

Final Socio-Economic Monitoring Report Waneta Expansion Project

January 1, 2011 to March 31, 2015

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May, 2015

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Executive Summary

Columbia Power, acting as project manager on behalf of Fortis Inc. and the Columbia Basin Trust, received an Environmental Assessment Certificate (EAC) from the provincial Environmental Assessment Office, which authorized the Waneta Expansion Project (WAX) to proceed. One of the commitments identified in the EAC was for Columbia Power to retain a Socio-Economic Monitor to “monitor, analyze and report on project-related socio-economic impacts”. Additionally, Columbia Power was directed to form a community-based committee (CIMC) to support effective management of the socio-economic impacts.

A socio-economic measurement framework was developed for monitoring the impacts of construction activities. The framework included both direct and indirect indicators, which were reviewed with the CIMC prior to initiating the socio-economic monitoring program.

The socio-economic monitoring framework formed the base case, or starting point, for the monitoring program. The base case reflects the anticipated impacts (both positive and negative) identified by Columbia Power through the planning stages for WAX. The anticipated impacts were outlined in the EAC or other relevant project-related documents produced by Columbia Power.

To monitor the direct impacts of WAX construction activities, data for select indicators was used to compare actual to predicted outcomes. For indirect project impacts, general trend information was used to offer a qualitative analysis. Finally, concerns identified by CIMC members and/or the public were discussed during regular meetings of the CIMC with responses from the Owner’s group documented.

The Socio-Economic Monitor reported monthly, quarterly and annually. This final socio-economic monitoring report summarizes the assessment of socio-economic impacts of WAX construction activities throughout the course of construction, which was from January 1, 2011 to March 31, 2015.

Direct Impacts

Indicator	Predicted Outcomes	Actual Outcomes
Project Employment	<ul style="list-style-type: none">680 Person Years of Employment (Columbia Power)792 Person Years of Employment for the total project (SNC-Lavalin projection)³	1231 Person Years of Employment
Local Employment	<ul style="list-style-type: none">75% of the WAX labour force to be local50% of the managers and engineers to be local	<ul style="list-style-type: none">73% of workers were localNo information available on non-local managers and engineers

³ The SNC-Lavalin projection was created for their own planning purposes and not with the explicit intent of providing a baseline for monitoring employment over the course of construction. As a result, SNC-Lavalin cannot and will not be held to account for realizing the person years of employment target. The projection is, instead, used as general information in combination with other data regarding employment.

Indicator	Basecase	Actual
Equity Employment	<ul style="list-style-type: none"> • 10% of employment for women, visible minorities and/or persons with disabilities • 5% of the total project workforce for First Nations 	<ul style="list-style-type: none"> • 10% were women, visible minorities and/or persons with disabilities • 6% were people of aboriginal ancestry
Project Occupations	<ul style="list-style-type: none"> • Number of apprenticeships from the Collective Agreement 	<ul style="list-style-type: none"> • Number of apprentices met or exceeded all targets in the Collective Agreement
Project Wage Income	<ul style="list-style-type: none"> • \$101.1 million 	<ul style="list-style-type: none"> • \$100,294,393
Regional Contract Expenditures	<ul style="list-style-type: none"> • \$78.1 million in additional household income resulting from supplier industry impacts 	<ul style="list-style-type: none"> • No detailed data available to calculate additional household income
Health and Safety	<ul style="list-style-type: none"> • WorkSafeBC standards for similar projects 	<ul style="list-style-type: none"> • Equal to or lower than WorkSafeBC standards throughout the project

The lack of detailed data on regional contractor expenditures led to telephone interviews of 32 businesses and community development organizations within the project area in order to better understand the impacts of WAX on local businesses and communities. While most business owners stated WAX had little impact, those located closest to the project as well as those in sectors that are, and have been, vulnerable tended to state the impact was significant. The majority of business owners were unconcerned about the impending completion of the project but felt it had an overall positive impact and is part of the typical cycle of large-scale projects that are important to the local economy. Communication about the project was considered good so that business owners knew in advance the project schedule, although most stated they did not undertake any specific planning to leverage opportunities associated with WAX or prepare for the impacts of project completion.

Indirect Impacts

General trends information suggested that WAX did not significantly impact, either positively or negatively, the following indicators:

- Residential vacancies
- Hotel/Motel vacancy
- Daycare wait lists
- School enrollment
- Recreation services
- Population
- Border services
- Emergency services.

It is likely that WAX enabled local workers to remain in the area and so contributed to overall community stability, but did not result in significant immigration of workers.

Other Community Concerns

The CIMC and Columbia Power discussed and agreed to outcomes on other community concerns, primarily relating to traffic safety, construction of the transmission line, the Fort Shepherd compensation program, the future of properties in the vicinity of WAX that are owned by the Owner's group, and a proposed legacy project. The outcomes of these discussions are summarized in the final socio-economic monitoring report.

1. Introduction

The Waneta Expansion Project (WAX) has resulted in the construction of a second powerhouse downstream of the Waneta Dam on the Pend d'Oreille River south of Trail, B.C. The expansion project shares the original dam's hydraulic head and generates power from flow that was otherwise being spilled. The project is jointly owned by Fortis Inc. (51%), Columbia Power Corporation (32.5%) and Columbia Basin Trust (16.5%).

Columbia Power, acting as project manager on behalf of the owner's group, received an Environmental Assessment Certificate (EAC) from the provincial Environmental Assessment Office, which authorized WAX to proceed. One of the commitments identified in the EAC was for Columbia Power to retain a Socio-Economic Monitor to "monitor, analyze and report on project-related socio-economic impacts". Additionally, Columbia Power was directed to form a community-based committee to support effective management of the socio-economic impacts.

In the fall of 2010, Columbia Power hired consultant Cathy Scott-May to be the Socio-Economic Monitor and formed the Community Impact Management Committee, which was a diverse group of local stakeholders who met regularly to review WAX progress and discuss any associated community issues.

This report is the final socio-economic monitoring report produced for WAX.

1.1 Purpose and Scope of the Socio-Economic Monitoring Program

The goal of the socio-economic monitoring program has been to provide an independent assessment of the measurable socio-economic impacts (both positive and negative) that can be attributed to WAX, along with interpretation of anecdotal indicators, in order to have:

- measured and reported on impacts to support management of WAX;
- facilitated communication between community stakeholders, government agencies and Columbia Power concerning impact management issues, and;
- documented the effectiveness of efforts to minimize negative impacts and maximize project benefits to the region.

The scope of the socio-economic monitoring program was determined by the monitoring requirements outlined in the EAC. It is important to note that through the Environmental Assessment review process, potential impacts (both positive and negative) were identified and, based on the issuance of the EAC, such impacts were accepted. Hence, the socio-economic monitoring program sought to ensure that real impacts were consistent with the projected impacts and whether or not strategies to mitigate negative impacts were effective in ensuring such impacts remained within the projected range. Unanticipated issues or impacts that were brought to the attention of the Socio-Economic Monitor were first assessed to determine if they were within the mandate of the Monitor and could reasonably be assumed to have a direct relationship with the project. If so, they were included in the formal monitoring reports.

Finally, the Socio-Economic Monitor was not responsible for First Nations concerns as Columbia Power dealt directly with First Nations representatives. Columbia Power engaged a separate consultant to conduct the environmental monitoring program for WAX.

1.2 Geographic Scope

The geographic scope for measurement of most impact indicators was a 100 km radius from the WAX project site, but limited to within Canada. Therefore, the definition of the “local” scope of the project included Castlegar, Nelson, Trail and all smaller communities and rural areas in that general area. In some cases, data sets from statistical sources did not align with this geographic scope, in which case the information that best fit the preferred geographic scale was used.

1.3 Roles and Responsibilities of the Socio-Economic Monitor

The Socio-Economic Monitor was responsible for designing the monitoring program, including defining what information was to be collected and how the information would be used to report on impacts of the project. Following review of the proposed design with Columbia Power and the CIMC, the Socio-Economic Monitor was responsible for implementing the monitoring program, including collecting and analyzing the necessary information, writing reports and presenting the reports to the CIMC. The Socio-Economic Monitor also responded to questions, incidents or concerns from the public as required.

To ensure the socio-economic monitoring process maintained the necessary credibility within the broader community, the Socio-Economic Monitor acted independently of Columbia Power and its committees. However, through their positions as elected officials and/or community representatives, the CIMC was accountable to the community, just as Columbia Power has a corporate responsibility to, and relationship with, those same broader interests. As a result, the Socio-Economic Monitor worked co-operatively with all parties to serve the interests of the region and its communities.

2. Methodology

2.1 Data Collection

A socio-economic measurement framework was developed for monitoring the impacts of construction activities. The framework included both direct and indirect indicators, which were reviewed with the CIMC prior to initiating the socio-economic monitoring program. The indicators included:

Direct Indicators	Indirect Indicators
<ul style="list-style-type: none">• Project employment• Local employment• Equity employment• Project occupations• Project wage income• Regional project expenditures• Medical aid	<ul style="list-style-type: none">• Residential vacancies²• Hotel/motel vacancy• Daycare wait lists• School enrollment• Recreation services• Population• Traffic safety• Border services• Other community concerns

² Residential vacancy rates were defined as multi-family building rental vacancies. Single detached housing and trailer home rentals were not included.

