



Natural Infrastructure and Prairie Prosperity: Current contributions and opportunities for growth in the natural infrastructure sector

Appendix

November 2023

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Research Methodology

The Delphi Group project team led a three-part research process to:

- define the scope of the natural infrastructure sector across the Canadian prairies (Appendix A),
- assess the current economic impact of the sector (Appendix B), and
- estimate the growth potential of the sector (Appendix C).

Appendix A. Defining the Scope of the Natural Infrastructure Sector

The project team developed a clear definition and overarching statistical framework for the natural infrastructure sector across the Canadian Prairies. First, the team selected a definition of natural infrastructure aligned with the Canadian Council of Ministers of the Environment (CCME) definition of natural infrastructure (CCME, 2021) and work by the International Institute for Sustainable Development (Méthot et al., 2023). This framed natural infrastructure as including conserved, restored, and nature-based constructed infrastructure.

The project team then conducted secondary research and a high-level literature scan of online reports, websites, and other sources in the Prairie region and globally to identify various definitional frameworks for the natural infrastructure sector. Included in this scan were various initiatives and programs relevant to watershed conservation, restoration, and green infrastructure led by non-governmental organizations, First Nations, the private sector, and all levels of government. This process was also informed by previous work conducted by Delphi for the Green Infrastructure Ontario Coalition (Delphi Group, 2020), the British Columbia (B.C.) Watershed Security Coalition (Delphi Group, 2021), and pulled from the University of Oregon report, *Economic and Employment Impacts of Forest and Watershed Restoration in Oregon* (Nielsen-Pincus & Moseley, 2010).

Based on research and past project experience, the definitional framework established four key subsectors within the Canadian Prairie natural infrastructure sector. This guided the identification of key industries relevant to natural infrastructure within each subsector using industry-level codes that were selected based on North American Industry Classification System codes (NAICS). The NAICS system is a standard used by Canada, the United States, and Mexico to classify economic activity by industry. By selecting NAICS codes at the 6-digit level, a detailed

statistical framework was established to guide the economic analysis (Table A1). To be included in the framework, industries had to include a share of economic activity reasonably attributable to the natural infrastructure sector.

Key informants and experts in natural infrastructure were also engaged through the research to build on existing knowledge, fill research gaps, review and identify relevant and previous economic impact assessments, and discuss the definitional and statistical frameworks. Interviews were conducted with participants from the following organizations:

Oldman Watershed Council	Manitoba Environment and Parks
University of Alberta	Federation of Canadian Municipalities
Corvus Centre for Conservation Policy	Infrastructure Canada
Strategic Initiatives and Alternative Delivery	Alberta Ecotrust
Manitoba Infrastructure	University of Manitoba
Associated Engineering	

Table A1. Natural infrastructure sector industries

Subsector	Examples of employers	NAICS
Watershed management	<ul style="list-style-type: none"> • Indigenous Nations • Stewardship groups • Engineering firms • Environmental consulting • Landscape services 	237990 - Other heavy and civil engineering construction
		238110 - Poured concrete foundation and structure contractors
		238910 - Site preparation contractors
		238990 - All other specialty trade contractors
		541320 - Landscape architectural services
		541330 - Engineering services
		541620 - Environmental consulting services

Subsector	Examples of employers	NAICS
		561730 - Landscaping services
		237990 - Other heavy and civil engineering construction
Municipal natural infrastructure	<ul style="list-style-type: none"> Local governments Indigenous Nations Water and sewer line-related construction Engineering and environmental consulting services Other scientific and technical consulting services Private sector resource companies Silviculture and support activities Engineering and environmental consulting Other scientific and technical consulting services Industrial designers creating water tech solutions. 	221310 - Water supply and irrigation systems
		221320 - Sewage treatment facilities
		237110 - Water and sewer line and related structures construction
		237990 - Other heavy and civil engineering construction
		238110 - Poured concrete foundation and structure contractors
		238910 - Site preparation contractors
		541330 - Engineering services
		541420 - Industrial design services
		541620 - Environmental consulting services
		541690 - Other scientific and technical consulting services
		221111 - Hydroelectric power generation
		221320 - Sewage treatment facilities
		238990 - All other specialty trade contractors
		111421 - Nursery and tree production
		113210 - Forest nurseries and gathering of forest products
		115310 - Support activities for forestry
		411130 - Nursery stock and plant merchant wholesalers
Education, training, and capacity building	<ul style="list-style-type: none"> Training and educational institutions 	611210 - Community Colleges
		611310 - Universities

Subsector	Examples of employers	NAICS
	<ul style="list-style-type: none"> • Non-profit organizations • Philanthropic organizations 	611510 - Technical and trade schools
		813310 - Social advocacy organizations
Regulatory and public administration	<ul style="list-style-type: none"> • Federal government • Indigenous Nation governments • Provincial government • Local governments (municipal and regional) 	911910 - Other federal government public administration
		912910 - Other provincial and territorial public administration
		913190 - Other municipal protective services
		913910 - Other local, municipal, and regional public administration
		914110 - Aboriginal public administration

Appendix B. Economic Analysis Methodology

This section describes the steps taken to quantify direct, indirect, and induced jobs and GDP for the natural infrastructure sector as a whole and for each of the identified four subsectors (for each province) that were identified in the definitional framework.

Direct, Indirect, and Induced Effects

Direct effects are the results of the initial spending in the sector.

Indirect effects are the results of business-to-business transactions indirectly caused by the direct effects. The positive impacts increase if investments flow to the local supply chain of goods and services. For example, for a riparian habitat restoration project, indirect effects may include sales from a local native plant nursery, supplies purchased at a local wholesaler of building materials and landscaping supplies, and equipment rental for an excavator.

Induced effects are the results of increased personal income caused by the direct and indirect effects. This measure reflects the change in household to business economic activity.

To conduct the economic analysis, the following methodology was applied:

1. Develop “intensity ratios” for the relevant industry NAICS codes identified in the definitional and statistical frameworks to estimate the current state and value (i.e., GDP, revenues or gross output, and jobs) of the natural infrastructure sector in the Prairies in 2022. See Table B1.
2. Apply intensity ratios to estimate the amount of natural infrastructure-relevant activity occurring within each of the broader industry NAICS codes.
3. Analyze and validate the output against secondary research, key informant interviews, and natural infrastructure project spending by category as a percentage of total spending.
4. Measure the level of activity where data was available or could be estimated under a set of reasonable assumptions. This includes examining available databases for natural infrastructure projects and assets in the Prairies and across Canada, including detailed assets and investments in watershed protection and restoration.¹
5. Review companies active in key industries, referencing relevant industry associations and supporting organization websites, as well as input from key informant interviews. Statistics Canada 2019 *Supply and Use Tables* (SUTs) (Statistics Canada, 2022) were also used to estimate the portion of relevant activity for those industries with limited data available.

