



CSAP

SOCIETY OF CONTAMINATED SITES APPROVED
PROFESSIONALS OF BRITISH COLUMBIA

Economic Impacts from Remediated Contaminated Sites

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► Presentation Outline

- 2021 Study of Economic Impacts of Remediated LMR Sites
- Near-Term Economic Impacts from Site Assessment and Remediation
- Near-Term Economic Impacts from Site Redevelopment
- Long-Term Economic Impacts from Site Redevelopment
- Estimated BC Averages for Economic Impacts
- Comparisons with Economic Impacts of Other Industries

► About Mansfield Consulting



Ed Mansfield is the founder and president of Mansfield Consulting Inc. Ed has more than thirty years of experience providing consulting services to public and private companies, professional associations, industry organizations, and government agencies.

Ed has been a partner or principal with four major accounting and business consulting firms where he was the leader for the firms' Economics practices.

Led and executed many economic impact studies, including studies for the federal government, Province of BC, and BC municipalities.

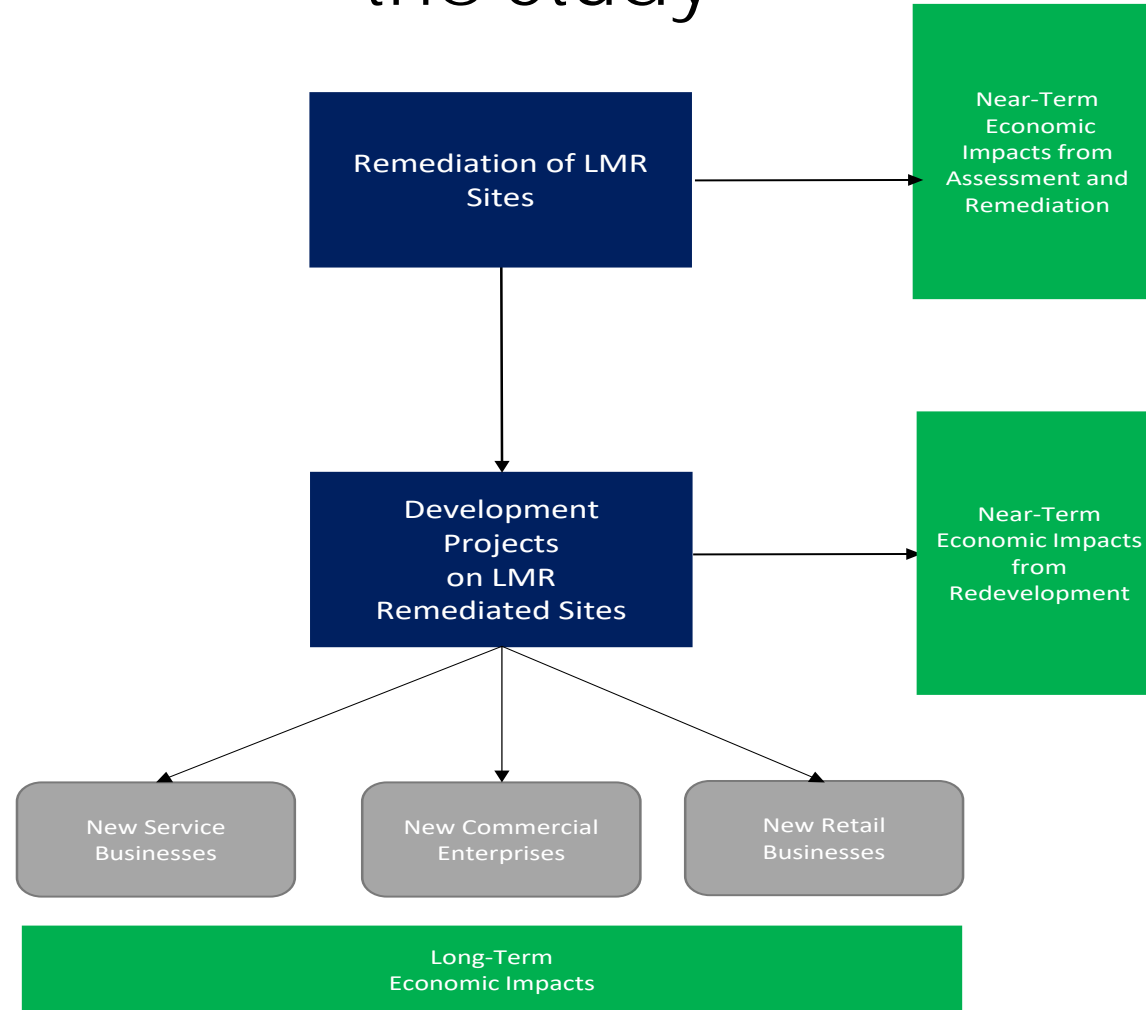


► 2021 Study of Economic Impacts

The scope for the study encompassed:

1. Estimating the near-term economic impacts that are created by the remediation and redevelopment on low to moderate risk contaminated sites in BC.
2. Projecting the long-term, ongoing annual economic impacts that are created by the remediation and redevelopment on low to moderate risk contaminated sites in BC.

► Economic Impacts Included in the Study





► Economic Impact Measures

Economic impact measures include:

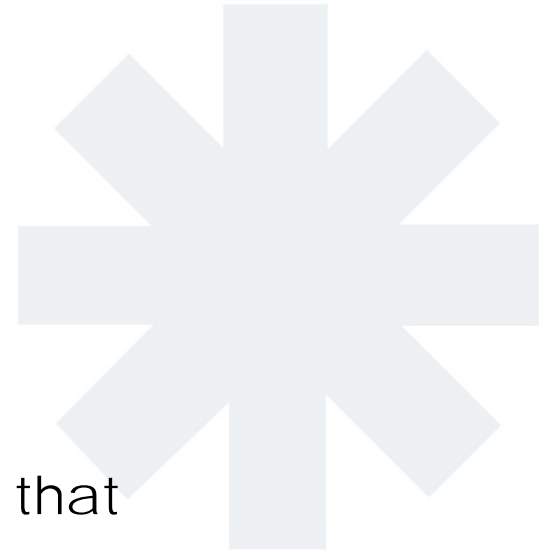
- **Output** is the total gross value of goods and services. This is the broadest measure of economic activity. *Example: A bakery buys flour and other ingredients for \$1.00 and uses them to produce a loaf of bread, which is then sold for \$1.50. The output for the bakery is \$1.50.*