With respect to data collection for the direct indicators, the employment-related information was associated with all unionized workers who were employed on-site, local management and engineers employed by the prime contractor, SNC-Lavalin, as well as Columbia Power's managers and engineers. Data on non-local management and engineers employed by SNC-Lavalin who might have contributed to WAX was unavailable.

Columbia Hydro Constructors (CHC) tracked information about on-site union employees. Columbia Power contracted CHC to provide the Socio-Economic Monitor with the necessary data summaries to meet the monitoring requirements outlined in the EAC. The Socio-Economic Monitor could request additional information from SNC-Lavalin and Columbia Power, which they provided at their discretion.

Data collection for the indirect indicators relied on statistical information from various government sources, informal telephone interviews, direct contact with stakeholders, and general observation and knowledge.

2.2 Comparison with the Base Case

The socio-economic monitoring framework formed the base case, or starting point, for the monitoring program. The base case reflects the anticipated impacts (both positive and negative) identified by Columbia Power through the planning stages for WAX. Many of the anticipated impacts were outlined in the EAC. Additionally, the base case drew on other relevant project-related documents that outline commitments or projections by Columbia Power regarding socio-economic issues.

The indicators were compared with base case information in order to determine if WAX conformed to established targets and to make observations as to overall performance relative to socio-economic considerations. The base case information for each indicator was as follows:

Indicator	Base Case
Project Employment	<ul style="list-style-type: none">• 680 Person Years of Employment for the total course of construction (Columbia Power submission to the EAO)• 792 for the total project (SNC-Lavalin projection)⁴
Local Employment	<ul style="list-style-type: none">• 75% of the WAX labour force were projected to be local (Columbia Power submission to the EAO)• 50% of the managers and engineers are local (Columbia Power submission to the EAO)

⁴ The SNC-Lavalin projection was created for their own planning purposes and not with the explicit intent of providing a baseline for monitoring employment over the course of construction. As a result, SNC-Lavalin cannot and will not be held to account for realizing the person years of employment target. The projection will, instead, be used as general information in combination with other data regarding employment.

Indicator	Base Case
Equity Employment	<ul style="list-style-type: none"> • 10% of employment for women, visible minorities and persons with disabilities (Columbia Power submission to the EAO) • 5% of the total project workforce for First Nations (Columbia Power submission to the EAO)
Project Occupations	Number of apprenticeships from the Collective Agreement
Project Wage Income	\$101.1 million for total course of construction; no projection by year. (Background documents from Columbia Power)
Regional Contractor Expenditures	\$78.1 million in additional household income resulting from supplier industry impacts over the total course of construction (Background documents from Columbia Power)
Health and Safety	WorkSafe BC standards for similar projects
Hotel Vacancy	Vacancy rates as reported by hotel managers
Daycare Wait Lists	Wait list numbers as reported from daycare managers
School Enrolment	School enrolment from previous year
Population	Population from previous years
Residential Vacancy	Vacancy from previous years
Traffic Safety	Commitments in Traffic Safety Plan, incidents reported to CIMC
Border Service	Significant change from previous year

2.3 Reporting

In addition to this final report, the Socio-Economic Monitor produced three types of reports: monthly, quarterly and annual. The monthly reports provided a snapshot in time as to the direct impacts of WAX. The quarterly reports focused on overall trends relative to the direct indicators for the respective three-month period. The annual reports summarized data collected for each indicator for the respective 12-month period and compared the results to the base case projections and commitments. The annual reports also summarized how Columbia Power and SNC-Lavalin responded to information received over the course of the previous year, for example incidents, questions or concerns reported by the public to Columbia Power, SNC-Lavalin, CIMC members and/or the Socio-Economic Monitor.

The final report summarizes data over the course of construction from January 1, 2011 to March 31, 2015 and compares the outcomes to the base case projections and commitments.

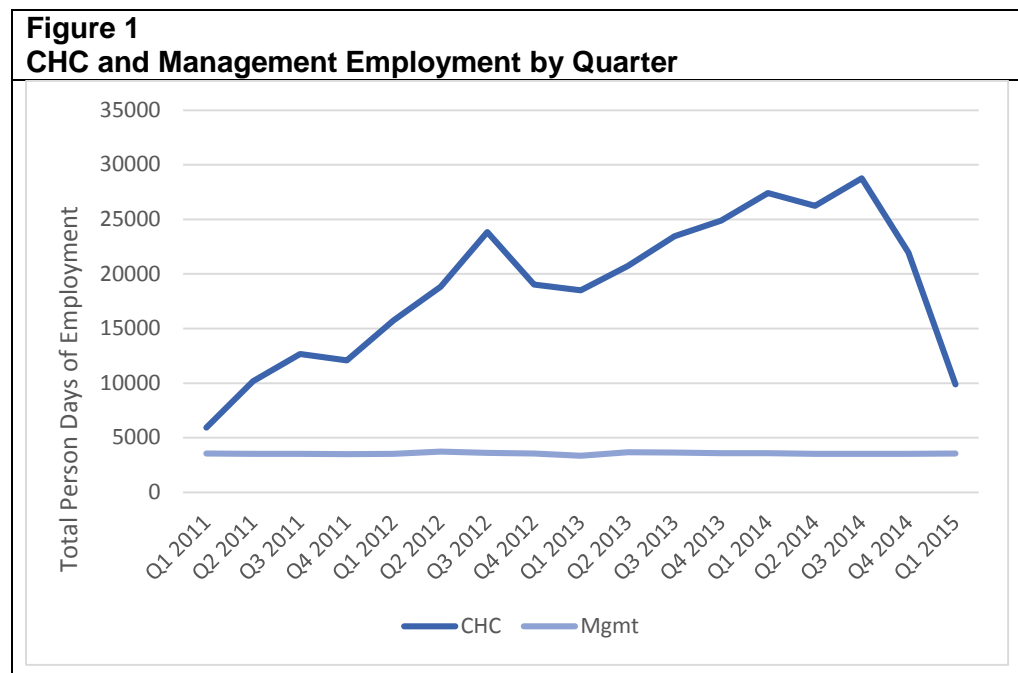
3. Direct Project Impacts

3.1 Direct Project Employment

Table 1: Total Project Employment January, 2011 - March, 2015

Employee Category	Person Days ⁵ of Employment	Person Years ⁶ of Employment
CHC workers	320,116	1,231
Local management and engineers	60,736	234
Total	372,976	1,465

The Person Days (PDs) of employment for management and engineers has remained consistent throughout WAX construction while CHC employment steadily grew with a sharp decline starting in the third quarter of 2014.



Source: Columbia Power, CHC

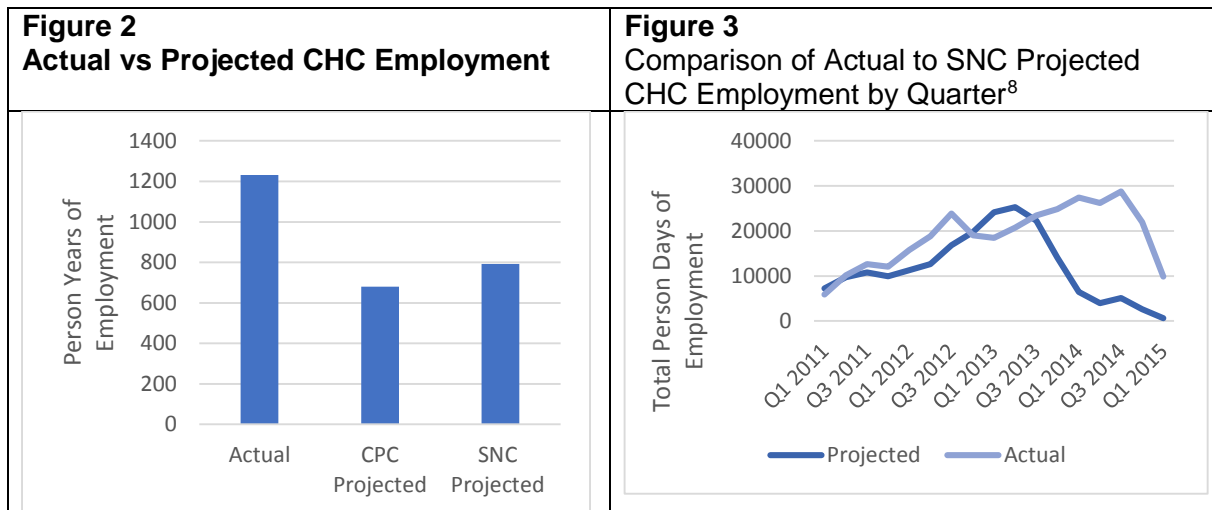
⁵ A Person Day of Employment is the equivalent of 8 hours.