¹ Note: Where relevant and in line with the agreed-upon definition from various publications by governments, municipalities, academia, and other key players within the sector.

6. Apply industry-specific intensity ratios to the NAICS codes in each subsector of the Definitional Framework to estimate the macroeconomic impact, including current GDP, gross output, and the number of jobs (direct, indirect, and induced) related to the natural infrastructure sector and relevant subsectors in the Prairies.
7. Convert the value of relevant assets and investments to direct, indirect, and induced jobs, GDP, and gross output through the Statistics Canada *Input-Output Multiplier Tables*.

Table B1. Intensity ratios and assumptions for natural infrastructure sector industries

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
111421 – Nursery and tree production	This industry comprises establishments primarily engaged in <ul style="list-style-type: none"> • growing, under cover or in open fields; • nursery and floriculture products, such as nursery stock, shrubbery, cut flowers, flower seeds, and potted flowering and foliage plants; and • flower bedding plants, ornamental plants, or some combination of these. 	Municipal natural infrastructure	0.050	<p>Linkage to natural infrastructure: Urban parks, gardens, and other green spaces rely heavily on nurseries and tree production for their creation and upkeep.</p> <p>Methodology applied: 5% of tree and shrub production goes toward plantings in forests and urban green spaces, which helps improve the health of the watershed. The assumption is that much of the activity in this industry goes toward potted plants, cut flowers, and other plants that are not planted in the ground.</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
113210 – Forest nurseries and gathering of forest products	<p>This industry is comprised of establishments with two different production processes:</p> <ul style="list-style-type: none"> • growing trees for the purpose of reforestation and • gathering forest products. 	Municipal natural infrastructure	0.950	<p>Linkage to natural infrastructure: All of the nursery tree production in the province went toward reforestation.</p> <p>Methodology applied: 95% of industry activity from forest nurseries applied to natural infrastructure. A small proportion of activity is from gathering forest products.</p>
115310 – Support activities for forestry	<p>This industry is comprised of establishments primarily engaged in performing particular support activities, which include</p> <ol style="list-style-type: none"> 1. forest conservation services, 2. forest fire fighting services (prevention and protection through cultivation and maintenance of natural areas), 3. forestry maintenance (i.e., spacing and thinning trees, reforestation, mensuration services, measurement of trees), <p>(Non-natural infrastructure-related activities) :</p> <ol style="list-style-type: none"> 4. log hauling (no logging), 5. pest control services, and 6. timber cruising and valuation. 	Municipal natural infrastructure	0.047	<p>Linkage to natural infrastructure: The support activities for forestry are vital to the maintenance and improvement of natural infrastructure. They contribute to ensuring that forests, a vital component of natural infrastructure, can continue to provide essential ecosystem services.</p> <p>Methodology applied: SUT Approach (refer to the methodology above) Based on Statistics Canada SUTs (2022), we evaluated the total production of natural infrastructure-related inputs in goods and services as intermediate consumption by industries, by industry. We looked at the total of all products and evaluated the proportion of natural infrastructure.</p>
221111 – Hydroelectric	This industry is comprised of establishments primarily engaged in	Municipal natural infrastructure	0.040	Linkage to natural infrastructure:

