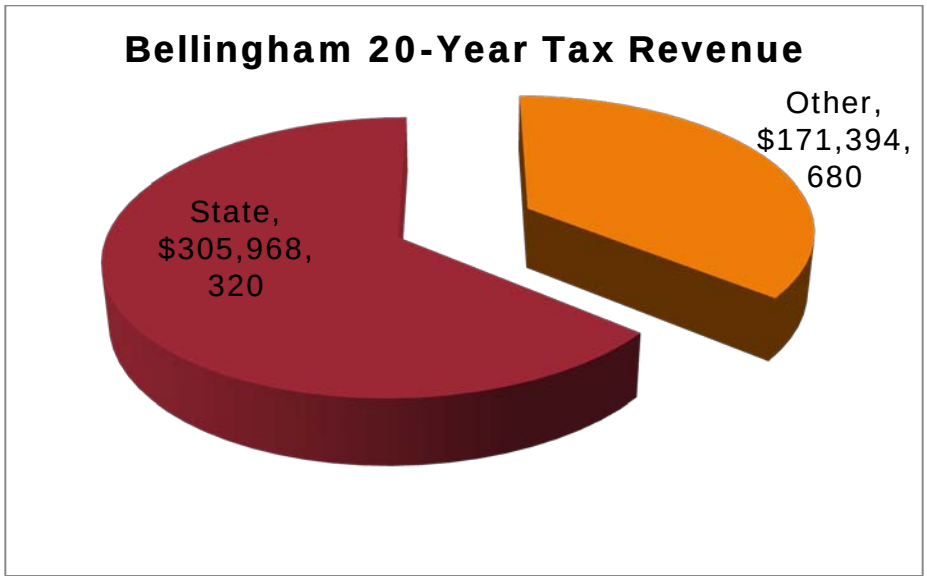


Table 4-1 Economic Impact Modeling—Washington Brownfields Reuse, Port of Bellingham, Tax Revenues by Type

STATE AND LOCAL TAX REVENUE ITEM	Rate Applied	Unit of Measure (U/M)	Calculated As	Annual Taxes @ 100% Taxes	Cumulative NPV - 20 Years	Comments
One-Time Tax Revenues						
Real Estate Excise Tax (REET)	1.78%	of transactions	$434,137,500	-	$7,324,800	Initial property purchase and condo sales
Sales Tax on Construction	8.5%	of construction	$1,002,472,700	-	$80,767,900	Estimated from construction budget
Subtotal One-Time Taxes				-	**$88,092,700**	
Ongoing Tax Revenues						Annual revenues estimated in 2009 $$
Business and Occupation Tax	0.870%	of gross volume	$512,586,300	$4,460,940	$63,755,200	State rate weighted by business type
Incremental Property Tax*	$9.0151	per $1,000 TAV	$1,262,590,900	$11,382,350	$136,373,500	Calculated on property value
Real Estate Excise Tax (REET)	1.78%	of transaction	$119,723,000	$2,131,070	$30,457,000	From condo + commercial resales
Sales Tax w/On-Site Business	8.5%	of taxable sales	$128,866,300	$10,953,640	$156,547,800	On retail and other taxable businesses
Other Taxes (if applicable)	4.0%	added w/lodging	-	-	-	Not applicable for this project
Marine State and Local Taxes		Pro rate estimate		$154,000	$2,136,800	Estimate from BST
Subtotal Annual Tax Revenues				**$29,082,000**	**$389,270,300**	
Net Present Value (NPV)					**$477,363,000**	One-time + ongoing over 20 years

Discount Rate Applied	5.5%	assumed rate applied to market value and taxable retail sales
Inflation Rate	3.0%	assumed rate appli‹ Property, sales and B&O tax sources
Cap on Annual TAV Appreciation	1.0%	on property tax increases
Residential Turnover Rate	15.0%	annual homeowner sales
Commercial Turnover Rate	5.0%	annual sales of on-site commercial property

*Note: Annual tax at build-out is based on full collections without property tax abatement.

Table 4-2 Economic Impact Modeling—Washington Brownfields Reuse, Port of Bellingham, Tax Revenues by Jurisdiction