⁶ A Person Year of Employment is the equivalent of 2080 hours.

The projections for project employment were:

- 680 Person Years (PYs) of Employment for the course of construction (Columbia Power submission to the EAO)
- 792 PYs for the total project (SNC-Lavalin projection⁷)

Actual CHC employment was 2.7 times larger than the Columbia Power projection and 1.7 times larger than the SNC-Lavalin projection.



Source: SNC-Lavalin, Columbia Power, CHC

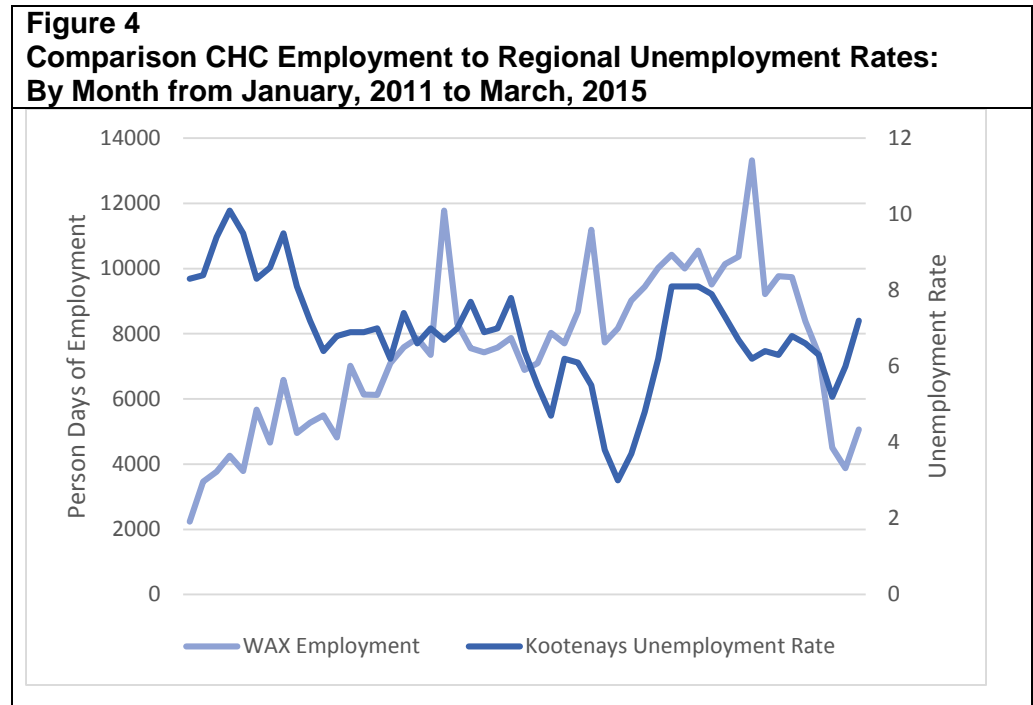
Source : SNC-Lavalin, CHC

Actual employment increased more quickly than anticipated during 2011-12 before dipping but then steadily increased and remained significantly higher than SNC-Lavalin projections throughout the first two quarters of 2014. A steep decline in employment began in the third quarter of 2014.

WAX employment has not likely impacted the regional unemployment rate significantly as the regional rate includes both the East and West Kootenays. In 2011, as WAX employment grew, the regional unemployment did decline but there has not been a strong correlation between the subsequent fluctuations in the unemployment rate and WAX employment.

⁷ The SNC-Lavalin projection was created for their own planning purposes and not with the explicit intent of providing a baseline for monitoring employment over the course of construction. As a result, SNC-Lavalin cannot and will not be held to account for realizing the person years of employment target. The projection is, instead, being used as general information in combination with other data regarding employment.

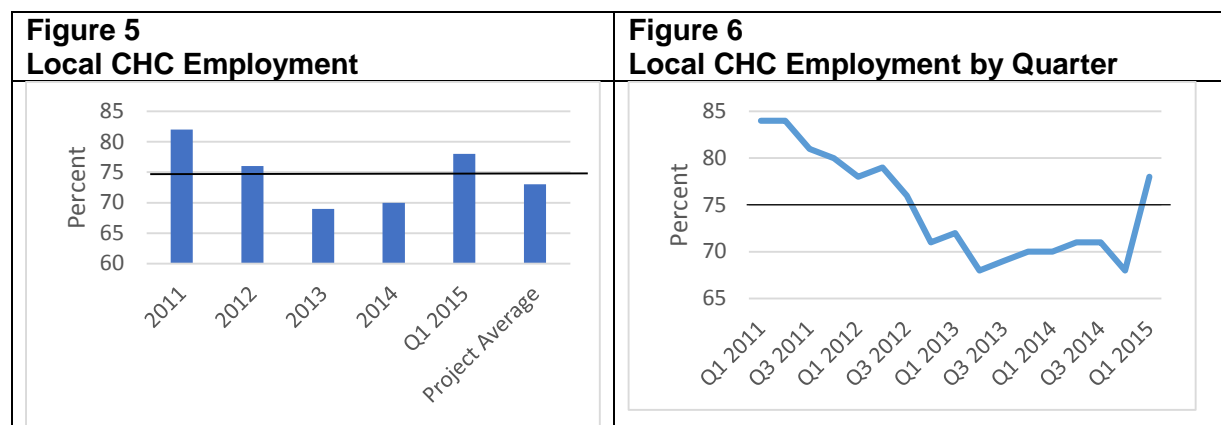
⁸ The comparison of actual to SNC projected CHC employment has been updated and so varies from previous reporting in annual socio-economic monitor reports.



Source: CHC, BC Stats

3.2 Local Employment

Columbia Power projected that 75% of the CHC workforce would be local, which is defined as residing within 100 kilometres of the project and within Canada. The actual CHC workforce averaged 73% of PDs of employment for local hires over the course of WAX construction. The local hire target was exceeded in 2011, 2012 and the first quarter of 2012, but was not met during 2013 or 2014. The contractor reported shortages of specific trades, which resulted in the need to recruit from outside the local area.



Source: CHC

Source : CHC

In 2011 Columbia Power undertook a survey of WAX workers to “gauge how this project is supporting the local region” in particular “how many workers have been able to stay in the area, move back or relocate to the area because of the startup of the project”.

Table 2 summarizes the results for the 91 workers who completed the survey.

Table 2
Results of CPC Survey of CHC Employees

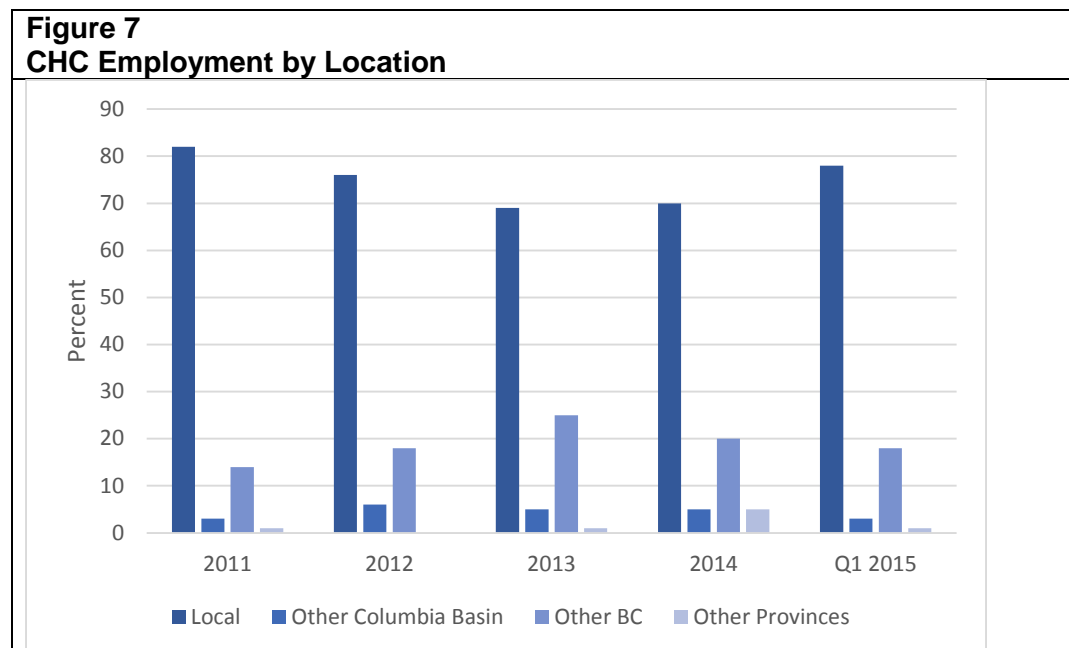
Response	Number of Workers	Percent of Participants
Stay in area	75	82%
Move back	6	6%
Relocate to the area	12	13%
No response	1	<1%

Source: CPC

As the workforce changed over the course of construction, the survey represents a snapshot in time during Year 1 of WAX. Also, the results do not account for the possibility that these workers may have found other employment opportunities in the area if WAX had not proceeded. Regardless, the survey results do indicate a high percentage of the workers who completed the survey were from the local area and benefitted from the project.

