VENTURE KAMLOOPS
ECONOMIC DEVELOPMENT

KAMLOOPS
TRANSPORTATION AND WAREHOUSING ASSESSMENT

Davies Transportation Consulting Inc.

Licker Geospatial Consulting Co.

Kamloops Transportation and Warehousing Assessment

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1 INTRODUCTION AND EXECUTIVE SUMMARY

Venture Kamloops engaged Davies Transportation Consulting Inc. (DTCI) to conduct a study on the Transportation and Warehousing sector in Kamloops, including transportation and warehousing market supply and demand; needs and market gaps; and opportunities for the sector. The project was completed in collaboration with Licker Geospatial Consulting Co.

Venture Kamloops is the economic development agency for the City of Kamloops. Promoting and proactively supporting select economic sectors that offer the most potential for growing Kamloops' economy is part of Venture Kamloops' 2019-2023 Strategic Plan. Based on preliminary research in 2018, extensive connections to the sector, and the conditions experienced during COVID-19, the transportation and warehousing sector is anticipated to be one of the higher growth sectors in Kamloops.

Project Objectives

The goal of this project is to provide Venture Kamloops with knowledge, tools and insights on the transportation and warehousing sector, as it relates to the movement of goods and services. The finalized report will serve in a strategic-oriented approach to understanding, growing and supporting transportation and warehousing businesses in the local economy.

Project Scope

The study includes an inventory of sector assets, research to characterize the potential upcoming transportation and warehousing market supply and demand needs, and identification of market gaps and opportunities for the sector.

Transportation and Warehousing Markets

Potential demand was analyzed using the concept of "catchment area": the geographical region that can be economically served from a specific location.

For consumer goods, the primary factors determining the potential catchment area for new logistics developments include regional population and distance. For local consumer goods, the extent of the geographic market is primarily a function of driving distances. Kamloops also plays a role in distributing consumer goods imported through the Port of Vancouver which are sent to other Canadian destinations.

For industrial goods, the primary factors determining the potential catchment area include the types and quantities of goods produced in the region, the origins and destinations of production inputs and finished products, and service characteristics. The location of regional logistics facilities along with the configuration of the railway networks and railway service characteristics also play a role in determining the industrial catchment area. For Kamloops, major export industries include forest products (pulp and lumber products) and minerals. Kamloops also serves as a distribution point for industrial commodities for regional consumption including cement, asphalt, fertilizers and petroleum products.

Transportation and Warehousing Employment

Based on census data, employment in the transportation and warehousing sector totalled 2,065 in 2016, approximately four percent of total employment. The largest group is Transport Truck Drivers, accounting for 1,145 jobs and fifty-five percent of transportation employment. Of these, 160 or fourteen percent were self-employed.

Rail operations (locomotive engineers, carmen/women and conductors and brakemen/women) accounted for fifteen percent of transportation employment, and railway maintenance occupations for six percent. The only occupational category directly attributable to warehouse operations is shippers and receivers; these accounted for nine percent of transportation employment.

Railway Infrastructure & Traffic

Kamloops is an important junction point between the CN and CP mainlines serving the Lower Mainland and the Port of Vancouver. Capacity of both railways between Kamloops and the Lower Mainland is constrained by the geography of the Fraser Canyon which makes it very difficult to expand rail infrastructure. To maximize the capacity of existing rail lines, CN and CP implemented a co-production agreement for directional running in the Fraser Canyon between Boston Bar/North Bend and Matsqui in 1999. Since then, the railways also began to exchange car blocks further inland (Boston Bar or Kamloops) to assemble trains with mixed CN/CP traffic for Lower Mainland destinations (South Shore or North Shore). Consequently, these yards now function as an extension of the Lower Mainland rail yards.

Increases in rail infrastructure and activity in the Kamloops area have also been driven by changes in the distribution of rail shipments among terminals at the Port of Vancouver, and commercial contracts between major shippers and the railways. Historically Teck Resources has shipped up to 19 million tonnes per year of coal from their southeast BC coal mines via CP for export from Westshore Terminals on Roberts Bank. As of March 2021, Teck's coal will be shipped under a new contract with CN and will be interchanged between CP and CN in Kamloops. CN will invest more than $125 million to enhance rail infrastructure in anticipation of the higher volumes of freight traffic from Teck.

There are three existing rail-truck transload facilities in Kamloops. The newest was developed by Cando Rail and is located on the 54.7 ha (135 acre) site previously occupied by the Weyerhaeuser sawmill, and offers railcar storage and transload services. Arrow Transportation operates a transload facility on the CP line on the TransCanada Highway in the Campbell Creek area. Tolko operated a transload facility on the CN line in the Mount Paul Industrial Park; operations at this site have been discontinued following closure of Tolko's Kelowna mill. North Thompson Rail Terminals is proposing construction of a new facility offering transload and railcar storage services in the Mount Paul Industrial Park. Together these firms represent a combination of successful business retention and new investment attraction.

Major carload rail shippers in Kamloops on the CP line include Domtar, Molycop, Nutrien and Lafarge. Major shippers on the CN line include Suncor Energy, Tolko's Heffley Creek mill, and Pounder Emulsions. Business retention accounts for the majority of the rail freight traffic from shippers in Kamloops.

Highway Infrastructure

Kamloops is located on the TransCanada Highway (Highway 1) and linked to the Lower Mainland via the Coquihalla Highway (Highway 5). This route accounts for an estimated 60 percent of sixty percent of Lower Mainland - Alberta heavy truck traffic on the Highway 1 corridor.

Trucking Industry

Kamloops is a base of operations for a broad range of trucking firms, including:

- Less than Truckload (LTL) firms offering schedules services and local warehousing.

- Major truckload carriers (Arrow Transportation Systems, Trimac Transportation, and Westcan Bulk Services) handling large quantities of industrial commodities.

- Owner-operators.

Warehousing and Distribution Centres

Business retention in Kamloops has resulted in two large scale distribution centres that largely focus on consumer goods.

NRI Distribution began operations in 1997 as a 3rd Party Logistics (3PL) firm specializing in premium brands of sporting goods with five employees and 9,360 square feet (sq. ft.) of warehouse space. Between 1999 and 2008 NRI expanded to occupy over 400,000 sq. ft. in four buildings in Kamloops. The largest is approximately 142,000 sq. ft. and was built in 2008, incorporating new technologies in warehouse management systems (WMS) and physical handling equipment to improve service to their customers and their retail customers across Canada. In addition to the Kamloops facilities, NRI now operates facilities across North America including Surrey BC; Montreal QC; New Jersey NJ; and three in the Los Angeles area. In 2017 the company moved its head office and management to Los Angeles from Kamloops.

BC Liquor Distribution Branch is responsible for the importation, distribution, wholesaling and retailing of beverage alcohol in British Columbia and is the sole importer of liquor into the province of B.C.. The Kamloops facility is one of two LDB distribution centres; the other is in Delta. The Kamloops facility has a building area of approximately 86,600 sq. ft. on a 4-acre lot.

In addition, there are a number of smaller facilities for local distribution of snack foods, etc.

Business retention in Kamloops industrial sector includes distribution facilities for LaFarge (cement), Nutrien (liquid fertilizers), and Pounder Emulsions (asphalt). Kamloops also hosts two distribution facilities for petroleum products: Suncor and TransMountain Pipeline. Business expansion in the industrial logistics sector in Kamloops also includes the project related cargo and material storage related to the TransMountain pipeline expansion.

Kamloops Industrial Land and Real Estate Market

A 2011 study by the City of Kamloops estimated that the City had a total industrial land inventory of 772.85 ha in 2010, of which 202.95 ha (26%) was vacant. The vacant land consisted primarily of sites formerly occupied by forest products mills. The extent to which this industrial land supply overhang has disappeared due to absorption by new entrants into the Kamloops market is hard to quantify. Nevertheless, the existing inventory of raw industrial land appears to be sufficient for anticipated demand in the short term.

Additional opportunities for development of transportation-related businesses may be available Tk'emlúps te Secwépemc lands. Economic development activities are overseen by the Kamloops Indian Band development Corporation (KIBDC). The Band is developing a Master Plan for the 7-Mile project, an 81 ha (200 acre) rail-related industrial and highway commercial development on designated band lands.

Business Development Opportunities

New investment attraction in the warehouse and distribution centre sector for international imports is a potential business development opportunity in Kamloops. The availability and cost of industrial land in Metro Vancouver area (also referred to as the Asia-Pacific Gateway) and the present growth trends for international intermodal container traffic are driving all the parties to find new ways to better serve consumer markets that are located a substantial distance from the port. Competition for discretionary container traffic is North American continent wide phenomena. The Port of Vancouver's expansion plans for a new container terminal and increased traffic at existing facilities have the possibility to open up new business development opportunities.

The key to competitiveness in this international intermodal rail traffic largely serving the consumer sector is sufficiently low fixed costs (industrial rents) to offset the higher transportation costs incurred from a relatively remote location, and the key competing location are locations such as the City of Calgary.

There appears to be sufficient industrial land available to accommodate this growth. If Kamloops wishes to position the City for long term growth in this sector, development of additional suitable industrial lands may be required. It is important to note that competition for this type of new investment attraction also stems from locations where real estate developers are able to supply the necessary product on a speculative basis because of very strong demand. Industrial real estate owners and developers are not only anticipating reasonable market rents for their properties but also the possibility of significant price appreciation. Since the demand for industrial land in Kamloops is largely unproven for this type of speculative distribution center construction, the availability of potential adequately serviced industrial land that can be brought into production for development in a very timely and cost effective manner is key to competing in markets where there may be an existing supply of not only bare industrial land but facilities suitable for logistics activities.

It is recommended that the City explore a deeper analysis to assess the longer-term competitiveness of Kamloops as a location for international intermodal traffic related logistics activity, taking into account all costs (facility costs, transportation costs, labour availability, land costs, taxes, etc.) to inform how the

City might best invest new investment attraction efforts which could include consideration of land development opportunities to help captured emerging market opportunities.