- **Gross Domestic Product (GDP)**, or value added, refers to the additional value of a good or service over the cost of inputs used to produce it from the previous stage of production. *Example: A bakery buys flour and other ingredients for \$1.00 and uses them to produce a loaf of bread, which is then sold for \$1.50. The direct GDP for the bakery is \$0.50, which represents the value-added by the bakery.*
- **Employment** is the number of additional jobs or full-time equivalent (FTEs) created.
- **Government Tax Revenue** is the total amount of tax revenues generated for federal, provincial, and local governments.



► Economic Impact Levels

Economic impacts may be estimated at the direct, indirect, and induced levels.

- **Direct** impacts are changes that occur in “front-end” businesses that would initially receive operating revenue and incur expenditures.
- **Indirect** impacts arise from changes in activity for suppliers of the “front-end” businesses.
- **Induced** impacts arise from spending on goods and services resulting from increases to the payroll of the directly and indirectly affected businesses.





► Near-Term Impacts from Site Assessment and Remediation

Followed approach used in previous study (2012) with updated average cost estimated at \$520,000 per site (up from \$130,000 in 2012).

Estimated Economic Impacts

Economic Impact	Output	GDP	Employment (FTEs)	Federal Tax	Provincial Tax	Municipal Tax
Direct	\$520,000	\$347,880	3.0	\$38,103	\$21,400	\$639
Indirect	\$163,800	\$95,160	0.8	\$10,531	\$7,512	\$1,822
Induced	\$151,320	\$97,240	0.7	\$15,450	\$17,174	\$3,739
Total	\$835,120	\$540,280	4.5	\$64,084	\$46,086	\$6,200



► Near-Term Impacts from Site Redevelopment

Developed new approach based on detailed case studies of typical developments.