The Trail Skills Centre reported that initial high interest in seeking training that might lead to employment at WAX dramatically fell once it became clear that highly skilled trades qualifications were required as was membership in a union. A small number of people who were hired during Year 1 expressed interest in obtaining training to upgrade and become fully certified. Concern was reported regarding an increase in membership fee to join the specialized labour union, which was suggested as a possible deterrent to gaining employment.

The majority of non-local CHC workers came from outside the Columbia Basin but within B.C. There were no defined targets for non-local CHC workers.



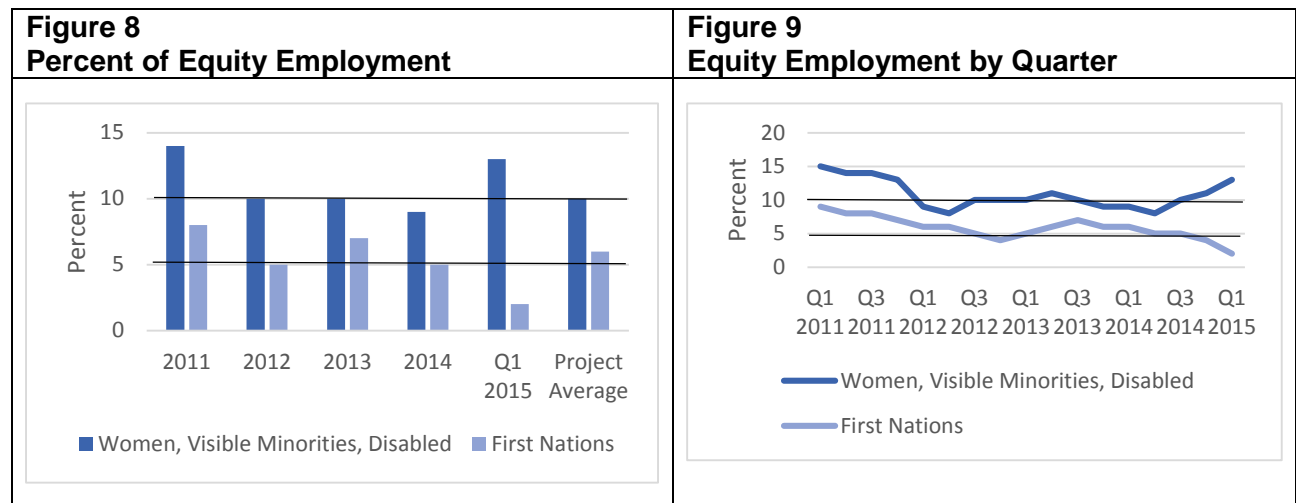
Source: CHC

Columbia Power also projected that 50% of managers and engineers would be local. As data on non-local managers and engineers is unavailable, it is not possible to ascertain if the target was met over the course of WAX construction.

3.3 Equity Employment

Equity employment for CHC employees, which comprises workers who voluntarily declare themselves to be women, a visible minority and/or disabled, averaged 10% over the course of WAX construction, which meets the Columbia Power defined target. Women accounted for an average of 7.6% of the total employment, whereas members of visible minorities were .6% and people with disabilities were 2%. There were no targets defined for these specific categories of equity workers. It should be noted that workers could be members of more than one category of equity employees.

The second category is those who identify themselves as First Nations. It is recognized that First Nations is a legally defined term and, as there are no means to validate that all self-declared First Nations employees meet the requirements, the socio-economic monitoring program reports on employees of aboriginal ancestry. CHC employees of aboriginal ancestry averaged 6% over the course of construction, which exceeds the Columbia Power target of 5%.



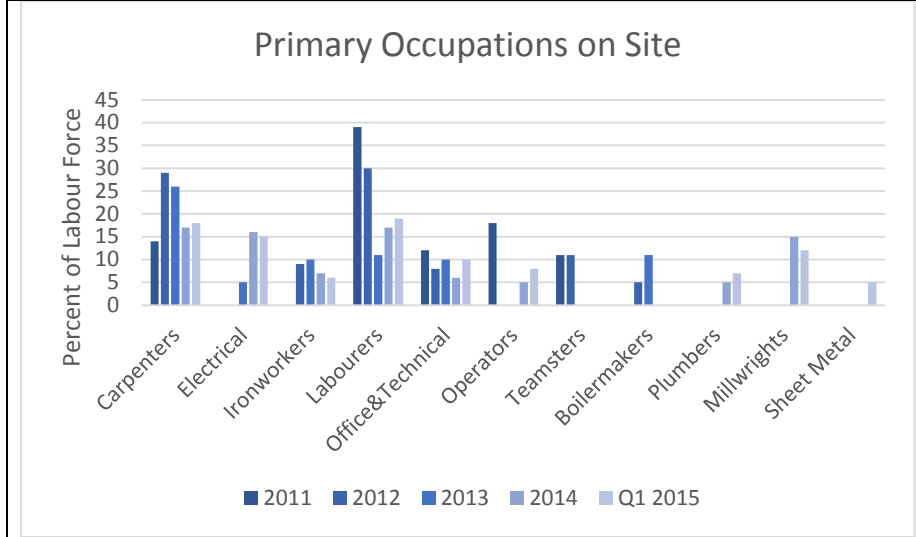
Source: CHC

Source: CHC

3.4 Occupations

Over the 51 months of construction, Labourers and Carpenters were the largest and most consistently employed occupation. Figure 9 depicts the primary occupations on site, including those that represented greater than 5% of the workforce. There were no projections developed for employment by occupation for the entirety of WAX construction.

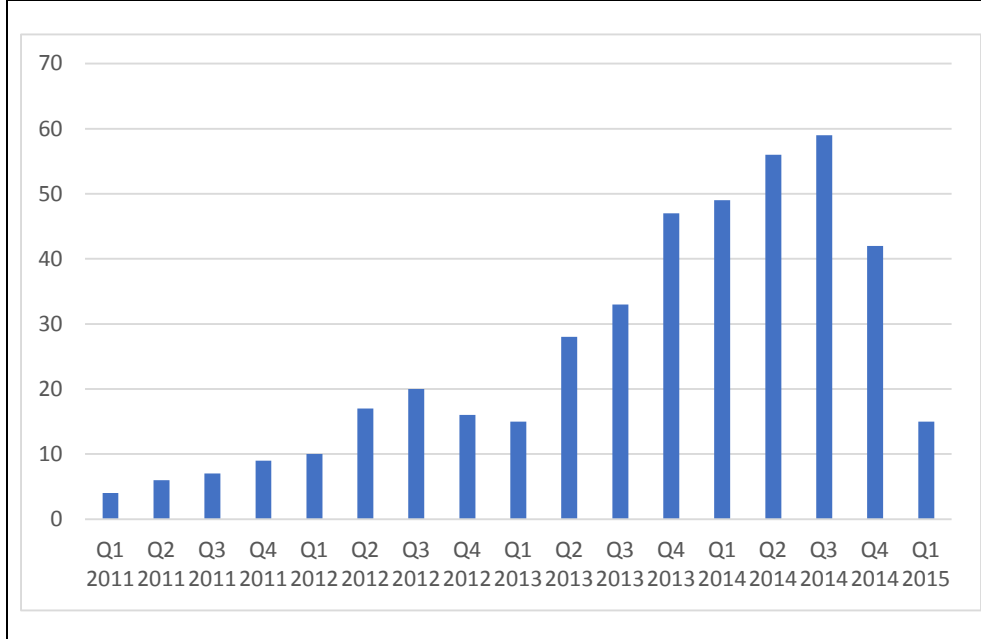
Figure 10
Primary Occupations on Site



Source: CHC

The average number of apprentices onsite grew fairly steadily, peaking in the third quarter of 2014. CHC reported on the number of apprentices onsite not PDs of employment. Under the collective agreement each union had a ratio of the number of apprentices required versus the number of Journeymen hired. The ratio varies by each union. CHC reported that the targets were met or exceeded for each union.

Figure 11
Average Number of Apprentices by Quarter



Source: CHC

On request of the CIMC, reporting on apprentices changed at the start of Year 3 to include the number of apprentices by each union, as presented in Table 2. The range reflects the minimum and maximum number of apprentices onsite by union.