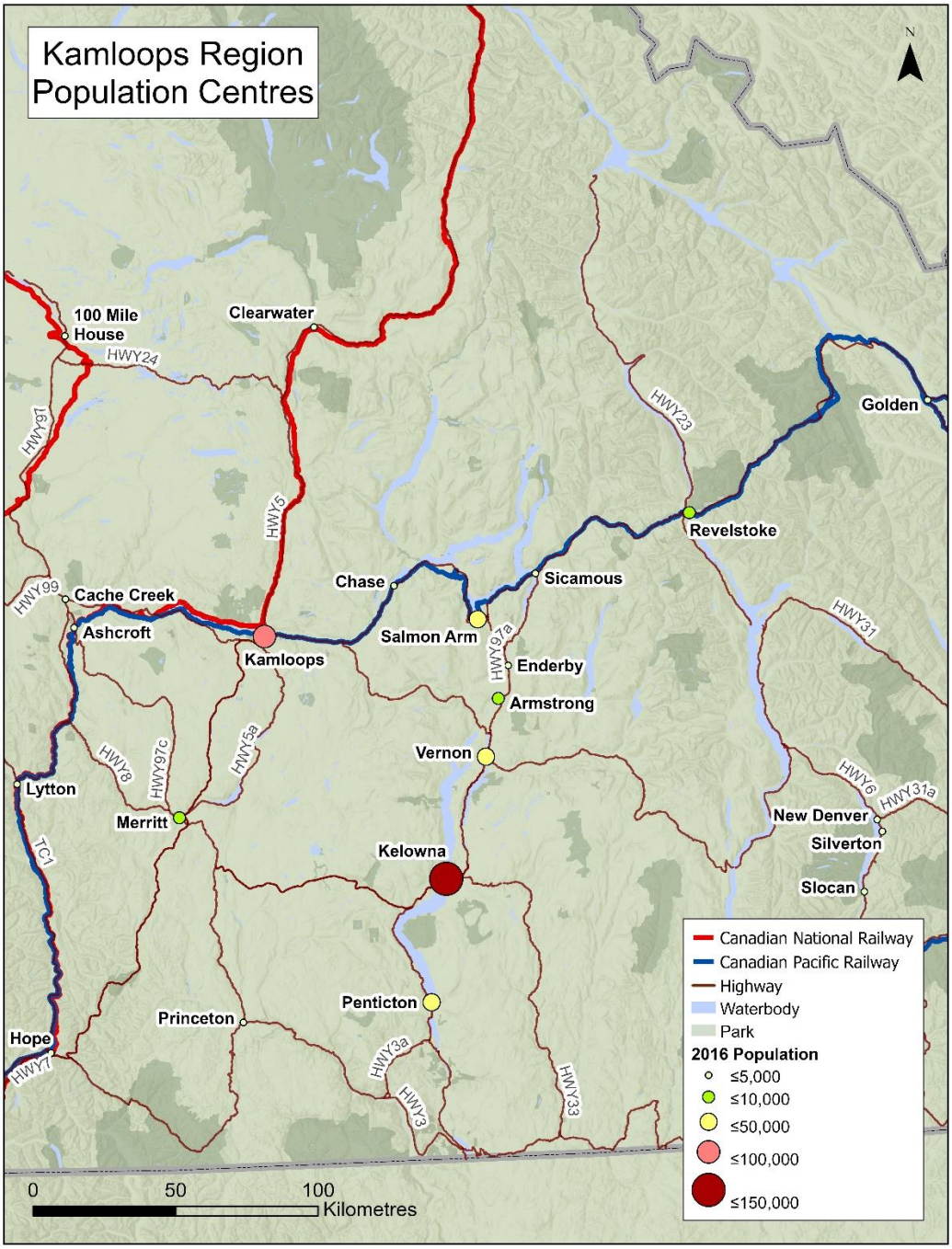
The scale and structure of the Kamloops regional industrial sector has undergone some major changes in the last ten years, most notably in the forest sector. Nevertheless, Kamloops has been largely successful in business retention and some business expansion of several very import firms that contribute to transportation and manufacturing related employment. Also, there has been some new investment attraction in rail related transport logistics firms that have helped to reduce the overhang of industrial land oversupply. Maintaining a competitive local business investment climate is also essential for leverage future business development opportunities for the community of Kamloops.

1. CATCHMENT AREAS FOR LOGISTICS SERVICES

1.1 Location and Population

The City of Kamloops is in central British Columbia. It is the largest population centre in the Thompson-Nicola Regional District. The map below shows the Kamloops region and provides information on the location and size of Kamloops and of neighbouring communities.

Figure 1-1 Kamloops Region Population Centres



1.2 Consumer and Industrial Catchment Areas

Potential demand has been analyzed using the concept of "catchment area" i.e. the geographical region which can be economically served from a specific location.

The markets served by specific logistics services are summarized below. Two services, rail intermodal and truckload trucking service, serve both consumer and industrial markets.

Figure 1-2 Consumer and Industrial Logistics Services

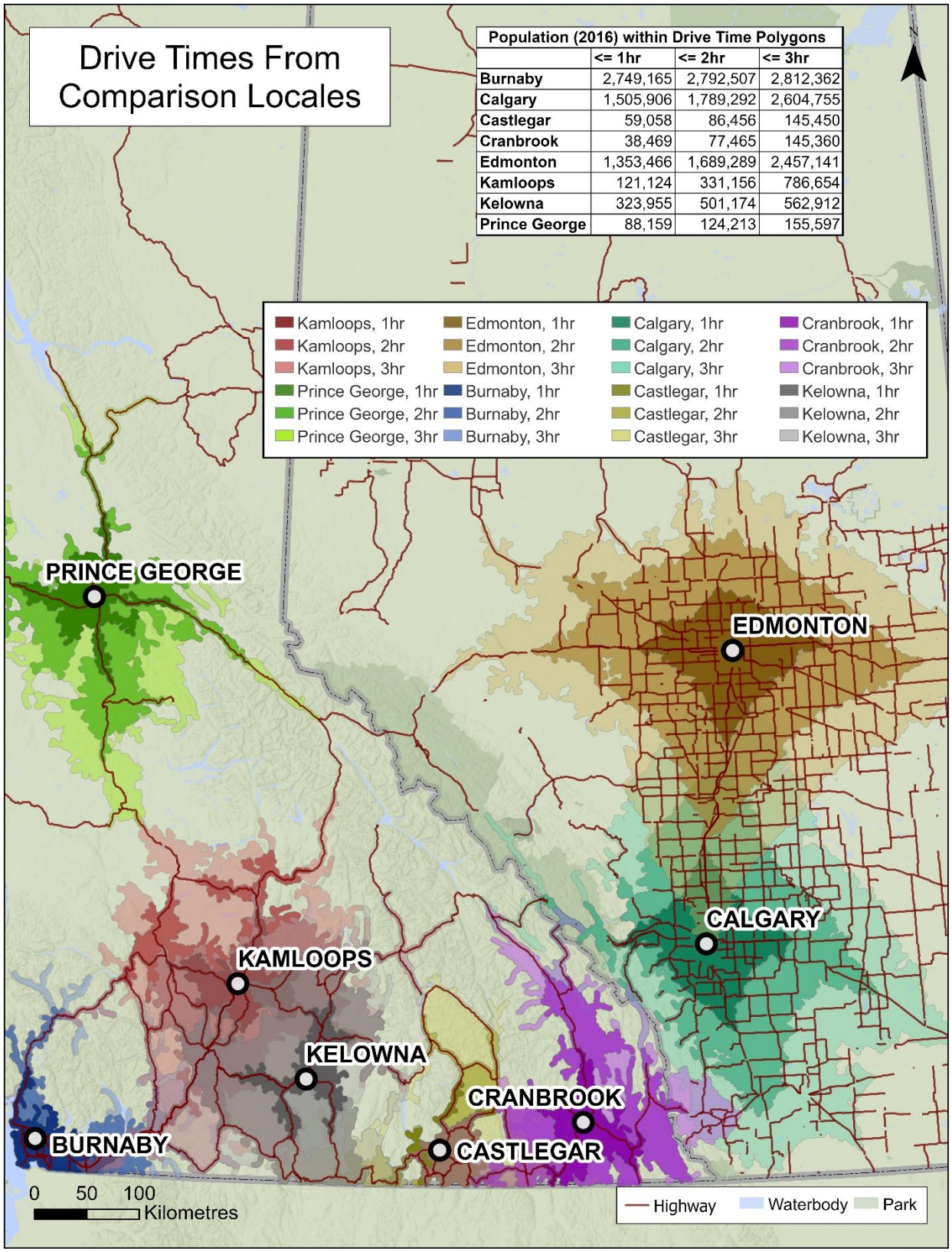
Consumer and Industrial Goods Logistics Services						
	Carload Rail	Rail Intermodal	Rail Transload	Truckload	LTL	Warehouses
Consumer Goods	No	Yes	No	Yes	Yes	Yes
Industrial Goods	Yes	Yes	Yes	Yes	No	No
Overlapping Services						

1.3 Consumer Goods Catchment Area

For consumer goods, the primary factors determining the potential catchment area for new logistics developments include regional population and distance. For local consumer goods, the local market is primarily a function of driving distances. The results of an analysis of the population distribution in the Kamloops region relative to other major distribution centres in proximity are summarized below.

The analysis considers the regional population within specified transit time intervals for goods movements based on driving time. Population figures are based on 2016 census figures. The results are shown below, based on driving time intervals of 1, 2 and 3 hours. The population of the Kamloops consumer goods catchment area is significantly smaller than that of Kelowna, the other major population centre in the area. The Kamloops catchment area also overlaps that of Kelowna to the south.