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
power generation	the generation of bulk hydroelectric power.			<p>While natural infrastructure is not the main focus of hydroelectric power, activity is sometimes related to dam and reservoir construction that can be designed in a way that also supports conservation and restoration of ecosystems.</p> <p>Methodology applied: Given this, the estimate of the intensity ratio for the hydroelectric power economic activity linked to natural infrastructure is 0.04 based on the following.</p> <p>For Manitoba Hydro (2022), the following totals were reported:</p> <ul style="list-style-type: none"> • Environmental liabilities: CAD 8 million • Water rentals and assessments = CAD 10 million • Materials and external services (1/4 of total) = CAD 42 million • TOTAL sum = CAD 60 million <ul style="list-style-type: none"> • Operating expenses for hydroelectricity = CAD 579 million • Capital expenditure hydroelectricity = CAD 808 million • TOTAL = CAD 1,387 million <p>CAD 60 million/CAD 1387 million = Intensity ratio of 0.04</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
221310 – Water supply and irrigation systems	This industry is comprised of establishments primarily engaged in operating water collection, treatment, and distribution systems for domestic and industrial needs.	Municipal natural infrastructure	0.033	<p>Linkage to natural infrastructure: Due to its reliance on ecosystems like watersheds and wetlands for the collection, filtration, and distribution of water, as well as for sustainable irrigation practices that guarantee water availability and soil health, the water supply and irrigation systems industry is strongly linked to natural infrastructure.</p> <p>Methodology applied: In 2021, the U.S. government announced a CAD 1.2 trillion infrastructure package. This includes CAD 40 billion toward projects related to natural infrastructure and conservation, recognizing the role of nature in building the resilience of physical and natural systems, controlling floods, providing clean drinking water, and more. According to the United Nations Development Programme (UNDP, 2022), the total infrastructure spends on natural infrastructure compared to the total investment on infrastructure comes to around 3.33%.</p>
221320 – Sewage treatment facilities	This industry is comprised of establishments primarily engaged in operating sewer systems and sewage treatment facilities that collect, treat, and dispose of waste.	Municipal natural infrastructure	0.033	<p>Linkage to natural infrastructure: The sewage treatment facilities industry utilizes natural infrastructure, such as wetlands for wastewater treatment and flood control, green infrastructure for managing stormwater and enhancing climate resilience, and natural processes for recovering resources from wastewater.</p> <p>Methodology applied:</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
				<p>According to the UNDP (2022), the total infrastructure spends on natural infrastructure compared to the total investment on infrastructure comes to around 3.33%.</p>
237110 - Water and sewer line and related structures construction	<p>This industry is comprised of establishments primarily engaged in the construction of water and sewer lines, mains, pumping stations, treatment plants, and storage tanks. Out-of-scope activity includes geothermal and other pipes.</p>	Municipal natural infrastructure	0.033	<p>Linkage to natural infrastructure: The development of water and sewer infrastructure is associated with natural infrastructure due to the requirement for safeguarding ecosystems during construction, integration with natural systems for effectiveness and sustainability, the inclusion of climate resilience factors in design, and prioritization of resource conservation during construction.</p> <p>Methodology applied: According to the UNDP (2022), the total infrastructure spends on natural infrastructure compared to the total investment on infrastructure comes to around 3.33%.</p>
237990 - Other heavy and civil engineering construction	<p>This industry is comprised of the following engineering activities in the water sector:</p> <ul style="list-style-type: none"> • anchored earth retention contractors • dam construction; • dikes and other flood control structures, construction; • drainage project construction; • earth retention system construction; 	Watershed management and restoration	0.040	<p>Linkage to natural infrastructure: This industry plays a crucial role in the restoration and management of watersheds. This entails building and upkeeping water control structures, such as dams or levees, and performing restoration tasks, such as stabilizing stream banks and reintroducing indigenous flora to improve water quality and enhance the overall well-being of the watershed.</p> <p>Methodology applied:</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
	<ul style="list-style-type: none"> • farm drainage tile installation; • flood control project construction; • floodway and drainage canals and ditches, construction; • land drainage contractors; • pond construction, general contractors; • retaining walls, anchored (e.g., with piles, soil nails, tieback anchors), construction; • sediment control system construction; and • spillways, floodwater, construction. <p>Note: Marine projects are out of scope.</p>	<p style="background-color: #e0f2f7; padding: 5px;">Municipal natural infrastructure</p>	0.134	<p>Estimates are based on a survey of restoration project budgets. Using data from the data request form sent out to stakeholders of the B.C. watershed project (Delphi Group, 2021), the average spend on other construction activities was approximated. It is assumed that the Prairies have a similar pattern to that of B.C.</p> <p>Linkage to natural infrastructure: Other heavy and civil engineering construction plays a vital role in natural infrastructure by creating, constructing, and upkeeping systems such as green roofs, rain gardens, and wetlands. These systems imitate nature and aid in reducing environmental problems like urban heat islands, stormwater runoff, and biodiversity loss.</p> <p>Methodology applied: SUT Approach (refer to the methodology above). Based on Statistic Canada’s SUTs (Statistic Canada, 2022), we evaluated the total production of natural infrastructure-related inputs on goods and services as intermediate consumption by industries, by industry. We looked at the total of all products and evaluated the proportion of natural infrastructure.</p>
238110 - Poured concrete foundation and structure contractors	<p>This industry is comprised of the following in the water sector:</p> <ul style="list-style-type: none"> • retaining walls, • poured concrete, • construction, and • structure contractors. 	Watershed management and restoration	0.010	<p>Linkage to natural infrastructure: This industry is associated with natural infrastructure as it involves the construction and maintenance of structures such as dams, levees, and retaining walls that regulate water flow, prevent erosion, and mitigate flood damage.</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
				<p>Methodology applied: Estimates are based on a survey of restoration project budgets. Data suggests there is not much activity within this subsector, and most of that activity is in concrete removal (likely some overlap with site remediation work). It used data from the data request form sent out to stakeholders of the B.C. watershed project (Delphi Group, 2021). It is assumed that the Prairies have a similar pattern to that of B.C. Likely, very little of this work is in restoration projects, but there could be some in stabilizing banks.</p>
		Municipal natural infrastructure	0.005	<p>Linkage to natural infrastructure: This industry plays a key role in developing sustainable infrastructure by constructing eco-friendly buildings. Green retaining walls and permeable pavements, such as those constructed with poured concrete, can effectively manage stormwater runoff and mitigate urban heat island effects.</p> <p>Methodology applied: Infrastructure Economic Accounts, investment and net stock by asset, industry, and asset function [Table: 36-10-0608-01] was used to calculate (in 2022) the proportion of total investment in water, sewage, water filtration equipment, and hydraulic power assets in the Prairie provinces compared to the total investment in other heavy and civil engineering construction (Statistics Canada, 2023d).</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
				<p>Applied the natural infrastructure spend of 3.33%. $\frac{[(78+84+38+731+190+116+5+32+377+672+104+16)]}{(1539+2171+11583)} * 3.33\%$ Equation: Red = Alberta investment numbers in water, sewage, water filtration equipment, and hydraulic power assets Mint green = Saskatchewan investment numbers in water, sewage, water filtration equipment, and hydraulic power assets Blue = Manitoba investment numbers in water, sewage, water filtration equipment, and hydraulic power assets Orange = Total investment in other heavy and civil engineering construction from Manitoba, Saskatchewan, and Alberta, respectively.</p>
238910 - Site preparation contractors	<p>This industry is comprised of the following activities in the water sector:</p> <ul style="list-style-type: none"> • drainage system installation (e.g., cesspool, septic tank), contractors; • earth moving, contractors; • excavating, earthmoving, or land clearing (agricultural, mining, other); • grading, construction site; • land clearing, contractors; • land levelling, irrigation, contractors; and 	Watershed management and restoration	0.010	<p>Linkage to natural infrastructure: Site preparation contractors are crucial for managing watersheds. Their responsibility involves installing drainage systems to manage water runoff and flow in a given watershed. Appropriate installation and maintenance of these systems are crucial for preventing soil erosion and flooding, which are vital for preserving the health and functionality of the watershed.</p> <p>Methodology applied: Estimates are based on a survey of restoration project budgets using data from the data request form sent out to stakeholders of the B.C. watershed project (Delphi Group, 2021) and the</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
	<ul style="list-style-type: none"> - shovel equipment work, construction, rental with operator. 			<p>BC Water Funders report. It is assumed that the Prairies have a similar pattern to that of B.C. The estimate reflects heavy equipment site preparation and some labour. One important piece that is not captured here is volunteer efforts on restoration projects.</p>