**Table 3
Number of Apprentices by Union**

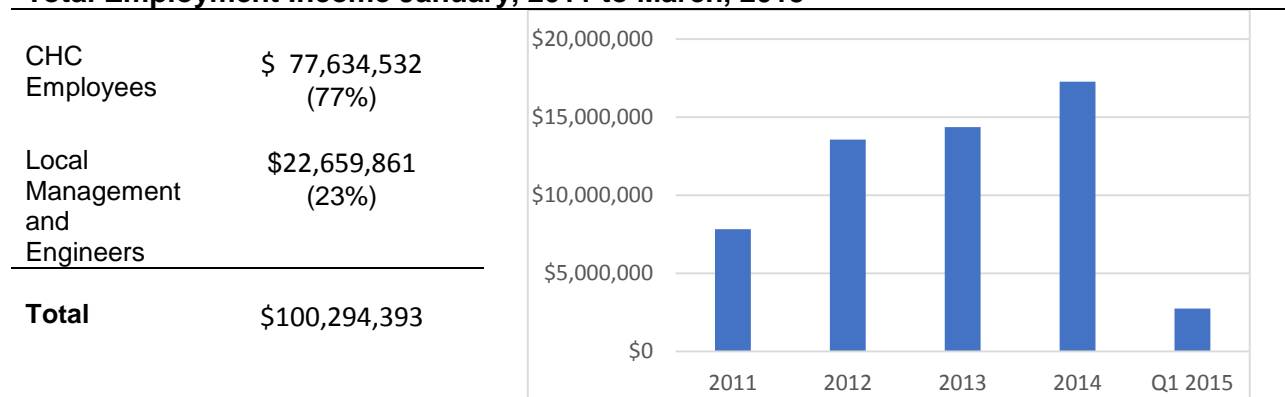
Apprentice Type	Year 3	Year 4	Q1 Year 5
Carpenters	8-17	4 to 15	0-1
Electricians	1-10	20 to 32	3-10
Ironworkers	1-8	3 to 6	1
Painters	1-4	1 to 6	1-2
Pipefitters	1-3	5 to 6	1-3
Millwrights	1-9	10 to 19	3-16
Cement Masons	0	0 to 1	0
Sheet Metal	1-5	0 to 3	0
Boilermakers	2-8	0	0

Source: CHC

3.5 Project Employment Income

Columbia Power projected total income resulting from WAX to be \$101.1 million over the course of WAX construction. The total direct employment income for the course of construction was \$100,294,393, which includes \$77,634,532 for CHC workers and \$22,659,861 for management and engineers.

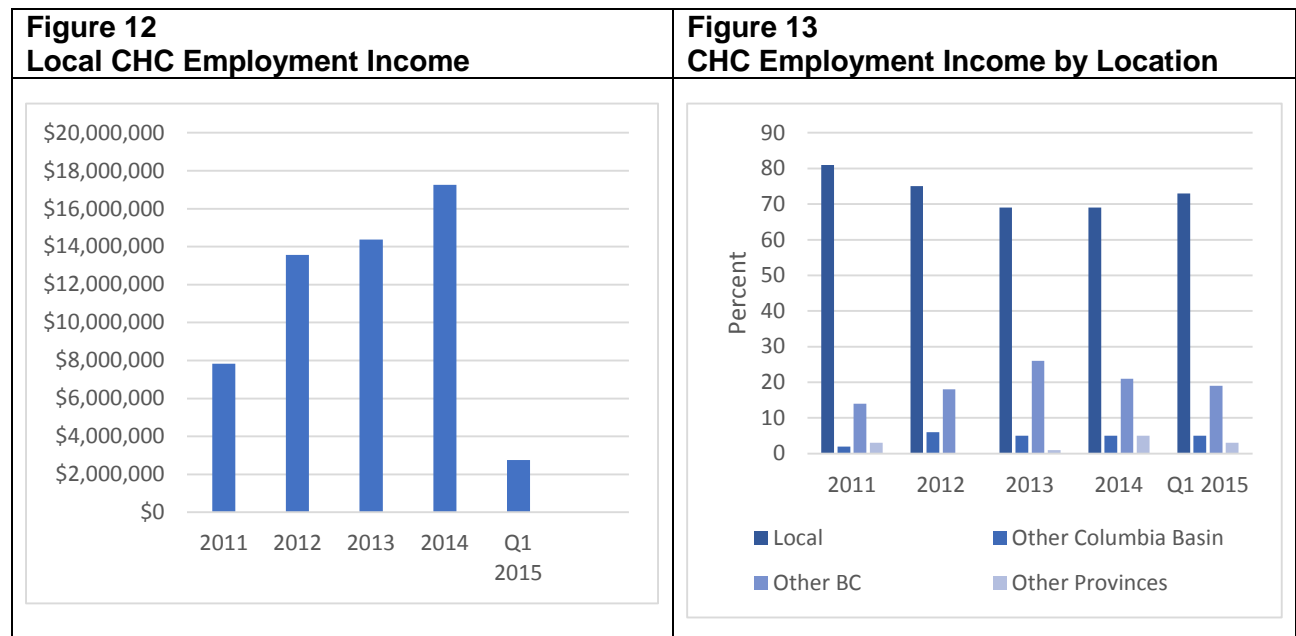
**Table 4
Total Employment Income January, 2011 to March, 2015**



Source: CHC, SNC-Lavalin, Columbia Power

With respect to CHC workers, the total income earned by local residents started at \$7,830,811 in Year 1, increased to \$13,560,472 in Year 2, \$14,367,168 in Year 3 and peaked at \$17,265,084 in Year 4, ending at \$2,748,349 in the first quarter of Year 5.

Overall, local workers earned 72% of the total CHC income. Other BC residents who live outside the Columbia Basin earned the most non-local wages, ranging from 14-26% of the total CHC income.



Source: CHC

Source: CHC

3.6 Health and Safety Reporting

Reporting on health and safety was changed during Year 3 to reflect the more detailed incident reporting that the contractor was undertaking, including the following categories:

1. A First Aid incident is defined as a minor occupational injury, which after a single first aid treatment and subsequent observation allows the worker to return to normal duties on the same day or at the start of the next scheduled shift. First Aid treatment may be delivered onsite or offsite, including at a hospital. First Aids were not reported during Years 1 and 2.
2. A Medical Aid incident is any occupational injury requiring medical intervention by a doctor (or equivalent) on or off site that allows the worker to return to normal duties on the same day or at the start of the next scheduled shift.
3. Modified Work Days are the number of days when a worker abstains from their regular duties and performs alternate duties because of a Modified Work Incident. Only days the employee would have normally worked are counted.
4. Lost Time Injuries result in at least one full day absent from work beyond the day or shift it occurred (does not include time travelling off site for injury diagnosis or treatment).

Health and safety reporting only includes incidents for which the definition of the type of incident has been agreed to by both the employer and affected employee.

Table 5
Health and Safety Incidents January 2011 to March 2015⁹

	2011	2012	2013	2014	Q1 2015
First Aid Incidents	50	140	106	105	4
Medical Aid incidents	5	4	8	7	4
New Modified Work Cases	3	4	6	3	1
Ongoing Modified Work Cases from previous year	0	0	0	1	1
Modified Work Cases Closed during the year	3	4	5	3	2
Total Number of Modified Work Case Days	35	156	170	131	34
Lost Time Injury	1	0	1	0	0
Lost Time Days	2	0	1	0	0

Source: Columbia Power

There have been, and are, occupational health and safety claims with WorkSafe BC under dispute. A total of 19 incidents have been under dispute, of which 16 remain unresolved. WorkSafeBC (WSBC) adjudicates disputes. Once a dispute has been resolved, the incident gets incorporated into the health and safety reporting. None of the disputed cases that have been resolved to date were accepted as Lost Time cases. On average it takes 1.5 years to resolve disputed claims. None of the disputed claims involve lost time injuries, meaning injuries that require the worker to be removed from site for medical treatment and prevent the worker from returning for their next scheduled shift. Columbia Power provided the following information on the 16 unresolved cases:

- 7 cases were “Report Only” at the time of the occurrence, meaning the onsite assessment concluded that no treatment was required. The respective workers made WSBC claims at a later time.
- 4 cases were “Late Reports”, which means that no report or injury claim was made at the time of the incident and involve requests for follow-up medical treatment.
- 3 cases were assessed as “First Aids” at the time of the occurrence, which resulted in minor on-site treatment. The respective workers made WSBC claims at a later time.
- 1 case was identified as “Non-work Related”, meaning the assessment concluded the injury did not happen on the job-site. The worker subsequently made a WSBC claim.
- 1 case was never reported to appropriate project staff but the worker made a WSBC claim.

Over the course of construction, Columbia Power reported a lost time injury rate that has been equal to or lower than WorkSafeBC averages for similar projects. There are a very small number of similar projects being undertaken around the province; hence the injury rates for Heavy Construction (Structural Concrete, Reservoir, Dams) generally refer to one or two injuries per year.

⁹ The reporting of health and safety incidents has been updated by Columbia Power with some changes from the reporting included in annual socio-economic monitoring reports.

**Table 6
Injury Rate Comparison to WorkSafe BC Averages**

Year	Lost Time Injury Rate		
	Waneta Expansion Project	WorkSafeBC Heavy Construction (Structural Concrete Reservoir, Dams, etc.)	WorkSafeBC Heavy Construction (General)
2014	0	Unavailable	unavailable
2013	0.19	7	4
2012	0	0	4
2011	0.7	0	4

Source: Columbia Power, WorkSafe BC

Another useful comparison is to the construction of the Brilliant Expansion Project, which took place between 2003-2007. Over the course of that project, there were 51 lost time injuries, which reflected an injury rate of 5.2 per PY of employment.