All case studies are based on actual developments and used real data where available.

Construction costs based on Altus Group Canadian Cost Guide (2021).

Total costs based on NAIOP (the Commercial Real Estate Development Association) and Conference Board study (2019).

Ongoing business revenues estimated using ISED (federal government) data.

► Case Study 1. Large Residential Development

Near-Term Redevelopment

Description	33-storey residential building, consisting of 127 market strata units
Residential Space	184,000 sq ft
Retail Space	None
Parking	27,000 sq ft
Other Features	\$31 million in developer contributions to local government, consisting of Community Amenity Contributions, Development Cost Levies, and other contributions
Total Costs, Including Building Costs, Soft Costs, Interior Buildout Costs, and Site Infrastructure Costs	\$113.0 million (\$72.2 million in construction hard costs)



► Case Study 2. Mid-Size Residential Development

Near-Term Redevelopment



Description	6-storey wood framed residential building, consisting of 49 market strata units
Residential Space	32,000 sq ft
Retail Space	1,000 sq ft Occupied by a general merchandise store
Parking	3,000 sq ft
Total Costs, Including Building Costs, Soft Costs, Interior Buildout Costs, and Site Infrastructure Costs	\$15.6 million (\$10.0 in construction hard costs)

Ongoing Business



Summary of Business Activity	
Retail Space	1,000 sq ft
Businesses	One general merchandise store
Business Annual Revenues	\$274,000

► Case Study 3. Small Mixed-Use Development

Near-Term Redevelopment



Description	2-storey wood framed, mixed use development, containing 3 commercial units and 4 residential units.
Residential Space	3,800 sq ft
Retail Space	4,400 sq ft Assumed to be occupied by a café and two general merchandise stores
Parking	5,500 sq ft
Total Costs, Including Building Costs, Soft Costs, Interior Buildout Costs, and Site Infrastructure Costs	\$4.0 million (\$2.6 million in construction hard costs)

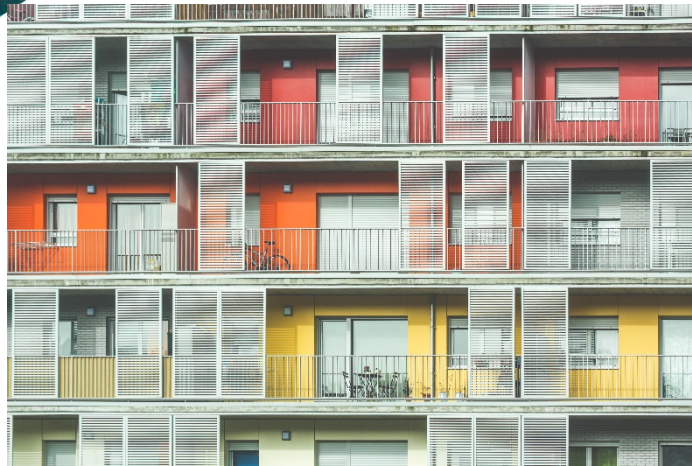


Ongoing Businesses

Summary of Business Activity	
Retail Space	4,400 sq ft
Businesses	Assumed to be occupied by a café and two general merchandise stores
Business Annual Revenues	\$1,533,400

► Case Study 4. Seniors Residence

Near-Term Redevelopment



Description	9-storey residential building, consisting of 132 senior living units
Residential Space	89,100 sq ft
Retail Space	4,600 sq ft Assumed to be occupied by a two-physician medical practice, a coffee stand, and two general merchandise stores
Parking	27,000 sq ft
Total Costs, Including Building Costs, Soft Costs, Interior Buildout Costs, and Site Infrastructure Costs	\$53.4 million (\$34.2 million in construction hard costs)