Figure 1-3 Kamloops Consumer Goods Catchment Area



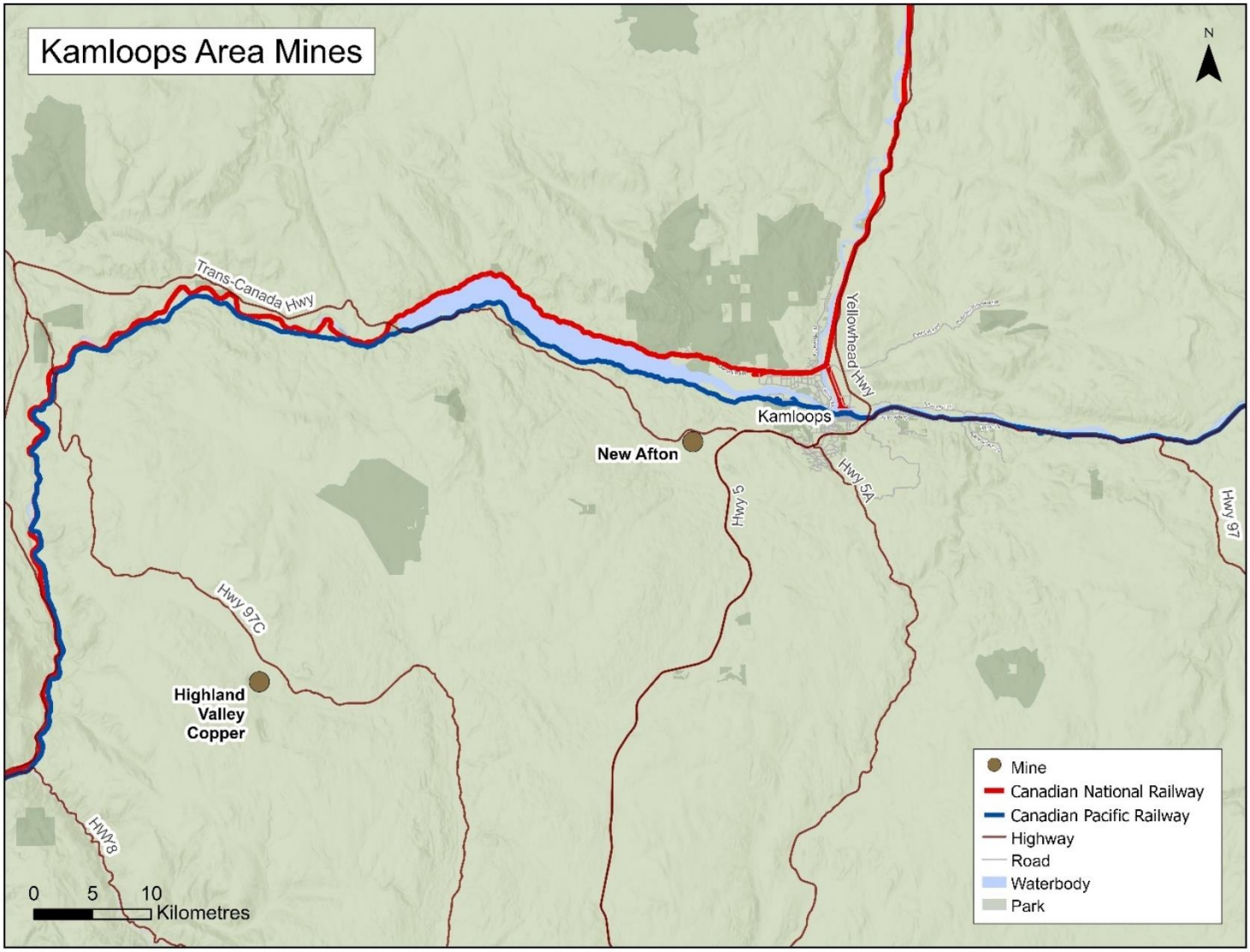
1.4 Industrial Goods Catchment Area

For industrial goods, the primary factors determining the potential catchment area include the types and quantities of goods produced in the region, the origins and destinations of production inputs and finished products, and service characteristics. The location of regional logistics facilities along with the configuration of the railway networks and railway service philosophy also plays a role in determining the industrial catchment area. Major industrial operations in the Kamloops Region are highlighted in the following sections of the report.

1.4.1 Mining and Minerals

There are two major mines in the vicinity of Kamloops: New Afton and Highland Valley Copper.

Figure 1-4 Kamloops Area Mines



The New Afton mine is owned and operated by New Gold Inc. The operation occupies the site of the Historic Afton Open Pit mine, which operated from 1977 until 1997. The present mine and concentrator facility commenced production in July 2012. In 2019, the Mine produced 69 thousand ounces of gold and 79 million pounds of copper. The current life of mine includes mining approximately 48 million tonnes (Mt) of ore grading an average of 0.68 g/t Au, 1.9 g/t Ag, and 0.77% Cu until the year 2029. In 2019 the mine directly employed a total of 499 people, of whom 396 were hired from the Kamloops area.[1]

The mine is located approximately 10 km west of Kamloops. Trans-Canada Highway No. 1 passes through the middle of the Afton Mine Lease several kilometres west of its junction with Coquihalla Highway No. 5. Access to the mine site is by a mine road located off the Trans-Canada Highway.[2]

Concentrates from the mine are trucked directly to Vancouver Wharves Terminal at the Port of Vancouver in North Vancouver using Super B-train trucks. Trucking services are provided by the Arrow/SSN Joint Venture (Stk'emlupsemc-Arrow Transportation Limited Partnership), a joint venture between Arrow Transportation and the Stk'emlupsemc te Secwepemc.

The Highland Valley Copper mine is owned by Teck. It produces copper and molybdenum concentrates. The mine is located approximately 17 kilometres west of Logan Lake and about 50 kilometres southwest of Kamloops. The mine was scheduled to close in 2027 or 2028, but Teck is undertaking a project to extend the mine's life to 2040.[3] CN holds the contract for transportation of concentrates from the mine to Vancouver Wharves in North Vancouver. Concentrates are trucked from the mine to the CN transload facility at Ashcroft by Trimac (as a subcontractor to CN). The volume is approximately 400,000 wet tonnes per year.

1.4.2 Forest Products

Forest products mills located in Kamloops are listed below.

Figure 1-5 Major Forest Products Mills in Kamloops

Major Forest Products Mills in Kamloops				
		Capacity		
Company	**Product**	**000 Bone Dry Units**	**Million Square Ft**	**000 Tonnes**
Tolko Industries Ltd. Heffley Creek	Wood Chips	96		
	Plywood		204	
	Veneer		173	
Thompson River Veneer Products Ltd.	Plywood		115	
River City Fibre	Wood chips	553		
Domtar	Pulp			408

[1] Technical Report on The New Afton Mine, British Columbia, Canada RPA for New Gold Inc. February 28, 2020 p. 20-28.
[2] Technical Report on The New Afton Mine, British Columbia, Canada p. 5-1.
[3] "Highland Valley Copper hopes to extend mine life until 2040" The Ashcroft – Cache Creek Journal December 17, 2019.

The locations of currently operating major forest products mills in the larger Kamloops region are shown below.

Figure 1-6 Major Forest Products Mills in the Kamloops Region 2020

Tolko is the largest producer in the Kamloops region. In addition to the Heffley Creek mill, Tolko has multiple facilities in the Okanagan, including a mill producing lumber, veneer, plywood and wood chips at Armstrong, and a veneer mill in Lumby.

River City Fibre Ltd. chips grade four (4) logs, unsuitable for other uses, to create wood chips, sawdust and hog fuel. The mill is located across the street from the Domtar pulp mill, and the wood chips are used for Domtar's pulp production while the hog fuel and fines are used as an energy source or for wood pellet production. The mill was purchased by Arrow Transportation in 2016 and subsequently expanded. The site traditionally chipped approximately 6,000 truckloads of logs a year. Over the last few years,

production has been increasing. Arrow expected the mill to consume close to 10,000 truckloads of logs in 2020, which equates to 10,000 loads of chips hauled by Arrow into Domtar, making the mill their largest fibre supplier.[4] Domtar's pulp mill produces approximately 408,000 Air-Dried Metric Tonnes (ADMTs) annually, and supports approximately 350 local jobs.[5]

A number of large mills in the Kamloops region have shut down, primarily due to reductions in timber supply.

- Weyerhaeuser's lumber mill in Kamloops ceased operations in 2008 and the timber rights were sold to Interfor.
- Canfor closed their lumber mill in Vavenby and sold the timber rights to Interfor in July 2019. Interfor is expanding their mill at Adams Lake to increase production.
- Tolko closed their Nicola Valley mill in Merritt in 2016 and Kelowna mill in January 2020. A portion of production from these mills was historically shipped through a reload centre located operated by Tolko in the Mount Paul Industrial Park on the CN line in Kamloops. With the closures, Tolko has ceased reload operations at the site.
- Tolko also ceased operations at their Quesnel sawmill in August 2019.
- West Fraser closed their Chasm sawmill at 70 Mile House in September 2019.
- In April 2020 Aspen Planers announced indefinite shutdown of their lumber mill in Merritt, Lillooet veneer plant, and Savona specialty plywood plant due to rising costs for logs, an increase in stumpage rates, a shrinking of the Timber Supply Area (TSA), and the fallout of the COVID-19 pandemic.[6]

1.5 Agriculture

In British Columbia, agricultural land is regulated by the provincial Agricultural Land Commission (ALC), an independent administrative tribunal dedicated to preserving agricultural land and encouraging farming in British Columbia. Lands suitable for agriculture are designated in the Agricultural Land Reserve (ALR).

The largest portion of agricultural lands in the vicinity of Kamloops is located in the Thompson-Nicola Regional District south of Kamloops and east of Merritt. In 2016, the majority of agricultural land in the Thompson-Nicola Regional District was used for natural pasture. [7]

[4] ARROWLIFE December 2020 https://www.arrow.ca/files/2020/12/Arrowlife-December-2020.pdf
[5] Mercer website https://mercerint.com/operations/celgar
[6] "Aspen Planers closed indefinitely" Merritt Herald April 8, 2020.
[7] Source: Statistics Canada Agricultural Census 2016 Table 32-10-0406-01.

Figure 1-7 Thompson-Nicola Regional District Agricultural Land Use 2016

Thompson-Nicola Regional District Agricultural Land Use 2016		
Crops	**Hectares**	**Share**
Natural land for pasture	435,046	69%
Area in Christmas trees, woodlands and wetlands	59,611	9%
Woodlands and wetlands	59,531	9%
Tame or seeded pasture	37686	6%
Land in crops (excluding Christmas tree area)	29,769	5%
All other land	8,537	1%
Total	630,180	100%

Livestock production is the dominant agricultural activity on these lands.

Figure 1-8 Thompson-Nicola Regional District Farms 2016[8]

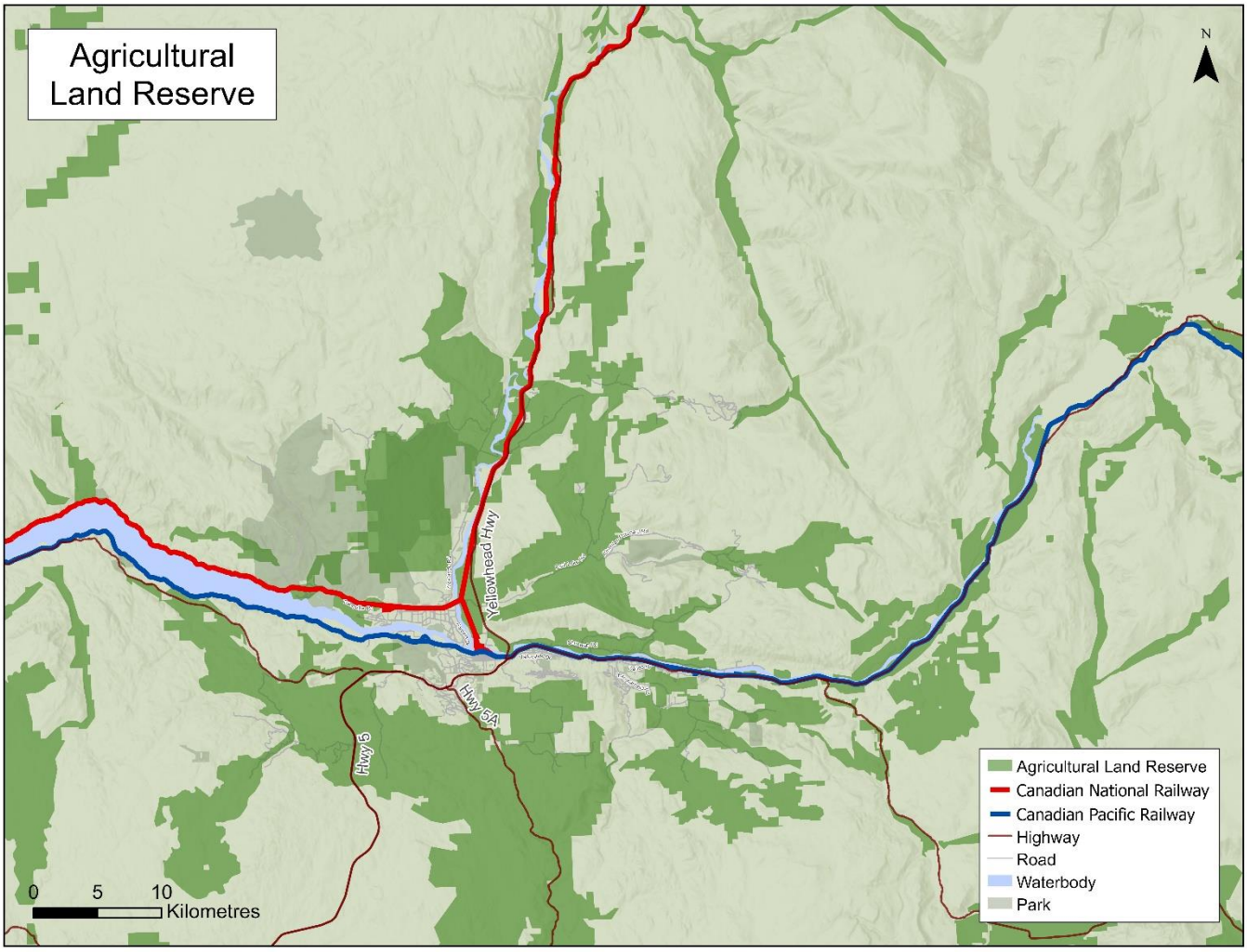
Thompson-Nicola Regional District Farms 2016	
Number of Farms	**2016**
Total number of farms	1,017
Beef cattle ranching and farming, including feedlots [112110]	343
Other animal production [1129]	310
Horse and other equine production [112920]	203
Other crop farming [1119]	173
Hay farming [111940]	148