TAX REVENUE ALLOCATION BY JURISDICTION	Annual Taxes @ Build-out 100% Taxes	Cumulative NPV - 20 Years	Comments
ESTIMATED ONE-TIME TAXES			
State of Washington		$67,030,950	Sales tax and REET
City		$11,559,640	Sales tax and REET
County		$3,800,840	Admin share of City sales tax
Transit		$5,701,270	
Other		-	
Total One-Time Taxes		**$88,092,700**	Sales tax on construction + REET
ESTIMATED ANNUAL REVENUES			
State of Washington	$17,171,410	$238,937,370	Property, sales and B&O tax sources
City	$4,767,400	$61,479,870	Property and sales tax
County	$1,799,240	$22,748,070	Property and dedicated sales tax
Port	$386,260	$4,627,840	Property tax
Schools	$3,771,070	$45,181,750	Property tax
Public Transit	$773,200	$11,050,450	
Other Special Districts	$259,420	$3,108,150	Property tax—EMS
Marina State and Local Taxes	$154,000	$2,136,800	Based on BST analysis
Total Ongoing Tax Revenues	**$29,082,000**	**$389,270,300**	Property, sales and B&O tax sources
TOTAL NET PRESENT VALUE (NPV) (One-Time + Ongoing Revenues)		**$477,363,000**	One-time + ongoing revenues

Table 4-3 Economic Impact Modeling – Washington Brownfields Reuse, Port of Bellingham, Economic Multiplier Benefits

STATE AND LOCAL	Direct Impact	Economic Multiplier	Multiplier Impact*
Construction Impacts			
On-Site Employment	7,809	1.63	12,702
Total Payroll	$416,037,811	1.40	$581,720,400
Average Annual Wage	$53,300	-	$45,800
Business Revenue	$1,262,591,000	1.41	$1,780,398,200
Ongoing Operations			
On-Site Employment	6,729	1.78	11,963
Total Payroll	$303,688,420	1.65	$502,151,200
Average Annual Wage	$45,100	-	$42,000
Business Revenue	$1,793,226,312	1.34	$2,401,014,400
Total Payroll	$505,240	1.65	$832,900
Average Annual Wage	$25,800	-	$30,800
Business Revenue	$1,566,800	1.62	$2,540,800

Employment Implications

Job creation is another indicator of economic value of brownfield sites. As indicated in the economic benefits analysis for each case study, there are two types of job generation:

- one-time construction jobs that are measured in job years
- ongoing estimated job creation based on standards for the projected build-out by land use, such as commercial, retail, manufacturing, residential.

Each of the communities has build-out projections per land-use type. These projections yield potential job creation totals. This analysis does not assume marginal job creation, just the total going forward. These sites may have some existing minimal employment, but they are being redeveloped not only because of their environmental impairment but also because they are underperforming or blighted properties. Job creation includes short-term construction and cleanup jobs and long-term ongoing jobs.

The analysis underestimates the construction and cleanup jobs created by the Tacoma and Bellingham case studies. The Tacoma case study estimates these jobs based on the remaining costs to complete cleanup and does not consider work already completed. The Bellingham analysis only considers the estimated state share of cleanup costs remaining. The case of Palouse assumed all costs, state and local, for the entire cleanup.

The following table compares *ongoing* jobs created versus the approximate amount of MTCA fund grants that have been or may be invested in the projects.

Table 5-1 Estimated Job Creation

Project	Projected Annual Employment	MTCA Cleanup Projected or Actual	Ongoing Direct Jobs per Year per $1,000 of MTCA Funds
Palouse	19.6	$343,000	0.06
Bellingham	6,729	$50,000,000	0.13
Thea Foss	1,036	$30,400,000	0.035
Average Remedial Action Grants (not weighted)			.08

Extrapolating the average job creation ratios from these three case studies, the forecasted Remedial Action Grant need of $532 million over the next ten years will generate an estimated 18,620 to 69,160 ongoing jobs or a non-weighted average of 42,560. That level of employment is equivalent to the total of the University of Washington (27,000), Boeing (10,000), and Washington State University (5,770) combined. That represents the direct ongoing jobs and, as the analysis points out, there is a 1.78 multiplier creating some projected 75,750 additional indirect, related jobs on the average.

Using the Ecology model, the combined 20-year annual payroll estimate at full build-out and occupancy is $572.9 million and the combined annual business revenue at full build-out is projected to be $2.5 billion.

It should be noted that this is a cursory review and the extrapolation should be tempered with these important considerations:

- The largest factors in the job forecast are the projected density of use and type of use. Warehousing, for example, results in far fewer employment opportunities than office uses or manufacturing. Density is the result of a number of factors, including market strength and land use regulations.
- The forecast assumes a full build-out and the reality is that it will occur over time and the job benefits will be realized over time with the property's ability to absorb market demand.
- Most significant, the nature of the remediation project is critical. Some projects may afford limited development potential because there is no upside development potential. A case in point would be a remediation effort that was all in water and that would have no measurable impact on the adjacent upland property, or for which there was no marginal increase in marine commercial activity.
- Also assumed in the analysis is that these are net marginal tax revenue increases, but there will likely be increased service demands to support the development.

All in all, a robust cleanup program geared toward brownfield redevelopment has a positive economic impact on the state and local communities. These cleanups use land and infrastructure wisely from an investment perspective and create future employment opportunities that would not otherwise exist.