		Municipal natural infrastructure	0.134	<p>Linkage to natural infrastructure: The involvement of site preparation contractors is crucial in the establishment and upkeep of natural infrastructure. The tasks they undertake, such as evaluating construction sites, performing earthmoving operations, and clearing land, contribute to the formation of the terrain necessary for the development of natural infrastructure features such as parks, green spaces, rain gardens, bioswales, and the like.</p> <p>Methodology applied: SUT Approach (refer to the methodology above). Based on Statistic Canada’s SUTs (Statistic Canada, 2022), we evaluated the total production of natural infrastructure-related inputs in goods and services as intermediate consumption by industries, by industry. We looked at the total of all products and evaluated the proportion of natural infrastructure.</p>
332420 - Metal tank (heavy-gauge) manufacturing	This industry is comprised of establishments primarily engaged in cutting, forming, and joining heavy-gauge steel to manufacture water tanks.	Municipal natural infrastructure	0.104	<p>Linkage to natural infrastructure: The heavy-gauge metal tank manufacturing industry is crucial for municipal natural infrastructure as it provides a necessary component for water storage and management. The tanks have diverse applications, such as</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
				<p>rainwater harvesting, stormwater retention, and wastewater treatment. Water tanks aid in the sustainability and resilience of urban environments by storing, treating, and gradually releasing water to support the municipal water management system.</p> <p>Methodology Applied: A total of 75 manufacturers were found in the Prairies of which ~26 manufacturers were related to water. Since the manufacturers produce multiple types of tanks, including water, it is assumed 30% of production is relevant to water/natural infrastructure. The intensity ratio is calculated using the numbers above, 30% being shown as 0.3. $(26/75)*0.3$</p>
411130 - Nursery stock and plant merchant wholesalers	This industry is comprised of establishments primarily engaged in wholesaling nursery stock, trees, bushes, and other plants.	Municipal natural infrastructure	0.068	<p>Linkage to natural infrastructure: The industry of wholesale merchants of nursery stock and plants plays a significant role in supporting municipal natural infrastructure by supplying the necessary flora for different natural infrastructure components. Wholesale suppliers provide trees, bushes, and other plants for utilization in urban green spaces, such as parks, community gardens, green roofs, and roadside greenery. These elements aid in managing stormwater, purifying air, mitigating urban heat islands, and enhancing biodiversity in urban areas.</p> <p>Methodology applied: SUT Approach (refer to the methodology above).</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
				Based on Statistics Canada's SUTs (2022), we evaluated the total production of natural infrastructure-related inputs in goods and services as intermediate consumption by industries. We looked at the total of all products within the industry and evaluated the proportion of natural infrastructure.
541320 - Landscape architectural services	This industry is comprised of establishments primarily engaged in planning, designing, and administering the development of land areas for projects such as parks and other recreational areas by applying knowledge of land characteristics, location of buildings and structures, use of land areas, and design of landscape projects.	Watershed management and restoration	0.060	<p>Linkage to natural infrastructure: Although landscape architectural services do not have a direct role in water management, they play a part in the management and restoration of watersheds. By implementing deliberate land development and design strategies, individuals can effectively control the direction and amount of water flow, prevent erosion, and intentionally integrate vegetation to indirectly safeguard the overall health of the water-shed.</p> <p>Methodology applied: SUT Approach (refer to the methodology above). Based on Statistics Canada's SUTs (2022), we evaluated the total production of natural infrastructure-related inputs in goods and services as intermediate consumption by industries. We looked at the total of all products within the industry and evaluated the proportion of natural infrastructure. With that proportion of natural infrastructure, we assumed that half of it is related to watershed management and restoration.</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
541330 – Engineering services	This industry is comprised of establishments primarily engaged in applying principles of engineering in the design, development, and utilization of new machines/materials/instruments/structures/processes/systems to improve water management and, in turn, lead to better watershed health.	Watershed management and restoration	0.003	<p>Linkage to natural infrastructure: Engineering services improve water management through the design, development, and implementation of systems and processes, including efficient irrigation systems, erosion control mechanisms, and stormwater management infrastructure. These contributions enhance watershed health by preserving water quality and promoting sustainable water flow.</p> <p>Methodology applied: Estimates are based on a survey of restoration project budgets. Using data from the data request form sent out to stakeholders of the B.C. watershed project (Delphi Group, 2021), the average spend on other engineering services relevant to natural infrastructure was approximated. It is assumed that the Prairies have a similar pattern to that of B.C.</p>
		Municipal natural infrastructure	0.125	<p>Linkage to natural infrastructure: Engineering services play a crucial role in the development and implementation of water management systems in urban areas as part of municipal natural infrastructure planning. They optimize effluent treatment processes and construct infrastructure, such as green roofs, rain gardens, and bioswales. Together, these systems and procedures control water flows in cities, lessen flooding, improve water quality, and generally help cities remain resilient and sustainable.</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
				<p>Methodology applied: Based on a random sampling of members of Engineers Geoscientists Manitoba, out of 42 organizations where the members work, around 21 of them have an impact on the municipal natural infrastructure. Assuming approximately 25% of relevant companies' work is specific to water. The following calculation was applied using the numbers described above: $(21/42 * 0.25)$</p>
541420 - Industrial design services	This industry includes electronic devices, tool design, modelling services, and industrial design consulting services that design/model water and wastewater treatment equipment/processes.	Municipal natural infrastructure	0.118	<p>Linkage to natural infrastructure: The industrial design services sector aids the municipal natural infrastructure industry through the design and modelling of water and wastewater treatment equipment and procedures. Their expertise in designing efficient infrastructure is crucial for managing urban water resources. This encompasses wastewater treatment and recycling systems, which promote water conservation, preserve water quality, and improve the sustainability of urban natural infrastructure.</p> <p>Methodology applied: A bottom-up estimate from known industrial design companies working in water tech. The SUT Approach (refer to the methodology above) validated this intensity ratio based on the findings from the SUTs (Statistics Canada, 2022).</p>
541620 - Environmental consulting services	This industry is comprised of establishments primarily engaged in providing advice and assistance to other organizations on environmental	Watershed management and restoration	0.062	<p>Linkage to natural infrastructure: Environmental consulting services are essential for managing and restoring watersheds. Their guidance pertains to effective measures for</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
	issues, such as the control of environmental contamination from pollutants, toxic substances, and hazardous materials.			<p>managing contamination resulting from pollutants, toxic substances, and hazardous materials. This is crucial for preserving the quality of water in a given watershed. Moreover, they can oversee restoration efforts, guaranteeing their ecologically responsible execution and achievement of intended results.</p> <p>Methodology Applied: Estimates based on a survey of restoration project budgets and data from an Oregon study (Nielsen-Pincus & Moleley, 2010). Project budget data provided includes a large percentage of environmental project management, biologists, and other technical roles captured in this category. Using data from the data request form sent out to stakeholders of the B.C. watershed project (Delphi Group, 2021), the average spend on environmental consulting services relevant to natural infrastructure was approximated. It is assumed that the Prairies have a similar pattern to that of B.C.</p>
		Municipal natural infrastructure	0.208	<p>Linkage to natural infrastructure: The role of environmental consulting services is to offer advice and recommendations on how to incorporate environmental factors into the process of urban planning and infrastructure development. The suggestion is to provide guidance on incorporating green spaces, parks, and other natural structures into urban areas. This approach can have multiple benefits, such as improving biodiversity, managing stormwater, and reducing the impact of urban heat islands.</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
				<p>Methodology applied: Estimate based on ECO Canada study and Statistics Canada data tables (Statistics Canada, 2023a).</p>
541690 – Other scientific and technical consulting services	This industry is comprised of establishments primarily engaged in providing advice and assistance to other organizations on scientific and technical issues.	Municipal natural infrastructure	0.050	<p>Linkage to natural infrastructure: By offering specialized advice and help on scientific and technical concerns, this sector benefits the municipal natural infrastructure subsector. They can aid in resolving intricate issues concerning the natural infrastructure’s planning, execution, and upkeep. For instance, they can comprehend soil profiles for developing green spaces, recommend materials for green roofs, or diagnose problems with urban stormwater management systems. Their expertise improves the efficiency and durability of natural infrastructure in urban areas.</p> <p>Methodology/assumption applied: The assumption is that 5% of industry activity is relevant to natural infrastructure.</p>
561730 – Landscaping services	This industry is comprised of establishments primarily engaged in providing landscape care and maintenance services, such as installing trees, shrubs, plants, lawns or gardens, and walkways, as well as retaining walls, decks, fences, ponds and similar structures.	Watershed management and restoration	0.072	<p>Linkage to natural infrastructure: Landscaping services play a significant role in the management and restoration of watersheds. This is achieved through the creation and upkeep of vegetated areas and structures that have an impact on the flow of water. Planting trees, shrubs, and gardens has the potential to enhance soil stability, reduce erosion, and facilitate water infiltration, which can lead to the development of more robust watersheds. The implementation of structures such</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