Ongoing Businesses

Summary of Business Activity	
Retail Space	4,600 sq ft
Businesses	Assumed to be occupied by a two-physician medical practice, a coffee stand, and two general merchandise stores
Business Annual Revenues	\$1,639,200



► Case Study 5. Commercial Development



Near-Term Redevelopment

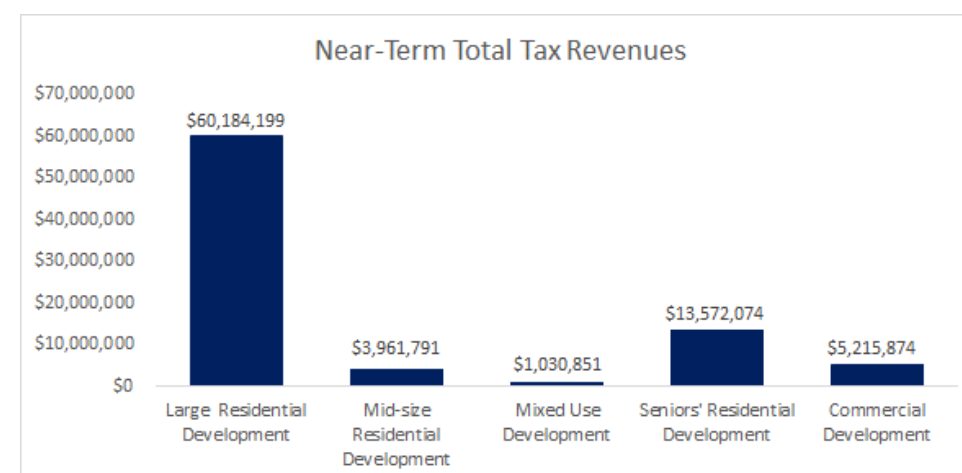
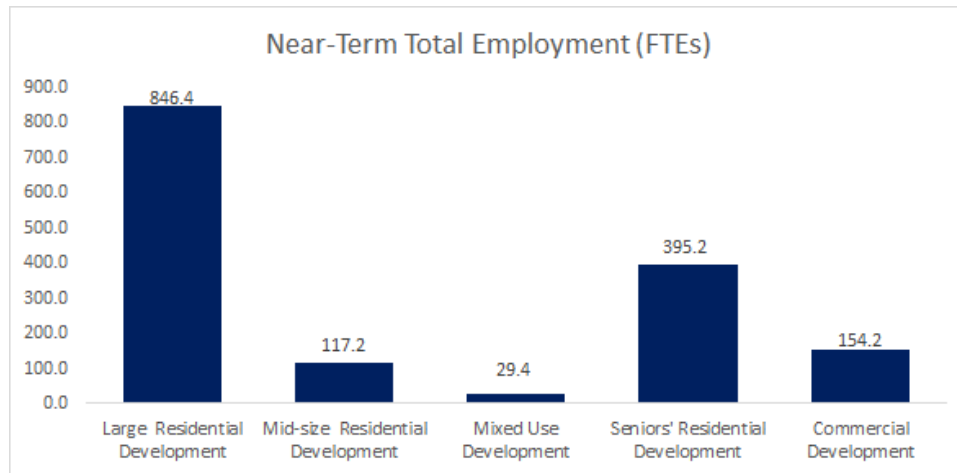
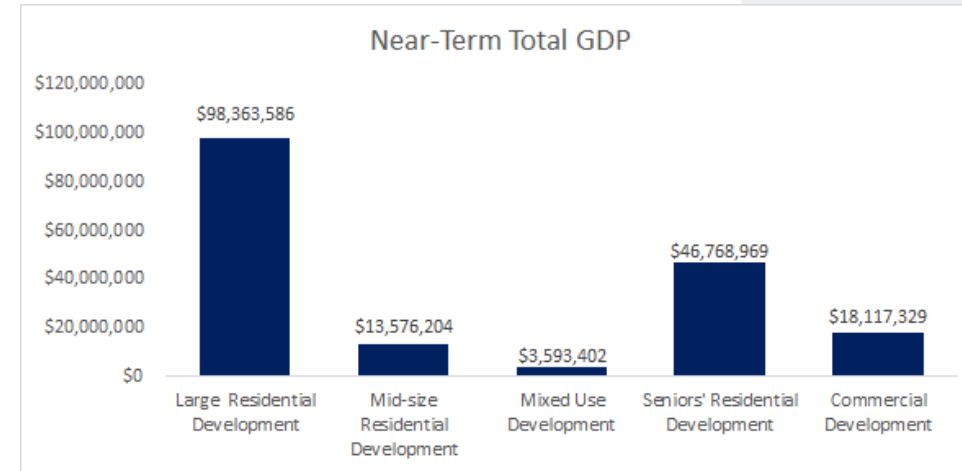
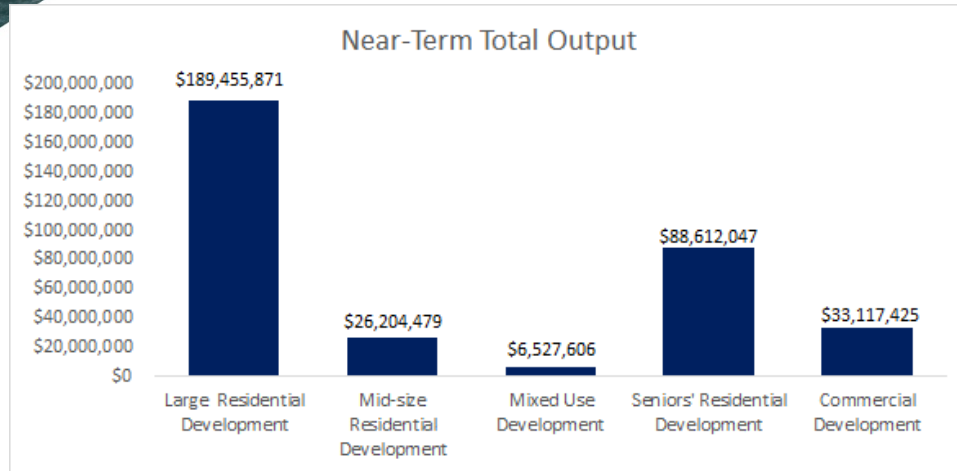
Description	2-storey Commercial Development
Residential Space	None
Retail Space	46,000 sq ft assumed to be a new car dealership
Parking	64,600 sq ft of surface parking
Total Costs, Including Building Costs, Soft Costs, Interior Buildout Costs, and Site Infrastructure Costs	\$19.9 million (\$12.7 million in construction hard costs)