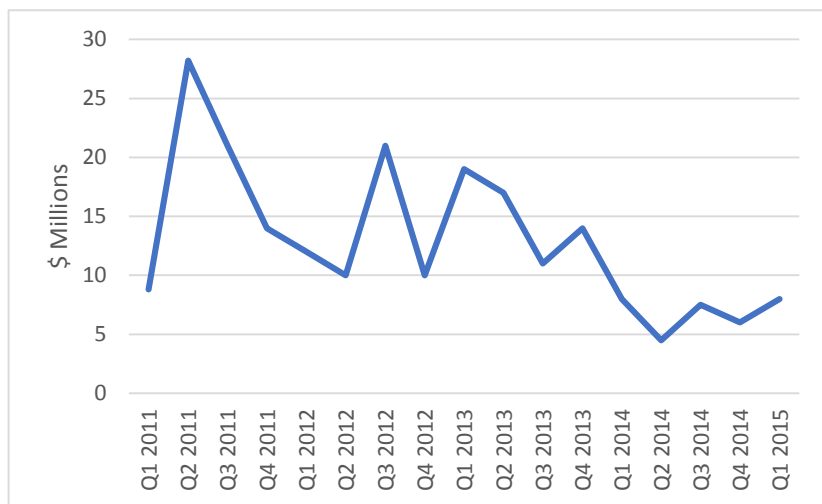
3.7 Regional Contractor Expenditures

Total regional procurement expenditures over the course of construction was approximately \$220 million. This figure represents all expenditures from the project startup, which was in October of 2010.

The regional contractor expenditures peaked in the second quarter of Year 2 at \$28.2 million and fluctuated throughout the course of construction.

**Table 7
Regional Contractor Expenditures by Quarter**

Year 1	Q1	\$8.8 million
	Q2	\$28.2 million
	Q3	\$21.0 million
	Q4	\$14.0 million
Year 2	Q1	\$12.0 million
	Q2	\$10.0 million
	Q3	\$21.0 million
	Q4	\$10.0 million
Year 3	Q1	\$19.0 million
	Q2	\$17.0 million
	Q3	\$11.0 million
	Q4	\$14.0 million
Year 4	Q1	\$8.0 million
	Q2	\$4.5 million
	Q3	\$7.5 million
	Q4	\$6.0 million
Year 5	Q1	\$8.0 million
Total		\$220 million



Source: SNC-Lavalin

In background documents prepared for Columbia Power (not submitted as part of the application for an EAC), it was projected that WAX would result in \$78.1 million in additional household income resulting from supplier industry impacts over the total course of construction.

The available regional expenditures data does not provide details on what types of goods and services were purchased, hence it is not possible to determine what portion of the regional expenditures might relate to sub-contractor services and additional household income. Sub-contractors were not required to report on the nature of the expenditures or impacts on their business. For example, there was no way of knowing if local expenditures resulted in a local company providing locally produced goods, such as lumber, or if the goods were brought in from outside of the region. Similarly, it has not been possible to determine if and to what degree local expenditures resulted in maintaining and/or hiring new employees.

As a result, the Socio-Economic Monitor conducted informal telephone interviews of businesses and community development organizations within the 100km radius of the project to better understand the relative significance of the regional expenditures on local businesses and to the local area as a whole.

Overview of Interview Process

The WAX contractor, Trail and District Chamber of Commerce, and Columbia Power collaborated to create a list of 45 local businesses to be interviewed. The Socio-Economic Monitor conducted informal telephone interviews with 32 of the businesses plus the Chamber of Commerce and Lower Columbia Initiatives Corporation; the remaining businesses did not respond to requests for an interview.

The interviews were used to gather qualitative information about the impacts of WAX construction on local businesses and whether the impending completion of the project is of concern for their business and, in their opinion, local communities. The interviewees were not asked to provide any documentation to support their statements, hence their input is considered to be informed opinions.

Direct Impacts on Local Businesses

A strong majority of businesses stated that, while WAX provided valued opportunities and revenue, it has been a relatively small percentage of their overall business and, therefore, has had little direct impact. A number of people noted, however, that WAX began while the region was in the midst of an economic downturn and so the project likely helped them maintain their business but did not result in a growth in sales, expansion of their activities, new hires or new investments. Many of these businesses were mid-sized and/or franchise operations with a diversified cliental. In one case, although the company did not hire new staff, they did temporarily relocate staff to the area because of WAX-related business. These business owners/managers emphasized that they were grateful for the business that resulted from WAX, but would not describe it as significant to their operations.

A small number of businesses stated that WAX had been a very significant part of their business over the past four years. These were generally small businesses that are highly dependent on local clients and more sensitive to small changes in their revenue streams. One business reported hiring new staff and a second stated they invested in new equipment as a result of WAX related contracts.

Location as a Key Factor

Location was an important factor for some businesses that strongly benefitted from WAX. One business that experienced a significant increase is located in close proximity and on route for people travelling to the site. The increased business allowed them to provide more full-time employment for their staff and they anticipate reducing hours as the project winds down. Although the completion of WAX was described as “quite scary”, they did not undertake business planning to leverage the increased business for the future, rather they “play it by ear”. In contrast, a second business within the same sector and also in close proximity to WAX experienced some benefit and were noticing a “bit of drop in business”, but were not concerned.

Indirect Impacts on Local Businesses

While the interviews focused on direct business, it was acknowledged that likely some of their revenues could be indirectly attributed to spending by WAX employees. As the majority of WAX employees were local, it was difficult to determine whether indirect benefits to local businesses would have been noticeably less without WAX because it is unknown to what extent local workers would have:

- remained in the area because they found other employment - either locally or commuting to other areas while maintaining a local residence - and, therefore, would still have made many of the same local purchases; or,
- relocated as individuals or families in pursuit of employment opportunities elsewhere.

One business owner noted that their strategy is to focus on residents, not tourism or temporary workers, because most of the workforce for construction projects is men who may travel, but their families stay in the community. “The world is a very small place now and people choose to live here and work where they have to.”

Overall Business Health

Some of the businesses were, and are struggling. It was suggested that some sectors, such as tourism, were particularly hard hit during the recent recession. The recession, combined with other factors, has resulted in fundamental changes for forestry and other resource development within the region. Hence, local businesses that are strongly aligned with these sectors reported the benefits of WAX to be more significant than businesses with a more diversified client base. The WAX-related revenue provided a reprieve for these businesses, but does not change the larger challenges they are facing.

Community-Scale Impacts

The Chamber and LCIC consider economic development at a community and sub-regional scale. They both stated that WAX has been significant for the local economy. They highlighted the increased business for those providing accommodation, including hotels, the local RV campground and rentals as well as the importance of providing local employment to skilled tradespeople. It was also noted that the project helped raise the profile of the Waneta land base and improve the telecommunications infrastructure for that area, which was a factor in the purchase of the airport.

Business owners/managers had varied opinions on the overall health of the local economy with some stating “the whole town is getting busier” while others felt the economy has been slow. A large supplier to one local business tracks disposable income (income compared to cost of living) and concluded that, compared to other parts of the province and the world, this region has relatively high disposable income. The perspective on the overall state of the local economy likely influenced the views of local business owners/managers as to the relative significance of

WAX for their business and communities, which included a variety of opinions ranging from very significant to not significant.

Post-Construction

With the impending completion of WAX construction, business owners/managers were asked if they were concerned about impending impacts to their businesses or on the community as a whole. As WAX has been a relatively small percentage of overall activity for most businesses, the majority of owners/managers stated they were not concerned. As the different phases of construction requires different skills and materials, a number of businesses had already experienced the slowdown in their activities relative to WAX and were coping.

One business managed to leverage their relationship with the primary contractor to expand operations beyond the local region and are now operating at a global scale. Given the nature of construction activities, however, most businesses operate locally as they cannot be competitive in providing goods or services at greater distances. One business used lessons learned from their WAX contracts to successfully bid on projects for other large corporations in the region, but in general, few spoke of leveraging their WAX contracts to expand their traditional cliental.

A small number of businesses anticipate decreasing the number and/or hours of employees due to completion of WAX, although three businesses will be experiencing retirements or a move into semi-retirement at about that time so a decrease in business will be accommodated through attrition.

Some people noted that the region experiences a cyclical pattern of a few good years due to large projects followed by a number of slow years. Long standing businesses have adapted to this pattern: they focus on covering costs in lean years while strategically investing profits resulting from good years. As noted earlier, given WAX began as the region was in the midst of an economic downturn, maintaining earlier levels of activity was defined as the “good years” with some anticipating entering a slow period as the project winds down. Support for more large projects, including construction of additional hydro-electric projects in the region, was frequently voiced.

A company that operates on a larger geographic scale explained that they follow resource development trends and use the information to plan for growth during construction/development and reduction of their services on completion. They stated that WAX helped to increase awareness of their brand with larger companies who are operating in other parts of the province, so this could result in additional benefits for the company, but not local operations.