Due to the nature of agricultural activity in the Kamloops region, there are limited requirements for inbound transportation of agricultural inputs such as fertilizer, etc. or for outbound transportation of grain or other crops. There are at least two trucking companies in Kamloops specializing in hauling livestock (Canart Transport Inc. and Western Feeders Inc.).

The figure below shows the locations of Agricultural Land Reserve lands in the Kamloops region.

[8] Source: Statistics Canada Agricultural Census 2016 Table 32-10-0403-01.

Figure 1-9 Agricultural Land Reserve in the Kamloops Region



2 LABOUR FORCE AND EMPLOYMENT

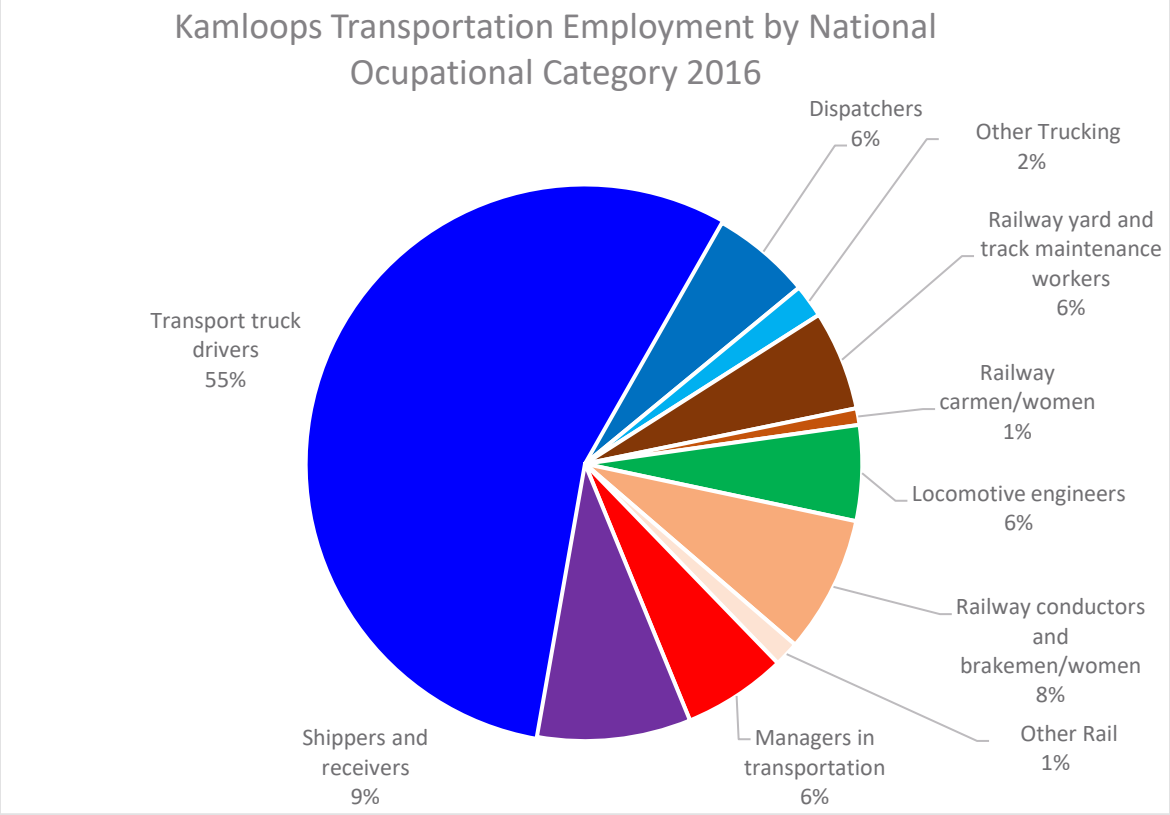
Based on census data, employment in the transportation sector totalled 2065 in 2016, approximately four percent of total employment.

Figure 2-1 Kamloops Transportation Employment by Sector 2016[9]

Kamloops Transportation Employment by Sector 2016		
Sector	**Workers**	**Share**
Trucking	1305	63.2%
Rail	450	21.8%
Warehousing	185	9.0%
Transportation Management	125	6.1%
Total	2065	100.0%

A more detailed illustration of the distribution of transportation employment by occupational category is shown below.

Figure 2-2 Kamloops Transportation Employment by Occupational Category



The largest group is Transport Truck Drivers, accounting for 1145 jobs and fifty-five percent of

[9] Statistics Canada 2016 Census https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/dt-td/Rp-eng.cfm?TABID=2&LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GK=0&GRP=1&PID=111856&PRID=10&PTYPE=109445&S=0&SHOWALL=0&SUB=0&Temporal=2016&THEME=124&VID=0&VNAMEE=&VNAMEF=

transportation employment. Of these, 160 or fourteen percent were self-employed.

Rail operations (locomotive engineers, carmen/women and conductors and brakemen/women) accounted for fifteen percent of transportation employment, and railway maintenance occupations for six percent.

The only occupational category directly attributable to warehouse operations is shippers and receivers; these accounted for nine percent of transportation employment.

Transportation managers accounted for six percent of transportation employment.

Aviation-related occupational categories (air pilots, air traffic controllers, and air transport ramp attendants) were not included in this analysis because in Kamloops these are almost entirely devoted to passenger operations rather than goods movements (air cargo).

3 RAIL INFRASTRUCTURE AND TRAFFIC

3.1 Rail Regulation

CN and CP operate as interprovincial or international railways and are regulated by the Federal Government.

Transport Canada develops and implements policies and regulations and administers the Railway Safety Act. The department inspects companies and road authorities to ensure they comply with the Act, and with regulations, rules, and engineering standards made under the Act. Rail safety inspectors conduct inspections (including audits) to determine whether a railway's operations, equipment, signals and infrastructure support safety. Transport Canada regulates many aspects of railway operations, including:

- Approval of any changes in trackage or physical plant, ensuring that facilities are designed and built to appropriate standards.

- Approval of maintenance standards, operating rules and equipment standards as required for safe operation.

The Railway Safety Management System (SMS) Regulations 2015 provide a framework for companies to integrate safety into their day-to-day railway operations. The Regulations establish the minimum SMS requirements a company must develop and implement for the purpose of achieving the highest level of safety in its railway operations. The scope of application of the Regulations is divided into three categories of companies (ie., railway companies; local railway companies on main track; and local railway companies on non-main track) with a corresponding list of processes they must develop and implement:

Economic regulation of the railway industry is overseen by the Canadian Transportation Agency. The Government of Canada's national transportation policy, as set out in the Canada Transportation Act, permits the market to largely self-regulate. However, it also acknowledges that regulation may be required to meet public objectives or in cases where parties are not served by effective competition. Within the specific powers assigned to it by legislation, the Canadian Transportation Agency participates in the economic regulation of rail carriers under federal jurisdiction by:

- Licensing rail carriers;
- Approving railway line construction;
- Setting railway revenue caps for moving western grain;
- Establishing financial and costing frameworks for certain railways;
- Setting interswitching rates to increase competitive options available to shippers; and
- Establishing the net salvage value of railway lines to facilitate their orderly transfer.

Intraprovincial railways are regulated by the Province of British Columbia. There is a high level of uniformity between federal and provincial regulations, with similar operating standards, identical dangerous goods regulations, and the same equipment standards.

Rail shippers and intermodal facilities in Kamloops can take advantage of regulated interswitching rates to switch traffic between CN and CP at relatively low cost. Interswitching rates in Canada are regulated by the Canadian Transportation Agency. Interchange traffic between CN and CP in Kamloops would be classified as Zone 1 traffic (movements within 6.4 km of the interswitching point). The 2020 rate for Distance Zone 1 movements is $310 per car, or $60 per car for blocks of 60 or more cars.[10]

3.2 CP

Canadian Pacific Railway (CPR) operates about 2,030 km of track in British Columbia. The CPR mainline extends from Calgary to the Alberta/B.C. border and on through Field, Revelstoke, Sicamous (junction with Okanagan Valley Railway), Kamloops, and into the Lower Mainland. The mainline from the B.C.-Alberta border to the Lower Mainland is about 870 km long. A substantial portion of CPR trackage extends south from their mainline (at Golden) into the Kootenays and the south-eastern B.C. coal fields north of Sparwood. Representing about half of CPR's track in B.C., this region also includes a connection to the U.S. rail network. The CPR connects at Kingsgate, B.C. (approximately 82 km southwest of Cranbrook), with Union Pacific Railroad (UP).