Ongoing Businesses

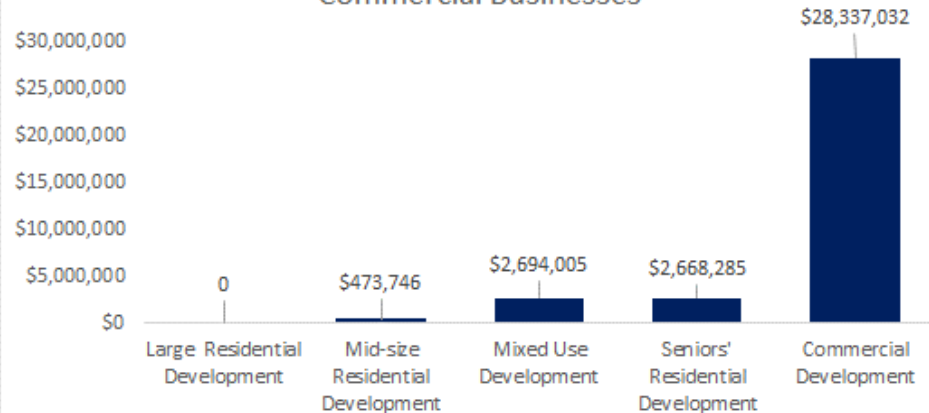
Summary of Business Activity	
Retail Space	46,000 sq ft assumed to be a new car dealership
Businesses	New Car Dealership
Business Annual Revenues	\$15,892,895