				<p>as retaining walls and ponds can aid in the management of runoff and water storage. This can effectively regulate the movement of water within a given watershed.</p> <p>Methodology applied: SUT Approach (refer to the methodology above). Based on Statistics Canada’s SUTs (Statistics Canada, 2022), we evaluated the total production of natural infrastructure-related inputs in goods and services as intermediate consumption by industries. We looked at the total of all products within the industry and evaluated the proportion of natural infrastructure.</p>
611210 - Community colleges	This industry is comprised of establishments primarily engaged in providing academic, or academic and technical, courses and granting associate degrees, certificates, or diplomas related to water systems and natural infrastructure that are below the university level.	Education, training, and capacity building	0.016	<p>Linkage to natural infrastructure: Community colleges are crucial for training the workforce in managing, maintaining, and innovating in the field of natural infrastructure and water systems. They offer relevant courses and programs. They equip individuals with the necessary knowledge and technical abilities to comprehend and proficiently operate natural infrastructure components, such as urban green areas, rain gardens, and stormwater management systems.</p> <p>Methodology applied: Estimates were based on relevant course offerings and validated using the SUTs (Statistics Canada, 2022). Based on Statistics Canada’s SUTs, we evaluated the total production of natural infrastructure-</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
				related inputs in goods and services as intermediate consumption by industries. We looked at the total of all products within the industry and evaluated the proportion of natural infrastructure.
611310 - Universities	This industry is comprised of establishments primarily engaged in providing academic courses and granting degrees related to water systems at baccalaureate or graduate levels.	Education, training, and capacity building	0.031	<p>Linkage to natural infrastructure: Universities are crucial in training the workforce to manage, maintain, and innovate in the field of natural infrastructure and water systems. They offer relevant courses and programs. They equip individuals with the necessary knowledge and technical abilities to comprehend and proficiently operate natural infrastructure components, such as urban green areas, rain gardens, and stormwater management systems.</p> <p>Methodology applied: Estimates were based on relevant course offerings.</p>
611510 - Technical and trade schools	This industry is comprised of establishments primarily engaged in providing vocational and technical training in technical water systems subjects and trades.	Education, training, and capacity building	0.012	<p>Linkage to natural infrastructure: Technical and trade schools are crucial for training the workforce in managing, maintaining, and innovating in the field of natural infrastructure and water systems. They offer relevant courses and programs. They equip individuals with the necessary knowledge and technical abilities to comprehend and proficiently operate natural infrastructure components, such as urban green areas, rain gardens, and stormwater management systems.</p> <p>Methodology Applied:</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
		Education, training, and capacity building		<p>Estimates are based on relevant course offerings. Based on Statistics Canada's SUTs (Statistics Canada, 2022), we evaluated the total production of natural infrastructure-related inputs in goods and services as intermediate consumption by industries. We looked at the total of all products within the industry and evaluated the proportion of natural infrastructure.</p>
813310 – Social advocacy organizations	<p>This industry is comprised of establishments based in Prairies primarily engaged in promoting a particular social or political cause to benefit a broad or specific constituency (in this case, specific to natural infrastructure).</p>		0.040	<p>Linkage to natural infrastructure: Advocacy groups that promote education in water or natural infrastructure are crucial for increasing awareness and shaping policy related to natural infrastructure. Their role involves disseminating information to various stakeholders regarding the benefits and significance of natural infrastructure, including its capacity to manage stormwater, alleviate the effects of climate change, and enhance biodiversity. Their endeavours can enhance backing, funding, and the execution of natural infrastructure strategies, thereby directly impacting the expansion and durability of natural infrastructure in the area.</p> <p>Methodology applied: 20 charities out of 476 charities registered in Alberta focus on environmental protection. 13 out of 228 charities registered in Manitoba focus on environmental protection. 4 out of 214 charities registered in Saskatchewan focus on environmental protection. Validated using the SUTs (Statistics Canada, 2022).</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
911910 - Other federal government public administration	This industry is comprised of the administration of natural infrastructure-specific projects and programs in Prairies that are either fully or partially supported by the federal government.	Regulatory and public administration	0.032	<p>Linkage to natural infrastructure: The federal government's public administration plays a crucial role in managing natural infrastructure-focused projects and programs. Their involvement typically encompasses funding, regulation setting, and stakeholder coordination. They have the power to shape the creation, upkeep, and planning of natural infrastructure, and their support for local natural infrastructure efforts can be very important to their implementation and success.</p> <p>Methodology applied: SUT Approach (refer to the methodology above). Based on Statistics Canada's SUTs (Statistics Canada, 2022), we evaluated the total production of natural infrastructure-related inputs in goods and services as intermediate consumption by industries. We looked at the total of all products within the industry and evaluated the proportion of natural infrastructure.</p>
912910 - Other provincial and territorial public administration	This industry is comprised of the administration of provincial and territorial government programs responsible for managing natural infrastructure resources in the Prairies.	Regulatory and public administration	0.032	<p>Linkage to natural infrastructure: The management of natural infrastructure relies heavily on provincial and territorial public administration bodies. They manage natural infrastructure resource programs that involve planning, development, preservation, and enhancement. These agencies oversee regulations, funding, and strategic guidance to integrate natural infrastructure into land-use planning and development initiatives. The success and longevity of these systems in each province</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
				<p>and territory are directly related to how well these authorities manage natural infrastructure resources.</p> <p>Methodology applied: SUT Approach (refer to the methodology above). Based on Statistics Canada’s SUTs (Statistics Canada, 2022), we evaluated the total production of natural infrastructure-related inputs in goods and services as intermediate consumption by industries. We looked at the total of all products within the industry and evaluated the proportion of natural infrastructure.</p>
913190 - Other municipal protective services	This industry is comprised of establishments of local governments, not classified as any other industry, primarily engaged in dealing with major emergencies and catastrophes.	Regulatory and public administration	0.036	<p>Linkage to natural infrastructure: Municipal protective services play a crucial role in emergency and disaster management, particularly in relation to natural infrastructure. Natural infrastructure, such as green spaces, wetlands, and urban forests, can effectively mitigate the impacts of disasters, such as flooding or heat waves. As a result, managing and improving natural infrastructure can be a component of the plans these services employ to anticipate and handle catastrophes, lowering risk and enhancing community resilience.</p> <p>Methodology applied: SUT Approach (refer to the methodology above). Based on Statistics Canada’s SUTs (Statistics Canada, 2022), we evaluated the total production of natural infrastructure-related inputs in goods and services as intermediate consumption by</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
				industries. We looked at the total of all products within the industry and evaluated the proportion of natural infrastructure.
913910 - Other local, municipal, and regional public administration	This industry is comprised of the administration of local, municipal, and regional government programs responsible for managing natural infrastructure.	Regulatory and public administration	0.090	<p>Linkage to natural infrastructure: Public administrations at the local, municipal, and regional levels are closely involved in the management and sustainability of natural infrastructure. They manage programs for the development and maintenance of local water resources and other aspects of natural infrastructure. Their tasks encompass a wide range of responsibilities, such as establishing green areas, administering urban forests, supervising stormwater infrastructure, and guaranteeing water quality. The presence, condition, and efficacy of natural infrastructure within their territories are all directly affected by their policies, legislation, and programs.</p> <p>Methodology Applied: Based on the proportion of municipal budget expenditures on water treatment and natural infrastructure-related funding.</p>
914110 - Aboriginal public administration	This industry is comprised of establishments of Indigenous governments primarily engaged in providing their constituents with access to natural infrastructure, safe drinking water, and wastewater treatment systems that would otherwise be	Regulatory and public administration	0.071	<p>Linkage to natural infrastructure: Indigenous public administration is crucial in managing and providing access to natural infrastructure in their respective communities. They oversee the administration of natural infrastructure systems and water resources to ensure that residents have access to clean water for drinking and sanitation. This entails preserving natural water</p>