3.3 CN

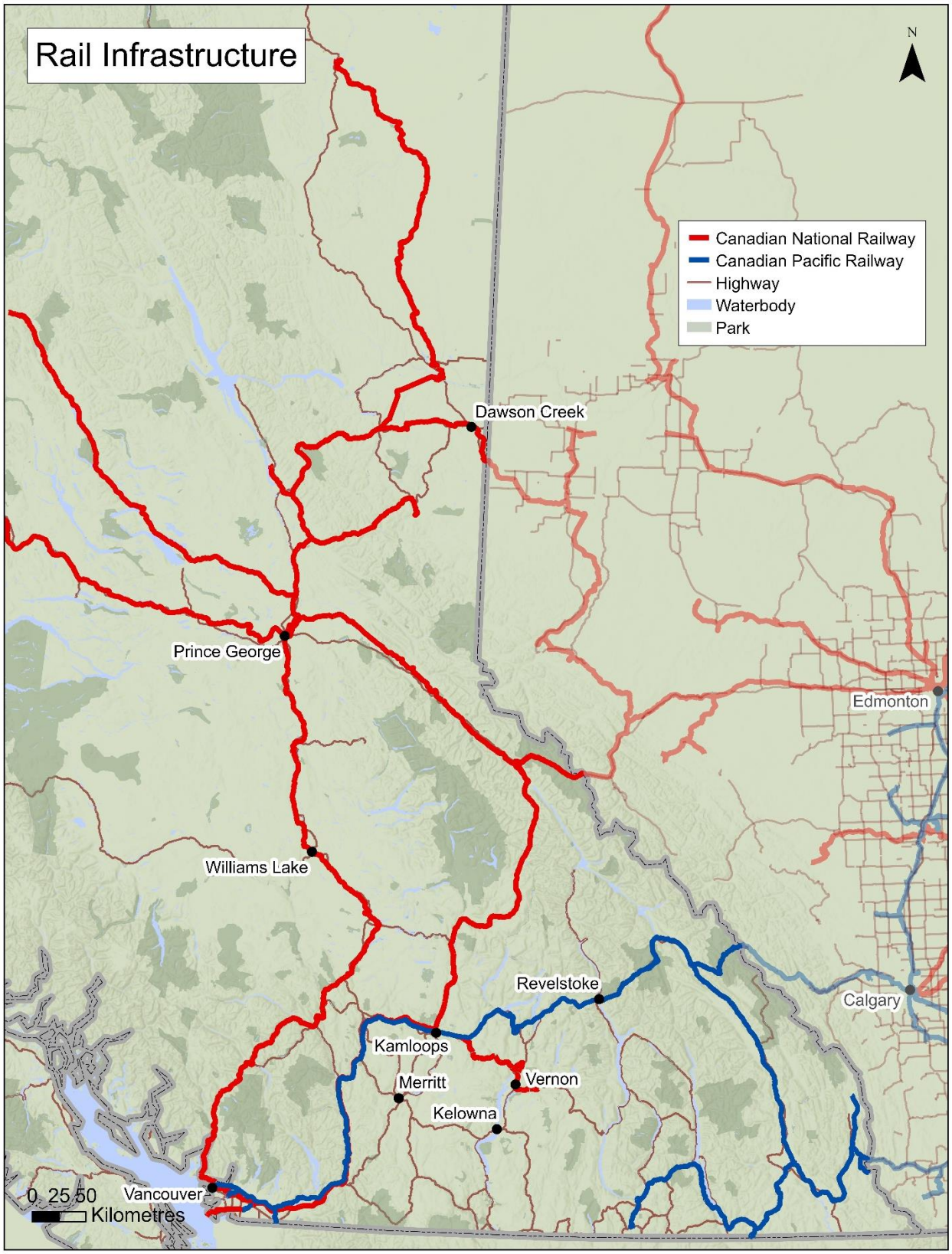
Canadian National Railway (CN) operates about 2,277 km of track in British Columbia. The majority of this track is their mainline from the Alberta border (Edmonton) through Redpass Junction via Kamloops to Vancouver (850 km), and from Redpass Junction to Prince Rupert (1,090 km). CN trackage also includes a 62 km connection from Terrace to Kitimat.

In 2004, BC Rail (BCR) operations were leased to Canadian National Railway (CN) for an initial period of 60 years. The BCR line consists of approximately 2,319 km of track from Fort Nelson to North Vancouver. Since CN's takeover of the BCR line, most of the former BCR traffic to North Vancouver has been rerouted north to CN's network and travels to the Lower Mainland via Kamloops.

The figure below shows rail infrastructure in the BC Interior.

[10] Canadian Transportation Agency Determination No. R-2019-230 November 29, 2019 https://otc-cta.gc.ca/eng/ruling/r-2019-230

Figure 3-1 BC Interior Rail Infrastructure

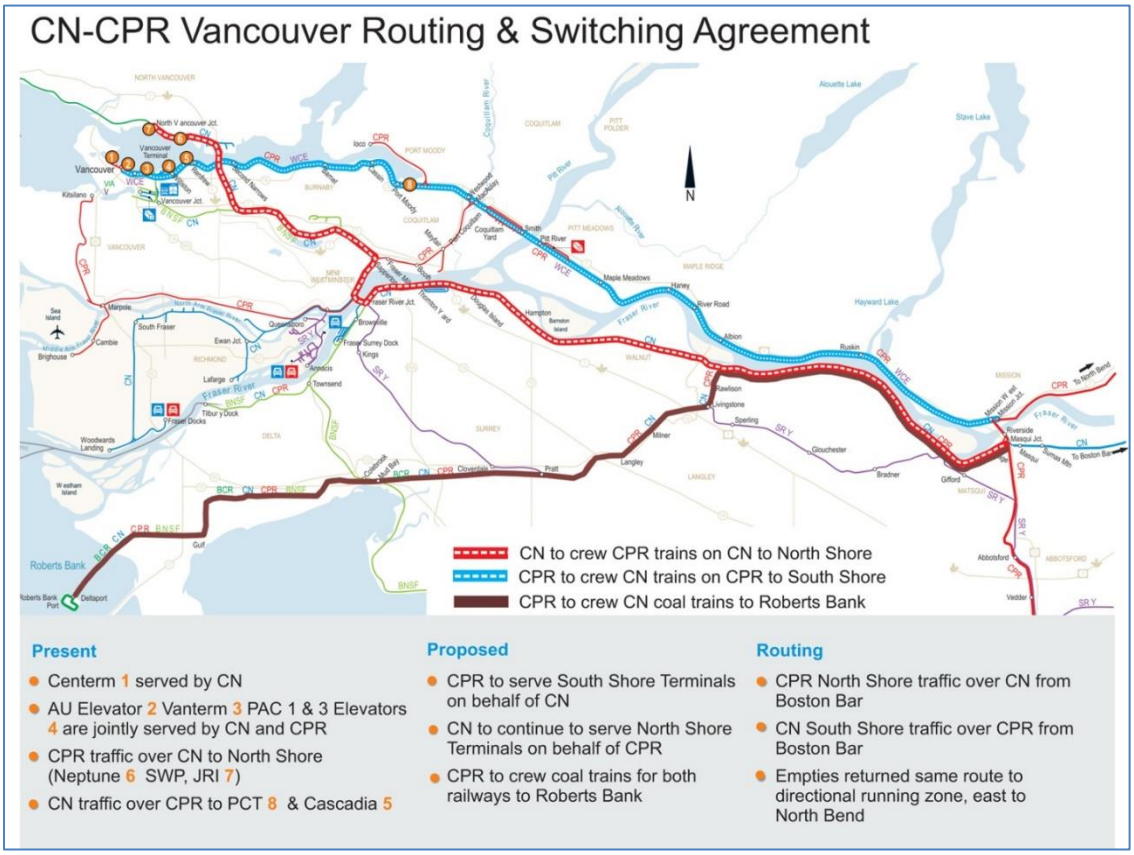


3.4 Railway Operations in the Kamloops Region

Kamloops is an important junction point between the CN and CP mainlines serving the Lower Mainland and the Port of Vancouver. Capacity of both railways between Kamloops and the Lower Mainland is constrained by the geography of the Fraser Canyon which makes it very difficult to expand rail infrastructure. To maximize the capacity of existing rail lines, CN and CP implemented a co-production agreement for directional running in the Fraser Canyon between Boston Bar/North Bend and Matsqui in 1999. Under the agreement all CN and CP westbound trains use the CN mainline tracks on the south side of the Fraser River, and all eastbound CN and CP trains use the CP mainline tracks. This significantly increases line capacity by increasing the total number of trains that can be operated through the Fraser Canyon sections of each rail line. The expanded CN/CP co-production agreement implemented in 2006 extended cooperation between the railways as shown below.

The co-production agreement between the railways also contains provisions for compensation by CP to CN for additional costs of running loaded CP trains over the CN network, based on volume and distance. It appears there was a "rebalancing" of the co-production agreement around 2013. A portion of the CP traffic destined for the North Shore was rerouted from Thornton Yard through Coquitlam Yard for interchange with CN at Sapperton. This coincided with completion of the King Edward Overpass as part of the provincial Gateway Program of road improvements in Coquitlam, which enabled CP to stage coal and potash unit trains in transit to the North Shore on the Westminster Subdivision in Coquitlam south of Highway 1.

Figure 3-2 CN-CP Co-Production Agreement 2006



The railways also began to exchange car blocks further inland (Boston Bar or Kamloops) to assemble trains with mixed CN/CP traffic for Lower Mainland destinations (South Shore or North Shore). Consequently, these yards now function as an extension of the Lower Mainland rail yards.

Increases in rail infrastructure and activity in the Kamloops area have also been driven by changes in the distribution of rail shipments among terminals at the Port of Vancouver, and commercial contracts between major shippers and the railways. Historically Teck Resources has shipped up to 19 million tonnes per year of coal from their southeast BC coal mines via CP for export from Westshore Terminals on Roberts Bank. Following capacity expansion at Teck's co-owned Neptune Terminals in North Vancouver the Westshore Terminals tonnage is being reduced in favour of increased shipments through Neptune Terminals and Ridley Terminals in Prince Rupert. Effective April 1, Teck's new contract with Westshore will reduce shipments to Roberts Bank to a maximum of 7 million tonnes per year.[11]

Teck is also switching to CN from CP in March 2021 when CP's 10-year contract to haul metallurgical coal from Teck's four Elk Valley mining operations to the West Coast expires. Teck has signed a contract with CN to haul the coal from Kamloops to Neptune and Ridley Terminals. Traffic will be interchanged with CP at Kamloops. CN will invest more than $125 million to enhance rail infrastructure in anticipation of the higher volumes from Teck.[12]

CN investments include capacity upgrades for access to the North Shore in Vancouver, Kamloops interchange upgrades and other capacity upgrades to ensure seamless traffic flows. Kamloops upgrades include five new 12,000-foot tracks at CN's yard to allow the trains to be yarded.[13] CP is also building an additional 8,500-foot track along its existing mainline in Kamloops that will stretch from about 10th Avenue, east to the 1800-block of Kelly Duglas Road in Valleyview.[14]

3.5 CN Operations in the Okanagan

From 2000 to 2013 Kelowna Pacific Railway (KPR), an indirectly controlled subsidiary of Knighthawk Inc., operated over approximately 120 miles of track from Kamloops to the end of steel at the Tolko mill in Kelowna. They also operated on a 14.5-mile spur line to Lumby. The rail line is owned by CN and was leased by KPR. KPR ceased operations in 2013 and CN resumed operating over the portion of the rail lines serving Vernon and Lumby. CN accesses their Okanagan track under a running rights agreement over the CP mainline track from Campbell Creek to Kamloops.