► Near-Term Total Economic Impacts From Development

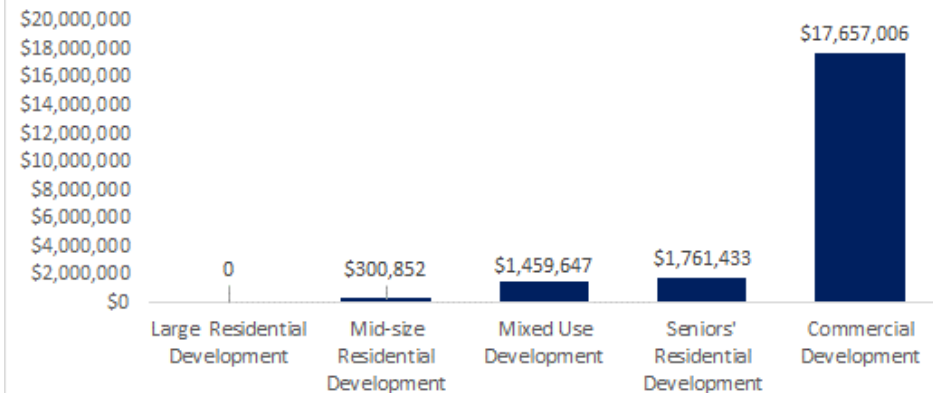


► Long-Term Total Economic Impacts

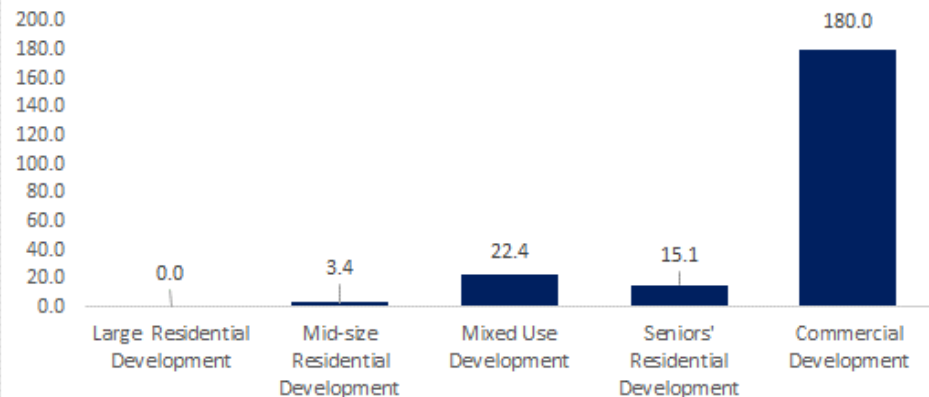
Long-Term Annual Total Output from Commercial Businesses



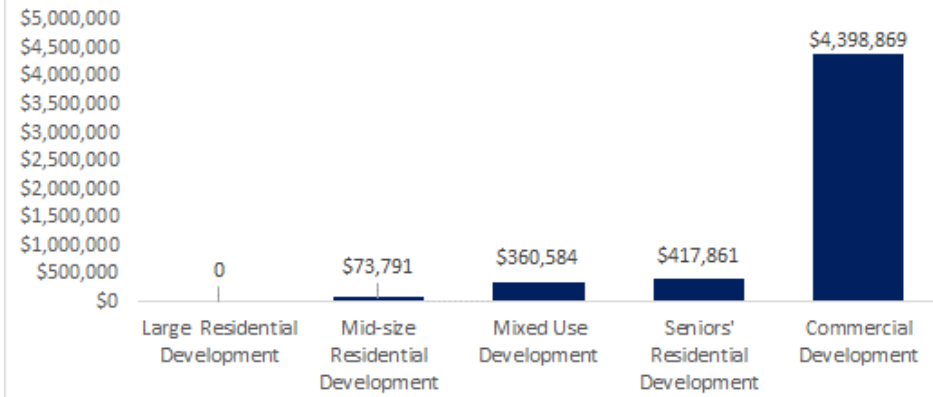
Long-Term Annual Total GDP from Commercial Businesses



Long-Term Annual Total Employment from Commercial Businesses (FTEs)



Long-Term Annual Total Tax Revenues from Commercial Businesses





► Using Case Studies to Estimate Average Impacts

To estimate regional average, Assume proportions of each type of case study in each region.