NAICS	Industry description	Subsector	Intensity ratio	Notes and assumptions
	provided by federal, provincial, or municipal levels of government.			<p>sources, wetlands, and other components of natural infrastructure, which collectively enhance the ecological well-being and durability of their territories. Their actions affect the preservation, accessibility, and functionality of natural infrastructure in their respective areas.</p> <p>Methodology Applied: SUT Approach (refer to the methodology above). Based on Statistics Canada's SUTs (Statistics Canada, 2022), we evaluated the total production of natural infrastructure-related inputs in goods and services as intermediate consumption by industries. We looked at the total of all products within the industry and evaluated the proportion of natural infrastructure.</p>

Appendix C. Scenario Analysis Methodology and Forecasting Results

Three growth scenarios were developed for the natural infrastructure sector for the period of 2022 to 2030. The methodology employed for forecasting job growth and GDP for the four subsectors began with an estimation of the compound annual growth rate (CAGR) over an 8-year period for each subsector utilizing historical job and GDP data from 2014 to 2022. Assumptions and modelling were also developed for each of the four subsectors under the three scenarios (see Appendix B for a more detailed methodology).

The **job data** utilized in this study was obtained from labour statistics available through the System of National Accounts by Statistics Canada (2023e). **GDP data** was obtained from basic price data published by Statistics Canada (2023b). The CAGR calculations were based on the historical trends of jobs and GDP for industries within each subsector after applying the identified intensity ratios for each of the industry NAICS codes. Subsequently, the CAGR projections were extrapolated to the year 2030 exponentially, reflecting the compound nature of growth.

The projected CAGRs for both jobs and GDP were then applied to the respective totals for the year 2022 in each of the subsectors to project and approximate the forecasted jobs and GDP for 2030. This step enabled a forecast of the prospective number of employment opportunities and GDP contribution by subsector to the year 2030, altogether comprising a **Business-As-Usual (BAU) growth scenario**. The objective of this approach is to establish a clear and repeatable foundation for future analyses and projections. This approach considers historical trends while simultaneously anticipating future expansion and can be adapted to incorporate other variables as desired.

Next, an **Intermediate Growth scenario** and a **Stretch Growth scenario** were established by identifying CAGR growth rates for jobs and GDP based on an assumed future investment in natural infrastructure sector activities in the Prairies. The Intermediate and Stretch Growth scenarios were developed for the purpose of understanding the outcomes and potential benefits associated with increased investment in natural infrastructure sector activities. The Intermediate Growth scenario was based on the projected CAGR of both jobs and GDP that would result from a CAD 40 million/year total investment in the three provinces combined in natural infrastructure sector activities from 2022 to 2030.