[11] "Teck Announces Agreement in Principle with Westshore" August 25, 2020 https://www.teck.com/news/news-releases/2020/teck-announces-agreement-in-principle-with-westshore

[12] "Teck opting for CN to haul coal from Kamloops" East Kootenay News Online Weekly December 5, 2019 https://www.e-know.ca/regions/east-kootenay/teck-opting-for-cn-to-haul-coal-from-kamloops/

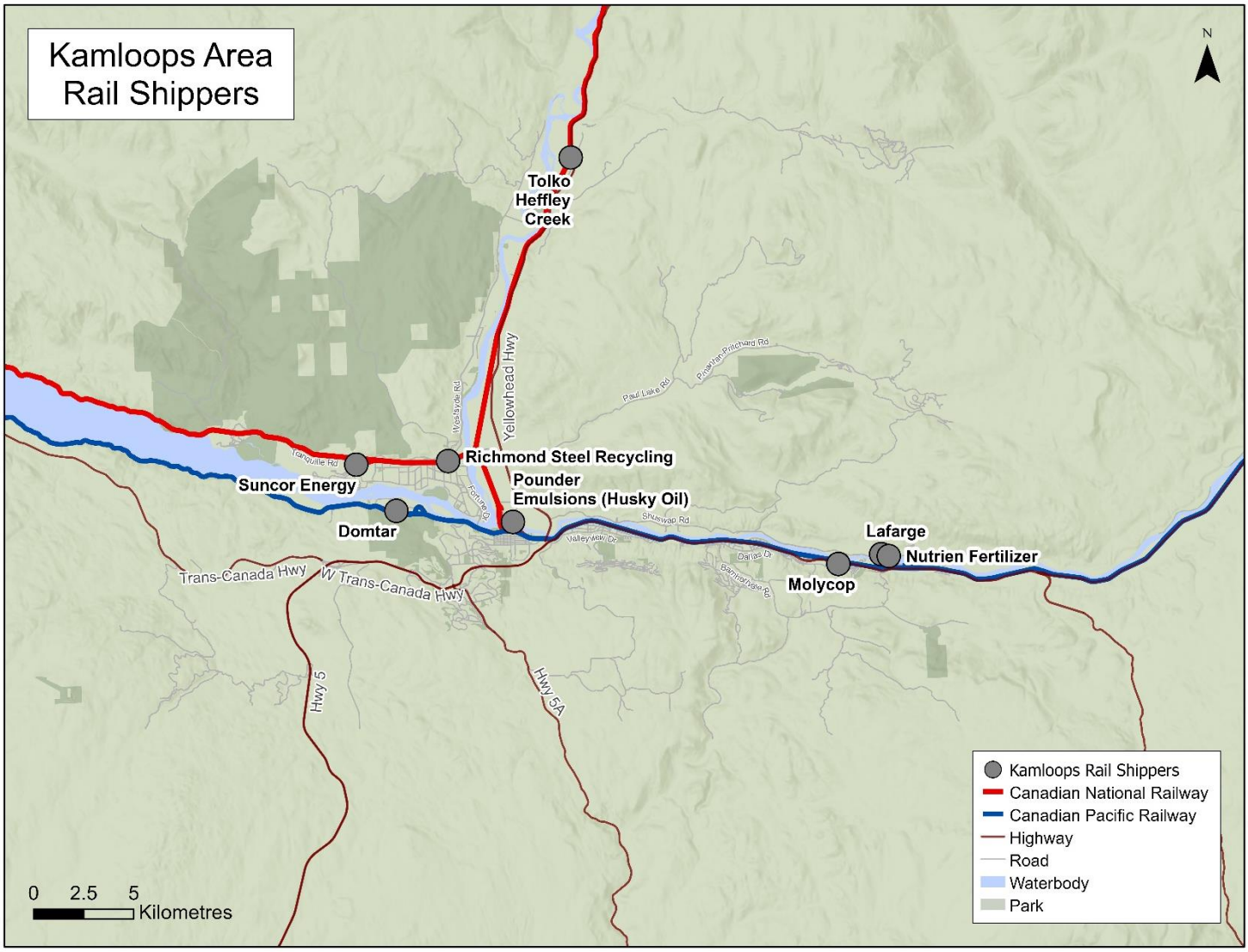
[13] "More coal to come through Kamloops" Kamloops This Week December 10, 2019.

[14] "CP new rail line to be finished by April 2021" Kamloops This Week December 4, 2020.

3.6 Rail Shippers

The locations of major rail shippers are shown in the figure below.

Figure 3-3 Kamloops Rail Shippers



3.6.1 CP Rail Shippers

Shippers served by CP include:

- The Domtar pulp mill ships approximately 400,000 tonnes of pulp per year.
- Molycop specializes in the manufacture and distribution of heat-treated forged-steel grinding balls used primarily by global copper, gold, and iron ore producers to break down ore in the primary phase of mineral concentration.

- Nutrien Fertilizers (formerly Agrium) operates a distribution centre for liquid fertilizers (ammonium polyphosphate and urea-ammonium nitrate solutions). Product is offloaded from railcars and trucked across the bridge to the distribution centre.
- The Lafarge Kamloops Cement Plant shut down the kiln in 2016 but is currently operating as a cement grinding and shipping terminal, receiving and shipping cement from site. Products are offloaded from railcars and trucked across the river to storage silos.

3.6.2 CN Rail Shippers

Shippers served by CN include:

- Tolko's Heffley Creek mill produces plywood, veneer and byproduct wood chips.
- Pounder Emulsions (owned by Husky Oil) receives asphalt emulsion products.
- Richmond Steel Recycling ships scrap metal by rail.
- Suncor Energy receives refined petroleum products (gasoline, diesel fuel) by rail and pipeline for local distribution by truck.

4 TRANSLOAD AND OTHER RAIL FACILITIES

There are three existing common carrier intermodal facilities in Kamloops: Arrow Reload Systems Inc., Tolko Industries Ltd., and Cando Rail. Construction of a fourth facility, the North Thompson Rail Terminal, has been proposed with initial construction tentatively scheduled for the summer of 2021.

4.1 Arrow Reload Systems Inc.

Arrow Reload Systems operations were profiled in the Opportunity Assessment for an Inland Intermodal Container Facility in Kamloops in 2006.[15] At that time, Arrow was handling approximately 4,000 carloads per year, all destined to North American markets with 80% going through Chicago and Minneapolis. Westbound shipments of lumber for export were trucked by Super B trains to container stuffing facilities in the Lower Mainland at a rate of approximately 7 per day.

The Arrow Reload Systems Inc. facility handles lumber, pipe/piling, over-dimensional cargo, concrete, construction materials, fire retardant, tires, mining balls, and fertilizers at Campbell Creek on the CP Mainline east of Kamloops. The facility was built in 1988 to provide services to forestry mills affected by abandonment of CP's Princeton Subdivision which served the communities of Merritt, Princeton and Penticton.

The facility has 24 car spots and daily switching. Arrow provides additional services at the site including include custom handling and inventory management, management of railcar tracking, half packing, bar coding, package saw cutting, on-site certified lumber graders, and EDI billing.

Figure 4-1 Arrow Reload Systems Campbell Creek 2009

[15] Opportunity Assessment for an Inland Intermodal Container Facility in Kamloops p. 22.

4.2 Tolko Industries Ltd Reload Kamloops

Tolko operates a lumber reload facility on CN track in Kamloops on land leased from the Tk'emlúps te Secwépemc. In 2006 the facility was handling 10 carloads of lumber (1 million board feet) per day, ninety percent of which was destined to the U.S. market.

Historically the Tolko reload centre handled product from Tolko's mills at Merritt and Kelowna. Tolko closed their Nicola Valley mill in Merritt in 2016 and Kelowna mill in January 2020. With the closures, Tolko has ceased reload operations at the site.

4.3 Cando Rail

Cando Rail Services officially opened its rail terminal in Kamloops, BC in April 2017. Phase 1 of the project included building new track for storage of empty railcars, with plans for future expansion to accommodate transloading, railcar repair, and track and engineering services. The facility was constructed on the former Weyerhaeuser sawmill site adjacent to the Domtar pulp mill. The site was purchased for $5.1-million, and development costs were estimated at $7 to $10 million.[16] Current activity includes railcar storage and transloading of materials for construction of the Transmountain Pipeline expansion.

4.4 North Thompson Rail Terminal

North Thompson Rail Terminals has proposed construction of a $10 million trans-loading rail terminal within the Tk'emlups reserve. The project is located on a 27 ha (67 acre) parcel of land within the Tk'emlups te Secwepemc Indian Reserve (Kamloops Indian Band). The new transloading rail yard includes the construction of 41 tracks, totalling 14.6 km of track, including 14 transloading tracks, two repair tracks, balance storage, staging, and leads for ingress/egress; 36,600 square metres of laydown areas for commodity loading/off-loading; a 4,600 square metre administration building; a site access road; stormwater management system; and areas for future expansions and client sub-leasing.[17] The 27 ha (67 acre) site has been leased for 99 years under an agreement between North Thompson Rail Terminal, federal government and the Tk'emlups Band. Construction of the first phase of the project is tentatively scheduled for the summer of 2021.

4.5 Railway Support Services

Allied Track Services provides a variety of services to the rail industry, including industrial maintenance and construction, bridge repair, flagging/Roadway Worker in Charge (RWIC) services, thermite welding, track inspection, emergency response, surfacing and regulating, and signals and communications. The company is headquartered in Grimsby Ontario and in addition to Kamloops they have facilities in Calgary, Winnipeg, North Bay, Texas and Missouri.

[16] 'Cando eyes summer start to rail terminal business' Kamloops This Week January 18, 2016.