Both the Chamber and LCIC staff voiced concern about the impacts to the local economy and community as the project winds down. The hope is that the skilled workers will continue to find local employment as it was suggested that shortages of skilled workers are being experienced in the area. It was suggested that the lure of possibly higher paid work elsewhere and the start-up of flights from Trail to Kelowna may result in skilled workers commuting to work elsewhere, which was voiced as a concern.

Communication

Business owners/managers voiced strong and consistent support for efforts by Columbia Power and the primary contractor to communicate with local businesses. All those interviewed stated:

- They had the information they needed to identify and plan for business opportunities associated with WAX;

- There was a positive working relationship with any issues identified and addressed in a respectful and professional manner; and,
- They had the information they needed to understand when there may be a slowdown in their business related to WAX construction.

WAX Legacy

People offered the following perspectives on the long-term legacy of WAX to the local communities and region:

- The employment opportunities for local people have been the real legacy of the project. Many of the workers are close to retirement and so this has been a good way to end a career. The importance of having work close to home needs to be acknowledged.
- The real legacy is the revenue that will be generated for the Columbia Basin Trust. As such, CBT has an enormous responsibility to utilize their funding for the long-term interests of the Basin and its communities, including supporting additional economic opportunities.
- While the short-term benefits are clearly understood in terms of employment and increased business, the long-term legacy is unclear because FortisBC has not said if and how much our rates for electricity will increase as a result of construction of WAX.
- Although the owner's group originally committed to returning key project lands to their original state, LCIC had asked that the office complex site be maintained as an industrial property with the existing infrastructure remaining in place rather than being removed and the area returned to pasture. The property is located in an industrial area and, therefore, is considered a valuable economic asset, which if used to support community economic development goals, could be a positive long-term legacy of the project.

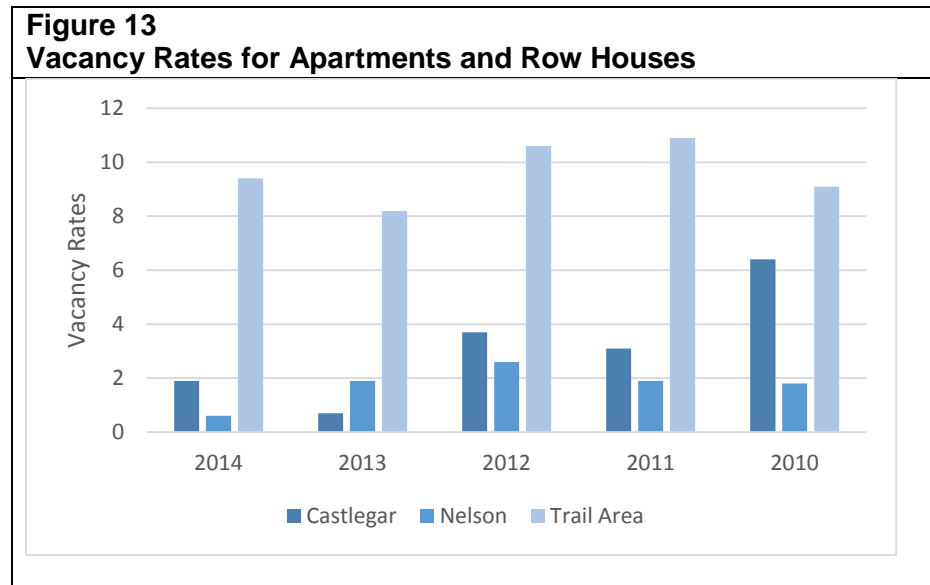
4. Indirect Project Impacts

4.1 Housing

The data on local hires does not differentiate between workers who were already living in the area compared to those who moved into the area and, therefore, had a local address as a result of renting or purchasing accommodation. Hence, it is difficult to state that the high percentage of local hires means the project is having little impact on the local housing market.

Anecdotally, local realtors report that there were very few home sales that could be attributed to employees of WAX, rather the majority of enquiries were from WAX employees interested in rental properties.

The residential vacancy rate for housing that is purposefully built for rental (apartments and row housing) in Trail averaged 10 across Years 1 through 4 compared to 2 for both Nelson and Castlegar. Trail's rate decreased from 2011 to 2013 and then rose in 2014. The rate in 2009, which was prior to the start of WAX, was significantly higher at 19.4. There were minor fluctuations in the rates for both Castlegar and Nelson over the course of construction, with a significant decrease from 2010, which was just as WAX was starting. Canada Mortgage and Housing Corporation (CMHC) and local reality staff suggested the higher vacancy rate in Trail is because the available rental units are generally older and did not meet the needs or interests of the workforce.



Source: CMHC

The other source of rental properties, which is not included in the CMHC statistics, is single detached houses that may be rented while the owners are waiting for the property to be sold. Local reality staff report that people from WAX who were enquiring about rentals were generally not interested in single detached housing, with the preference being for condos. A number of WAX employees were known to have rented condos at Red Mountain Resort.

The Kiwanis Club of Trail, which manages the campground at Beaver Creek Provincial Park on Highway 22AA reported WAX workers camping at the park, resulting in the operation breaking even during 2013 and 2014. Prior to that, the Kiwanis Club had been subsidizing campground operations and voiced concerned about the future following completion of WAX.

4.2 Motel/Hotel Vacancy

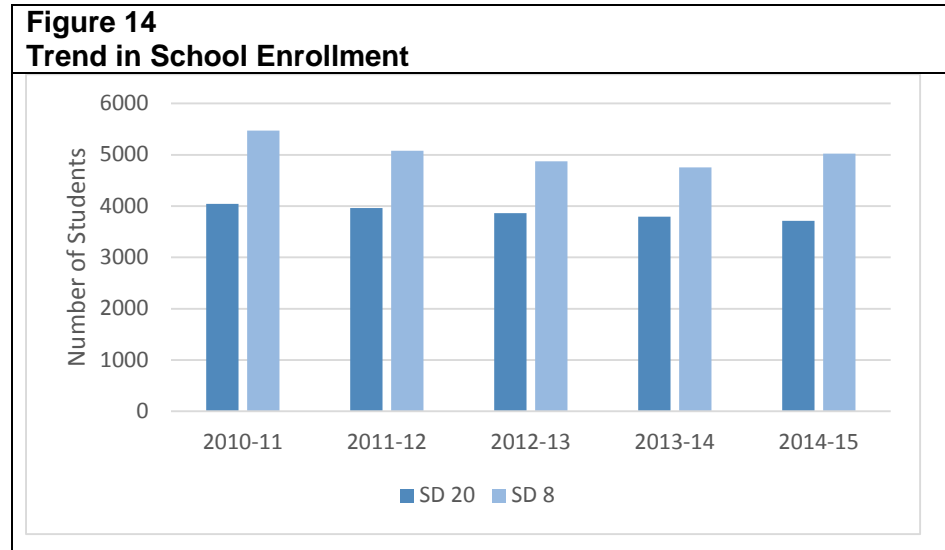
Most hotels in the area reported a decrease in business from 2010 to 2011, a modest increase from 2011 to 2012, and stronger occupancy in 2013 and 2014. The overall market has been described as shrinking, with increased reliance on regular corporate and recreational travelers as well as significant short-term opportunities, such as WAX. It was suggested that the key has been to support increased business from projects such as WAX, while still maintaining opportunities to serve the regular corporate and recreational travelers that provide longer-term stability. To do so, hotels in the Greater Trail area sometimes shared the short-term business realized through projects such as WAX in order to maintain availability to serve longer-term clients.

4.3 Daycare Wait Lists

There has been no apparent correlation between demand for daycare and WAX. Staff from the Trail and Castlegar Child Care Resource and Referral Agency noted that workers coming into the area generally did not bring families given the short-term nature of the project.

4.4 School Enrollment

Enrollment in public schools within both School District #20, which includes the communities of Trail and Castlegar, and School District #8, which includes Nelson, has been declining although SD#8 experienced a small increase between the 2013/14 to 2014/15 school years. It is unknown if WAX had a significant impact on reducing the overall decline in enrollment for SD#20, but it is reasonable to assume that it may have positively contributed to the situation to some degree, perhaps by enabling local families to remain in the area. However, as the WAX workforce is recognized to include a high percentage of older workers, the project’s impact on school enrollment has likely been minimal.