Region	Large Residential Development	Mid-size Residential Development	Mixed-Use Development	Seniors Residence	Commercial Development	Total
Vancouver	30%	40%	10%	5%	15%	100%
Metro Vancouver	20%	40%	20%	5%	15%	100%
Vancouver Island	0%	40%	40%	5%	15%	100%
Southern Interior	0%	30%	50%	5%	15%	100%
Northern Interior	0%	20%	60%	5%	15%	100%

To estimate provincial average, assume proportions of remediated sites in each region: 17% in Vancouver, 48% other Metro Vancouver, 14% Vancouver Island, 12% Southern Interior, and 9% Northern Interior.

► BC Average Economic Impacts from Redevelopment

Near-Term Economic Impacts from Redevelopment

Economic Impact	Output	GDP	Employment (FTEs)	Federal Tax	Provincial Tax	Municipal Tax
Direct	\$28,334,273	\$13,936,718	116.7	\$1,791,509	\$1,587,648	\$5,260,211
Indirect	\$11,621,189	\$6,067,410	57.8	\$766,300	\$504,998	\$98,033
Induced	\$7,509,739	\$4,824,730	38.5	\$809,469	\$863,707	\$184,190
Total	\$47,465,201	\$24,828,858	213.1	\$3,367,279	\$2,956,353	\$5,542,433

Long-Term Economic Impacts From Redevelopment

Economic Impact	Output	GDP	Employment (FTEs)	Federal Tax	Provincial Tax	Municipal Tax
Direct	\$3,064,248	\$1,888,686	24.0	\$219,219	\$127,602	\$23,076
Indirect	\$1,105,727	\$626,479	5.9	\$74,146	\$57,247	\$18,531
Induced	\$1,267,116	\$815,906	6.6	\$132,946	\$143,480	\$30,124
Total	\$5,437,090	\$3,331,072	36.6	\$426,311	\$328,329	\$71,731

► BC Average Total Economic Impacts

Estimated BC Average Total Economic Impacts from Assessment and Remediation and Site Redevelopment

Category	Average Total Output	Average Total GDP	Average Total Employment	Average Total Government Revenues
Assessment and Remediation	\$835,120	\$540,280	4.5	\$116,370
Redevelopment	\$47,465,201	\$24,828,858	213.1	\$11,866,066
Total Near-Term Impacts	\$48,300,321	\$25,369,138	217.6	\$11,982,436
Annual Long-Term Impacts	\$5,437,090	\$3,331,072	36.6	\$826,372



► Comparisons with Other Industries

How many remediated sites would it take to create the same level of near-term employment as other industries?

Industry (2021)	Number of Remediated Sites to Create the Same Amount of Near-Term Employment
BC Paper Manufacturing	109
BC Air Transportation	71
BC Rail Transportation	49
BC Oil and Gas Extraction	40
Development of a New Mineral Mine	21
One Year of Production of a High-end Television Series	2



► References/Links

2021 Economic Impact Study

<https://csapsociety.bc.ca/wp-content/uploads/Economic-Impact-Study-2021.pdf>

Altus Group Cost Guide

<https://www.altusgroup.com/reports/canadian-cost-guide/>

NAIOP and Conference Board Study

<https://www.naiop.org/en/Research-and-Publications/Reports/Economic-Impacts-of-Commercial-Real-Estate-in-Canada-2018>

CHBA Benchmarking Studies

https://www.chba.ca/CHBA/Housing_in_Canada/The_Government_Role/Municipal_Benchmarking.aspx



► Thank You!