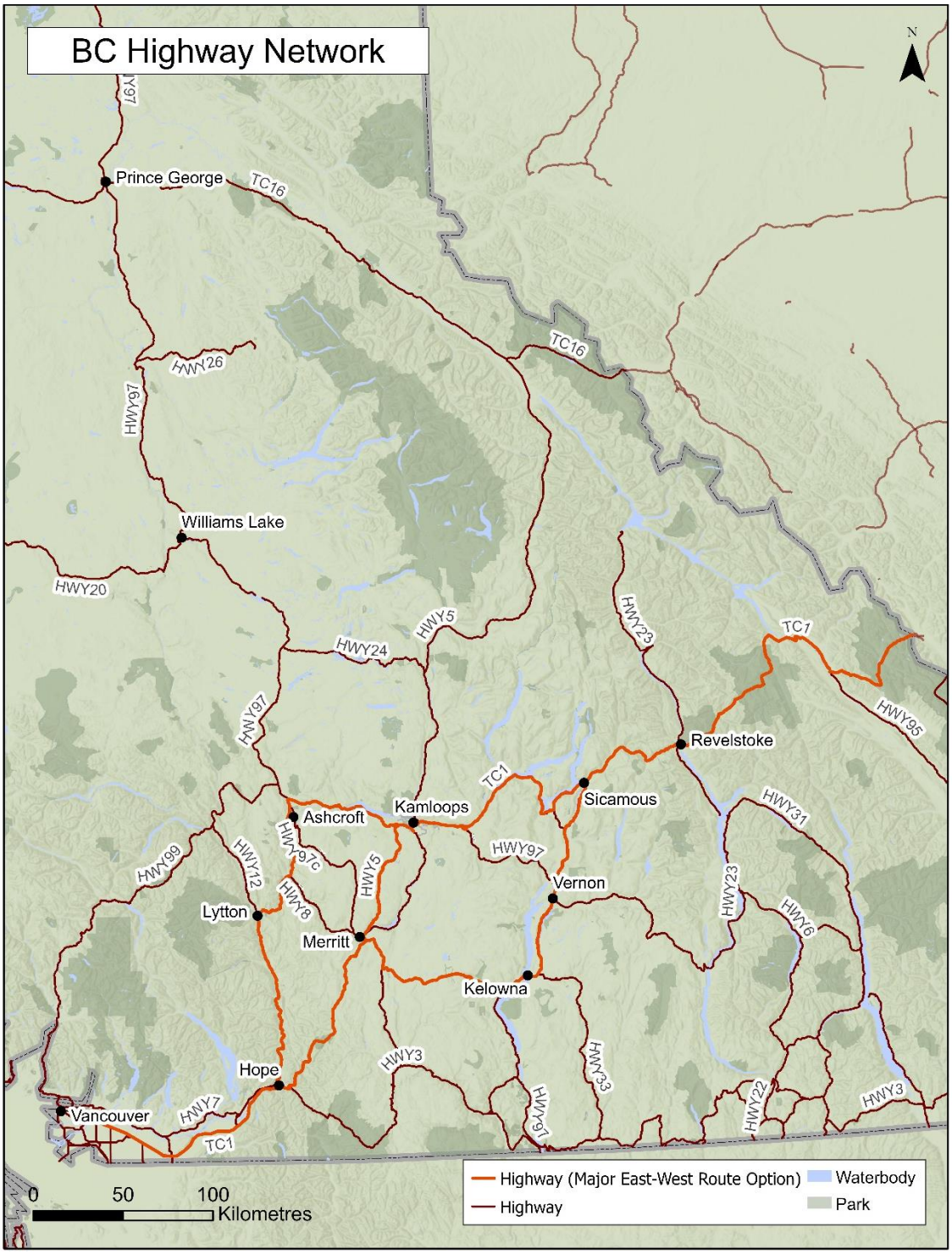
[17] Canadian Environmental Assessment Agency Project Description Rail Terminal Development Proposal Keystone Environmental for North Thompson Rail Terminals November 2018 p. i.

5 HIGHWAY INFRASTRUCTURE AND TRAFFIC

5.1 Highway Infrastructure

The figure below shows Kamloops' location on the provincial highway system.

Figure 5-1 BC Interior Highway System



5.2 Heavy Truck Traffic

The TransCanada Highway 1 route linking the Lower Mainland and Calgary is the primary east-west trucking corridor in BC. There are three potential routes connecting Highway 1 in the Lower Mainland west of Hope to Highway 1 east of Sicamous:

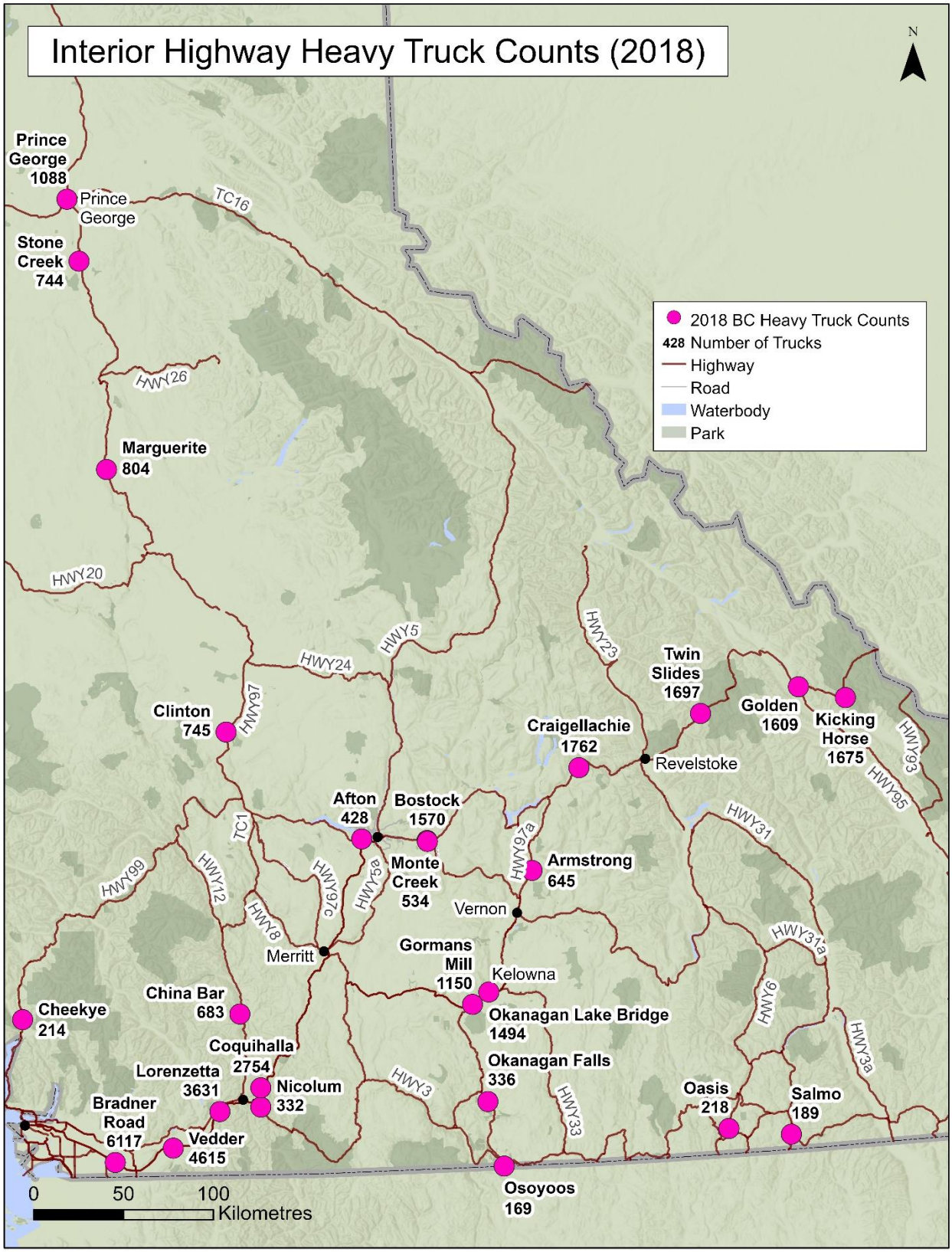
- Highway 5 (the Coquihalla Highway) from Hope to Kamloops and east on Highway 1 to Sicamous;
- Highway 5 from Hope to Merrit; Highway 97C (the Okanagan Connector) to Kelowna; and Highway 97/97A north through the Okanagan region to Sicamous.
- Highway 1 to Sicamous via Lytton and Ashcroft.

The BC Ministry of Transportation and Infrastructure maintains a network of Permanent Count Stations to monitor traffic levels on BC highways. A small portion of these have the capability to classify traffic by vehicle type. Vehicles are classified into 6 different "bins" based on vehicle lengths; heavy commercial trucks generally fall into two length categories:

- Typical 5 or 6 axle single trailer semitrailers are classified in Bin 3 (12.5 – 22.5 metres).
- Double trailer trucks such as Super B trains and logging trucks are classified in Bin 4 (22.5-35 metres).

The sum of traffic in these two categories can be used as estimates of heavy truck traffic. Annual Average Daily Heavy Truck Traffic (AADHTT) at major interior Permanent Count Stations in 2018 is displayed below. Based on the traffic counts, it appears that the routing via the Coquihalla Highway through Kamloops accounts for approximately sixty percent of Lower Mainland – Alberta heavy truck traffic on the Highway 1 corridor east of Sicamous, and the Okanagan route via Kelowna for the remaining forty percent.

Figure 5-2 BC Highways Heavy Truck Traffic 2018



Recent average annual daily heavy truck counts at BC permanent count stations are shown below. Figures are for 2018 except where 2018 data is not available; then the most recent available data is used.

Figure 5-3 BC MOTI Permanent Count Stations Annual Average Daily Heavy Truck Traffic 2018

BC MOTI Permanent Count Stations Average Annual Daily Heavy Truck Traffic			
Site Name	**AADHT Traffic**	**Site Name**	**AADHT Traffic**
Cheekye	214	Clinton	745
Lorenzetta	3631	Anahim	22
Bradner Road	6117	Salmo	189
Nicolum	332	Oasis	218
Coquihalla	2754	Crowsnest Pass	686
Vedder	4615	Golden	1609
Afton	428	Twin Slides	1697
Bostock	1570	Okanagan Lake Bridge	1675
Monte Creek	534	Stone Creek	744
Craigellachie	1762	Marguerite	804
Armstrong	645	Prince George	1088
Gormans Mill	1150	Bednesti	744
Okanagan Lake Bridge	1494	Tupper	953
Okanagan Falls	336	Willow Flats	435
Osoyoos	169	Pipers Glen	481
China Bar	683	Prince Rupert	179

6 TRUCKING INDUSTRY

Trucking has become the dominant form of freight transportation in Canada. In 2016, trucking accounted for about seventy-eight percent of total domestic tonnage transported, compared to twenty-two for rail. For intraprovincial shipments, trucking accounted for ninety-two percent of tonnage moved.18

Jurisdiction over the trucking industry is shared between the federal and provincial governments. The federal government has jurisdiction over interprovincial and international trucking; the provinces have jurisdiction over intraprovincial trucking. Historically the federal government has delegated its powers to the provinces for enforcement. The trucking industry in Canada was heavily regulated until 1987, with controls on market entry and on rates. In 1987 the federal government passed the Motor Vehicle Transportation Act 1987 which deregulated interprovincial trucking. In BC, deregulation of the intraprovincial trucking sector was completed in 2000 through passage of the Motor Carrier Amendment Act. In addition to deregulating entry and rates, the federal and provincial governments agreed on higher weights and dimension standards in 1987 which significantly increased the competitiveness of truck relative to rail transportation. The trucking industry has become significantly more competitive since deregulation.