Source: School Districts 8 and 20

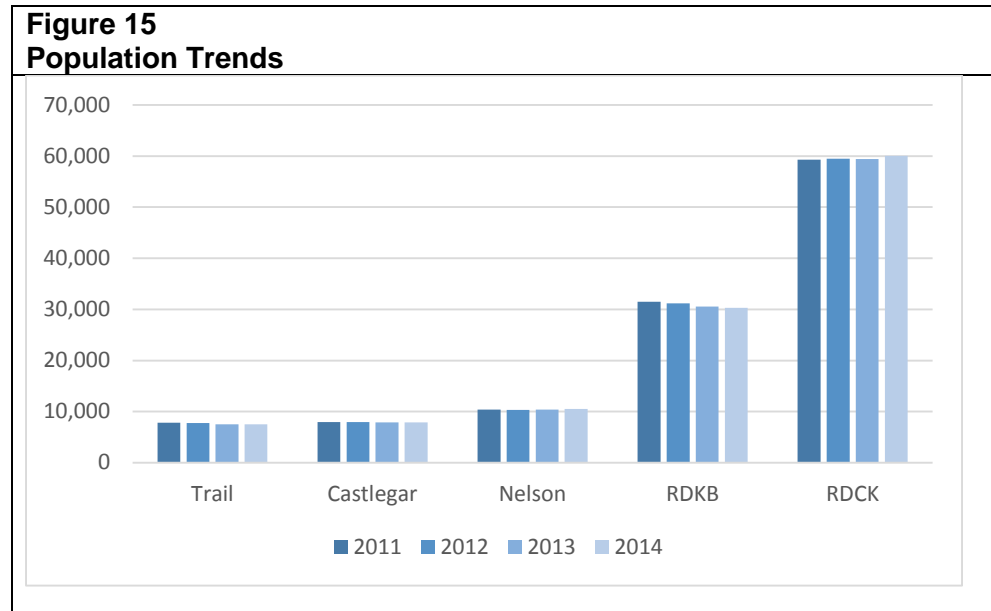
4.5 Recreation Services

The Trail Aquatic and Leisure Centre has been a key focus for the socio-economic monitoring program because it draws users from the Greater Trail area and beyond, whereas other recreation services, such as day camps for young children, are offered in numerous communities. Each client/family that accesses the facility pays an individual fee, which contrasts with other facilities, such as the arena, which is most frequently booked by groups. Additionally, the aquatics center has a separate fee structure for local residents; hence, staff engage users in discussions about their residency.

Over the course of WAX construction, the funding context for the Trail Aquatic and Leisure Centre has reflected changes in agreements with local governments. As a result, it is difficult to define a relationship between revenue and possible impacts from WAX. Anecdotally, it has been reported that throughout the course of construction the facility was well utilized and WAX may have contributed to a steady, reliable demand for recreation services. As there is little evidence that the project resulted in many new families moving into the area, it is likely that the project strengthened the ability of tradespeople to remain in the area and suppliers to maintain their current employment levels. It logically follows that this would contribute to the strong and stable demand for recreation services. As the demand did not exceed the ability of the facilities to provide the services, overall this has been considered to be a positive impact.

4.6 Population

The BC Statistics population estimates indicated relatively consistent populations for Trail, Castlegar, and Nelson, with a slight decrease for the Regional District of Kootenay Boundary and slight increase for the Regional District of Central Kootenay.



Source: BC Stats

Given the relatively small size of WAX compared to the overall economy and the high percentage of local hiring, it is unlikely that WAX significantly contributed to changes in population. The impact of the project has more likely related to retaining people who might have otherwise left the area, even if temporarily, and so it likely contributed to the stability of the population. This appears to be confirmed by the survey of workers undertaken by Columbia Power in 2011 (see section 4.2).

4.7 Traffic Safety

In accordance with requirements in the EAC, a Traffic Safety Management plan was developed that outlined commitments for addressing impacts of WAX. The plan was developed in consultation with the Ministry of Transportation and Infrastructure (MOTI). As WAX did not use three of the sites that were originally included as part of project plan, these areas were removed from the Traffic Safety Management Plan.

A key component of the plan was closure of the Waneta-Nelway Road between Highway 22A and the 7 Mile Road for the duration of WAX construction. Safety procedures were put in place to ensure the road could have been reopened in a timely manner in case an emergency closed the 7 Mile Dam Road or there was another urgent need. Access was maintained to the Waneta Cemetery.

The CIMC asked MOTI to retain the safety guards on the Waneta Road that the contractor had installed, which MOTI agreed to do. The CIMC also strongly urged MOTI to reopen the road as soon as possible. As of May, 2015 the contractor was completing upgrades to the road to return

it to its original condition prior to use by heavy equipment, which is a requirement before MOTI will reopen the road.

The socio-economic monitoring program was not involved in WAX commitments that related to MOTI standards or other aspects that MOTI would define and monitor. Rather, the socio-economic monitoring program reported on traffic issues raised by residents via the CIMC and/or reported directly to the RCMP, Columbia Power and/or the socio-economic monitor.

Concerns were raised about rocks and debris on Highway 22A, which resulted in the contractor arranging for regular sweeping of the road during the period when trucks were hauling overburden. Speeding concerns were passed along to MOTI and the RCMP.

Some traffic concerns were raised that did not directly relate to WAX but, because of a general increase in traffic along Highway 22A, they became a greater concern to the local community. The issues included non-WAX trucks turning out of Columbia Gardens, safety around the intersection at the airport and safe use of the shoulder by cyclists. These concerns resulted in discussions between local residents, MOTI and the RCMP with actions being taken independently of WAX.

4.8 Canadian Border Services Agency

The Border Service reported no significant change in traffic through the Waneta border crossing as a result of WAX. While statistics were not provided, border staff are notified when traffic volumes change by more than 10% from previous years. Staff stated that they had not been notified that such a change had occurred.

4.9 Emergency Services

Local emergency services, including the RCMP and fire hall, reported that WAX did not result in any noticeable increased demand for emergency services over the course of construction.

4.10 Other Community Concerns

The following is an overview of related issues that were discussed with the CIMC and Socio-Economic Monitor.

Powder Magazine

The public were invited to comment on the proposed location of the powder magazine. It was reported that there were questions about access to trails in the vicinity, but it was decided that the area would not be closed off as there were very few users, so access was maintained for those individuals.

Effects on Local Residents

Concern was voiced regarding light and noise impacts by residents living in close approximation to the site and/or areas where rock was being offloaded. The contractor responded to minimize the impacts, including adjusting the angle of lights and restricting to daylight hours when

equipment was levelling the pile, however it was not possible to completely eliminate the temporary impacts of construction activities.

Impacts of Vibration on Local Businesses

A question was raised as to whether vibration caused by construction activities may be negatively impacting local businesses. The contractor installed monitors that indicated very low levels of vibration, which would not travel as far as local businesses located along Highway 22A. The exception was when machines were packing the soil at the office complex; a local business voiced concern and so the approach was changed, resulting in less vibration.

Fort Shepherd Compensation Program

FortisBC Inc. reported that WAX operations will result in a slight increase in flow fluctuations in the area of the confluence of the Pend d'Oreille and Columbia Rivers. As a result, the Environmental Assessment Office required that the owners undertake a compensation program aimed at increasing the shallow water habitat for fish (species other than white sturgeon). The intention is to reduce fish stranding, which previously happened at the site when water levels were reduced.

The project involved removal of some material and recontouring of the gravel bar. Some of the material that was excavated was slag-like material, which was taken to Teck for disposal. The project was completed in the fall of 2013.

Transmission Line

The route for the new transmission line runs from the new powerhouse up the Seven Mile Road where it then parallels the existing BC Hydro right of way. BC Hydro designed the new transmission line. Columbia Power reported that agreements had been reached with all private property owners.

Work began on the transmission line in 2012 and it was fully completed in 2014.

In the spring of 2014, a landowner contacted the Socio-Economic Monitor regarding concerns about the construction and operation of the transmission line across their property. Columbia Power reported that they had received legal advice that their obligations had been met, but they were continuing to support landowner concerns from an operational perspective to the degree possible.

Legacy Park

As per requirements outlined in the EAC, the owner's group had a commitment to develop a legacy park immediately across the bridge from the project site, subject to support from Teck Resources Ltd. as it owns the perimeter lands surrounding the site, and a commitment from the RDKB to maintain the site. Due to potential impacts to the site should the Waneta Dam ever fail, Teck declined to support the project. In response, the CIMC asked the owner's group to support construction of a legacy project at nearby Beaver Creek Provincial Park. As of May, 2015 the owner's group and RDKB are continuing to explore with BC Parks the possibility of constructing a legacy project at the park.

Future of Properties Owned by the Partners

As outlined in the Environmental Assessment Certificate, the owners were required to return the office complex site to its original condition (pasture). The CIMC and Lower Columbia Initiatives Corporation both asked the owners to investigate the possibility of maintaining the existing onsite infrastructure as it would presumably assist in ensuring the property supports local community economic development goals given it is located in an industrial use area.

The owner's group conducted an evaluation and was advised that the value of the property would be increased by maintaining the infrastructure connections to the periphery of the property, but removing infrastructure from the interior of the site for two reasons:

- Any purchaser will likely need to install new infrastructure to meet their specific needs so removing the existing infrastructure would be an additional cost, therefore decreasing the value of the land; and,
- Some of the infrastructure was installed with only a short-term focus as WAX was projected to be completed within 5 years, hence the existing infrastructure would not meet the longer-term needs of potential buyers.

As a result, the office site complex is being restored to its original condition, with the exception of an area that is being retained by the owner's group.