The Stretch Growth scenario was based on the projected CAGR of both jobs and GDP that would result from a CAD 100 million/year total investment in natural infrastructure sector activities in the three Prairie provinces combined from 2022 to 2030. The CAD 100 million/year figure was chosen to remain consistent with previous research on the potential impact of a Watershed Security Fund in B.C., which was informed by a research report from the POLIS Project on Ecological Governance that offered a model for the proposed distribution of a new fund across similarly defined subsectors. The economic impacts of a CAD 100 million/year investment were modelled in the *Working for Watersheds* study (Delphi Group, 2021).

The estimates were also informed by a review of relevant public funding programs in each of the three provinces and by comparable scenarios in other jurisdictions. For both the Intermediate and Stretch Growth scenarios, the CAD 40 million/year and CAD 100 million/year investments were distributed with 50% to Alberta and 25% each to Manitoba and Saskatchewan. This reflects, generally, the larger size of the natural infrastructure sector in Alberta and the potential for larger investment.

The job and GDP-specific CAGRs that were estimated as a result of investments in each scenario were then added to the previously determined BAU growth rates to show additional economic return on investment in natural infrastructure sector activities. With the application of the Stretch Growth CAGRs to the jobs and GDP numbers for 2022, the modelling inputs can be updated to reflect changes in policy and market conditions.

Table C1. Prairie growth rates compared to baseline (2022)

Year	Direct jobs	% Growth	Direct GDP (CAD)	% Growth	Direct, indirect, and induced jobs	% Growth	Direct, indirect, and induced GDP (CAD)	% Growth
2022 (baseline)	33,454	0%	\$4,144,863	0%	58,553	0%	\$7,091,396	0%
2030 (BAU)	37,823	13%	\$4,403,131	6%	66,356	13%	\$7,504,128	6%
2030 (Intermediate Growth)	39,552	18%	\$4,571,969	10%	69,182	18%	\$7,792,693	10%
2030 (Stretch Growth)	42,147	26%	\$4,825,227	16%	73,420	25%	\$8,225,540	16%

Provincial Results

The following summarizes the Intermediate and Stretch Growth scenario results for Manitoba, Saskatchewan, and Alberta.

Manitoba

Intermediate Growth Scenario Results: CAD 40 million investment per year (Prairie-wide), with a CAD 10 million investment per year in Manitoba

The sector generates CAD 672 million in GDP for the province and directly supports 6,500 jobs by 2030 (23% and 12% increases, respectively, compared to the 2022 baseline). This total number of jobs increases to 10,690 (a 12% increase from 2022) when indirect and induced effects are taken into account. The GDP impact is CAD 1.1 billion by 2030, showing a 23% increase from 2022.

Under the Intermediate Growth scenario, Manitoba achieves a growth rate of 8% for direct jobs and 7% for direct GDP compared to the BAU scenario.

Stretch Growth Scenario Results: CAD 100 million investment per year (Prairie-wide) with a CAD 25 million investment per year in Manitoba

The natural infrastructure sector generates CAD 737 million in GDP for the province and directly supports 7,244 jobs by 2030. The total number of jobs increases to 11,865 when indirect and induced effects are taken into account, and the GDP contribution is CAD 1.2 billion in 2030.

In the Stretch Growth case, the growth rate is even more significant, with 21% and 17% growth in both direct jobs and GDP, respectively, when compared to the BAU scenario.

Table C2. Manitoba growth rates compared to baseline (2022)

Scenarios (2030)	Direct jobs	% change compared to baseline and BAU	Direct GDP (CAD thousands)	% change compared to baseline and BAU	Direct, indirect, and induced jobs	% change compared to baseline and BAU	Direct, indirect, and induced GDP (CAD thousands)	% change compared to baseline and BAU
Saskatchewan (2022)	5,792	-	\$548,566	-	9,569	-	\$925,089	-
BAU scenario (2030)	6,003	4% increase (baseline)	\$629,624	15% increase (baseline)	9,907	4% increase (baseline)	\$1,060,867	15% increase (baseline)
Intermediate Growth scenario (2030)	6,500	12% increase (baseline) 8% increase (BAU)	\$672,815	23% increase (baseline) 7% increase (BAU)	10,690	12% increase (baseline) 8% increase (BAU)	\$1,134,667	23% increase (baseline) 7% increase (BAU)
Stretch Growth scenario (2030)	7,244	25% increase (baseline) 21% increase (BAU)	\$737,601	34% increase (baseline) 17% increase (BAU)	11,865	24% increase (baseline) 20% increase (BAU)	\$1,245,368	35% increase (baseline) 17% increase (BAU)

Saskatchewan

Intermediate Growth Scenario Results: CAD 40 million investment per year (Prairie-wide), with a CAD 10 million investment per year in Saskatchewan

By 2030, the direct contribution to GDP is expected to reach CAD 829 million, and the number of directly created jobs is 8,097. These statistics go up to 13,291 jobs and CAD 1.3 billion in GDP when indirect and induced effects are taken into consideration.

When compared to 2022, the direct job count rises by 39%, and GDP rises by 30% under the Intermediate Growth scenario.

Stretch Growth Scenario Results: CAD 100 million investment per year (Prairie-wide), with a CAD 25 million investment per year in Saskatchewan

By 2030, the direct contribution to GDP is expected to reach CAD 895 million, and the number of directly created jobs is 8,837. These statistics go up to 14,452 jobs and CAD 1.4 billion in GDP (a 40% increase) when indirect and induced effects are taken into consideration.

In the Stretch Growth scenario, the province sees a direct job growth of 16% and a GDP increase of 14% when compared to the BAU scenario.

Table C3. Saskatchewan growth rates compared to baseline (2022)

Scenarios (2030)	Direct jobs	% change compared to baseline and BAU	Direct GDP (CAD thousands)	% change compared to baseline and BAU	Direct, indirect, and induced jobs	% change compared to baseline and BAU	Direct, indirect, and induced GDP (CAD thousands)	% change compared to baseline and BAU
Saskatchewan (2022)	5,839	-	\$640,417	-	9,496	-	\$1,049,641	-
BAU scenario (2030)	7,603	30% increase (baseline)	\$785,683	23% increase (baseline)	12,518	32% increase (baseline)	\$1,288,151	23% increase (baseline)
Intermediate Growth scenario (2030)	8,097	39% increase (baseline) 6% increase (BAU)	\$829,526	30% increase (baseline) 6% increase (BAU)	13,291	40% increase (baseline) 6% increase (BAU)	\$1,360,996	30% increase (baseline) 6% increase (BAU)
Stretch Growth scenario (2030)	8,837	51% increase (baseline) 16% increase (BAU)	\$895,290	40% increase (baseline) 14% increase (BAU)	14,452	52% increase (baseline) 16% increase (BAU)	\$1,470,264	40% increase (baseline) 14% increase (BAU)

Alberta

Intermediate Growth Scenario Results: CAD 40 million investment per year (Prairie-wide), with a CAD 20 million per year investment in Alberta

Alberta's natural infrastructure sector is directly responsible for 24,956 jobs and creates CAD 3 billion in GDP by 2030. By 2030, these estimates increase to 45,200 jobs and CAD 5.29 billion when indirect and induced employment and GDP are considered.

Under the Intermediate Growth scenario, the number of direct jobs in Alberta increases by 3% and GDP increases by 3% when compared to the BAU scenario.

Stretch Growth Scenario Results: CAD 100 million investment per year (Prairie-wide), with a CAD 50 million per year investment in Alberta

In this scenario, Alberta's natural infrastructure industry is directly responsible for 26,065 jobs and creates CAD 3.19 billion in GDP. These estimates increase to 47,103 jobs and CAD 5.5 billion when indirect and induced impacts of employment and GDP are considered.

When compared to the BAU scenario, the Stretch Growth scenario shows that Alberta is expected to achieve a 3% growth in direct jobs and 8% growth in direct GDP.

The table below summarizes the percentage change in jobs and GDP when scenarios are compared to the baseline numbers for 2022. When compared to the baseline in 2022, the Stretch Growth Scenario shows a 19% increase in direct jobs and 8% increase in direct GDP.

Table C1. Alberta growth rates compared to baseline (2022)

Scenarios (2030)	Direct jobs	% change compared to baseline and BAU	Direct GDP (CAD thousands)	% change compared to baseline and BAU	Direct, indirect, and induced jobs	% change compared to baseline and BAU	Direct, indirect, and induced GDP (CAD thousands)	% change compared to baseline and BAU
Alberta (2022)	21,823	-	\$2,955,881	-	39,489	-	\$5,116,665	-
BAU scenario (2030)	24,216	11% increase (baseline)	\$2,987,823	1% increase (baseline)	43,931	11% increase (base line)	\$5,155,110	0.8% increase (baseline)
Intermediate Growth scenario (2030)	24,956	14% increase (baseline) 3% increase (BAU)	\$3,069,628	4% increase (baseline) 8% increase (BAU)	45,200	15% increase (baseline) 3% increase (BAU)	\$5,297,092	4% increase (baseline) 3% increase (BAU)
Stretch Growth scenario (2030)	26,065	19% increase (baseline) 8% increase (BAU)	\$3,192,336	8% increase (baseline) 7% increase (BAU)	47,103	19% increase (baseline) 7% increase (BAU)	\$5,509,908	8% increase (baseline) 7% increase (BAU)

Appendix D: Summary of Economic Impact Analysis Results

The following tables summarize the results for the direct, indirect, and induced impacts of natural infrastructure on jobs and GDP for the Canadian Prairies as a whole, as well as for each Prairie province.

Table D1. Natural infrastructure’s impacts on the Canadian Prairies - Province of Manitoba (2022)

Natural infrastructure subsector	Natural infrastructure sector jobs (Direct only)	Natural infrastructure sector GDP (Direct only)	Natural infrastructure sector jobs (Direct, indirect, induced)	Natural infrastructure sector GDP (Direct, indirect, induced)
Watershed management	321	CAD 19,676,000	465	CAD 35,364,000
Municipal natural infrastructure	1,006	CAD 123,808,000	1,773	CAD 210,440,000
Education, training, and capacity building	692	CAD 58,978,000	992	CAD 90,016,000
Regulatory and public administration	3,773	CAD 346,104,000	6,339	CAD 589,270,000
Total	5,792	CAD 548,566,000	9,569	CAD 925,089,000

Table D2. Natural infrastructure's impacts on the Canadian Prairies - Province of Saskatchewan (2022)

Natural infrastructure subsector	Natural infrastructure sector jobs (Direct only)	Natural infrastructure sector GDP (Direct only)	Natural infrastructure sector jobs (Direct, indirect, induced)	Natural infrastructure sector GDP (Direct, indirect, induced)
Watershed management	265	CAD 26,014,000	402	CAD 45,013,000
Municipal natural infrastructure	1,378	CAD 193,698,000	2,408	CAD 322,617,000
Education, training, and capacity building	772	CAD 60,287,000	1,065	CAD 93,892,000
Regulatory and public administration	3,423	CAD 360,419,000	5,621	CAD 588,119,000
Total	5,839	CAD 640,417,000	9,496	CAD 1,049,641,000

Table D3. Natural infrastructure's impacts on the Canadian Prairies - Province of Alberta (2022)

Natural infrastructure subsector	Natural infrastructure sector jobs (Direct only)	Natural infrastructure sector GDP (Direct only)	Natural infrastructure sector jobs (Direct, indirect, induced)	Natural infrastructure sector GDP (Direct, indirect, induced)
Watershed management	1,866	CAD 168,834,000	3,039	CAD 315,491,000
Municipal natural infrastructure	9,529	CAD 1,245,005,000	17,907	CAD 2,309,575,000
Education, training, and capacity building	2,296	CAD 232,108,000	3,399	CAD 361,553,000
Regulatory and public administration	8,131	CAD 1,309,934,000	15,144	CAD 2,130,047,000
Total	21,823	CAD 2,955,881,000	39,489	CAD 5,116,665,000

Natural infrastructure's Impacts on the Canadian Prairies - Combined Prairie provinces (2022)

Table D4. Natural infrastructure's impacts on the Canadian Prairies - Combined Prairie Provinces (2022)

Natural infrastructure subsector	Natural infrastructure sector jobs (Direct only)	Natural infrastructure sector GDP (Direct only)	Natural infrastructure sector jobs (Direct, indirect, induced)	Natural infrastructure sector GDP (Direct, indirect, induced)
Watershed management	2,452	CAD 214,524,000	3,906	CAD 395,867,000
Municipal natural infrastructure	11,914	CAD 1,562,511,000	22,089	CAD 2,842,633,000
Education, training, and capacity building	3,760	CAD 351,372,000	5,455	CAD 545,461,000
Regulatory and public administration	15,327	CAD 2,016,456,000	27,103	CAD 3,307,436,000
Total	33,454	CAD 4,144,863,000	58,553	CAD 7,091,396,000

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