All commercial motor vehicles must be insured using a valid National Safety Code (NSC) certificate number issued to the business for which the vehicle operates (a "Carrier"). The NSC is a set of national standards supported by provincial regulations. In 1989, the Canadian Council of Motor Transportation Administrators (CCMTA) established the federal NSC standards. Developed together with CCMTA member jurisdictions and the motor carrier industry, the code establishes the minimum standards for the safe operation of commercial vehicles. The NSC framework contains 16 standards encompassing all elements of driver qualification, vehicle operations and safety management.

In Canada the primary jurisdiction over regulation of trucking lies with provincial and territorial governments. The federal government has jurisdiction over extra-provincial trucking; however enforcement powers have been delegated to the provinces and territories under the Motor Vehicle Transport Act. In BC, the trucking industry is regulated under the BC National Safety Code (NSC) Program by the Commercial Vehicle Safety Enforcement branch of the BC Ministry of Transportation and Infrastructure.

Carriers operating within the United States must be registered with the US Federal Motor Carrier Safety Administration and must have a US Department of Transportation (DOT) Number. The USDOT Number serves as a unique identifier when collecting and monitoring a company's safety information acquired during audits, compliance reviews, crash investigations, and inspections.19 Carriers that transport federally regulated commodities owned by others or arranging for their transport, (for a fee or other

[18] Transportation in Canada Statistical Addendum 2018 Transport Canada p.4.
[19] Federal Motor Carrier Safety Administration https://www.fmcsa.dot.gov/registration/do-i-need-usdot-number

compensation, in interstate commerce) may also be required to obtain an operating authority (MC number).[20]

6.1 Classification of Trucking Services

Less Than Truckload (LTL) means a shipment that does not require a full 48-or 53-foot trailer. There are many carriers that specialize or offer this service. The primary market for LTL services in BC is consumer goods such as food and beverage products, furniture, small packages, etc.

LTL carriers require a network of terminals and generally operate with hub-and-spoke system of pickups and deliveries. LTL service is less competitive than truckload service, because the relatively high fixed cost of terminal operations and regularly scheduled services represent a barrier to entry in the otherwise deregulated trucking industry.

A truckload carrier is a trucking company that generally contracts an entire trailer-load to a single customer. Truckload carriers normally deliver a semi-trailer to a shipper who will fill the trailer with freight for one destination.

A truckload carrier will often specialize in moving a specific kind of freight. Some carriers will primarily transport food and perishable items, whereas others may specialize in moving poisonous and hazardous materials. For some commodities, specialized equipment and/or insurance is needed.

Trucking companies often offer a variety of services (LTL, truckload, etc.).

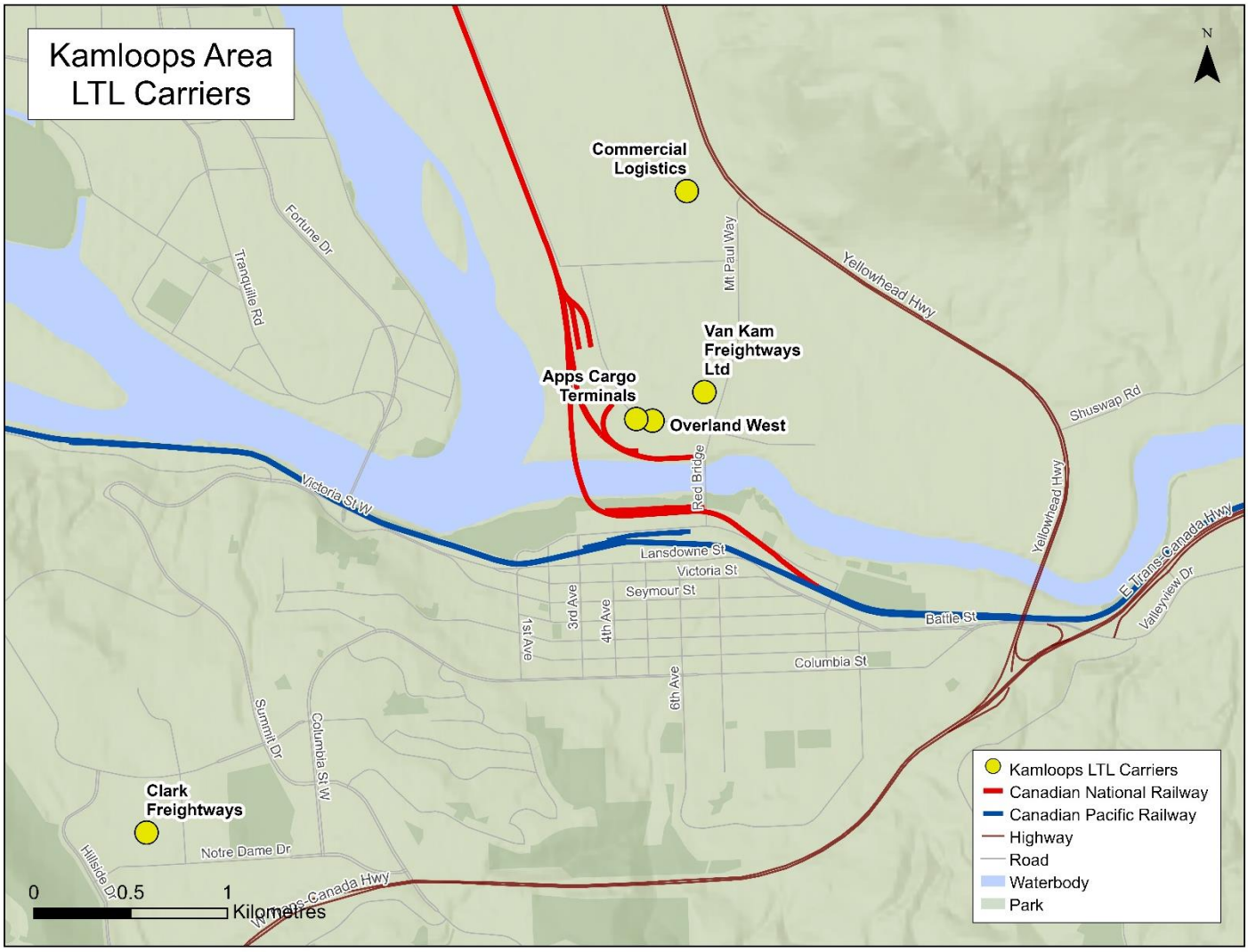
6.2 Kamloops Less Than Truckload (LTL) Carriers

The primary market for LTL services in BC is consumer goods such as food and beverage products, furniture, small packages, etc. LTL carriers require a network of terminals and generally operate with hub-and-spoke system of pickups and deliveries.

The locations of selected LTL trucking companies are shown in the figure below.

[20] Federal Motor Carrier Safety Administration https://www.fmcsa.dot.gov/registration/get-mc-number-authority-operate

Figure 6-1 Selected LTL Carriers in Kamloops



6.2.1 Van-Kam Freightways

The largest LTL terminal in Kamloops is owned by Van-Kam Freightways., Van-Kam Freightways Ltd. is a privately held asset-based transportation solutions provider headquartered in Surrey, British Columbia. Van Kam provides scheduled service for regular, LTL, TL and special commodity contracts within British Columbia and Alberta as well as regular service to Eastern Canada and the continental United States. The company has seven terminals in BC, and two in Alberta (Calgary and Edmonton). Van-Kam opened a new terminal in Kelowna in 2013 and in Prince George in 2014.

6.2.2 Clark Freightways

Clark Freightways offers regular controlled temperature (“reefer service”) with regular LTL service from their temperature-controlled cross-dock facility in Coquitlam. The company has a large, modern pickup and delivery fleet equipped with reefers, cold-walls, temperature probes, and other specialized handling

equipment, and offers access to short-term, multi-temperature storage (frozen, cooler, and dry) throughout their network of service centres.

6.2.3 Overland West

Overland West has over 17 service centres in British Columbia and Alberta. The company offers scheduled service (including overnight service) to practically every point within their network. The company also interlines with major carriers with national carriers who do not have a regional network in BC and Alberta.

6.2.4 Commercial Logistics

Commercial Logistic Inc. is an asset based trucking company, offering both less-than-truckload (LTL) and truckload (FTL) service to all points in the Province of British Columbia, Canada. The company is a wholly owned subsidiary of ContainerWorld Forwarding Service Inc. Both companies are headquartered in Richmond, British Columbia. Commercial Logistics maintains a primary focus on servicing the beverage alcohol industry, particularly the British Columbia wine Industry. The company has diversified to include beverages of all types, dry food products, pulp and paper, recycled materials and other general cargo.

Commercial Logistics' Kamloops facility is a cross-dock warehouse offering a centralized distribution point for both LTL Direct Delivery Services and Over the Road truckload operations. The company also operates a recently constructed 40,000 square foot facility in Kelowna.[21]

6.2.5 Apps Cargo Terminals

Apps Cargo Terminals offers LTL and truckload service to and from BC and Alberta. APPS Cargo Terminals is one of four company divisions and is based in Delta BC. The company was started in 1985 in Woodbridge, Ontario. APPS has grown to $100 million in sales with 400 employees and operates 200+ trucks out of 6 terminals in Canada. Apps was purchased by TFI International in 2020.

6.2.6 Previous LTL Carriers

From the 1980's until 2016, Canadian Freightways provided direct service to Kamloops. Canadian Freightways was purchased by TransForce (now TFI International) in 2004. In January 2014, Canadian Freightways closed its operations in northern B.C., shuttering offices and yards in Prince George, Smithers, Terrace and Prince Rupert. The company discontinued service to Kamloops in 2016. Canadian Freightways (now TST-CF Express) continues to provide service to Kamloops through a terminal in Kelowna.

The purchase of Canadian Freightways is part of an ongoing consolidation of the trucking industry in North America.[22]

[21] Commercial Logistics http://commercial-logistics.com/profile.htm

[22] "Canada's Freight Transportation Industry Continues to Consolidate" Dan Goodwill & Associates January 2017 https://www.dantranscon.com/index.php/blog/entry/canada-s-freight-transportation-industry-continues-to-consolidate

- TFI now owns TST Overland Express, Kingsway Transport, QuikX Transportation, Concord, Tripar Transportation in addition to Clarke Transport, NFF, Vitran, Quiktrax, Apps and a host of smaller players. TFI has acquired 88 North American companies since 2008.[23]

- In Western Canada, the Mullen Group has acquired the Gardewine Group, Grimshaw Trucking, the Highway 9 Group of Companies, Jay's Transportation, the Kleysen Group and other smaller companies, each of which has LTL operations.

- The Manitoulin Group has also been active in acquiring LTL carriers. Over the past few years, it has purchased the LTL business of Penner International, Smooth Freight, Jomac Transport, the LTL division of Highway 13 and Ridsdale Transport.

6.3 Truckload Carriers

Truckload shipping is the movement of large amounts of homogeneous cargo, generally the amount necessary to fill an entire trailer or intermodal container. The primary market for truckload services in BC is transportation of heavy industrial commodities such as logs, lumber, steel, dry bulk commodities (metal concentrates, cements, etc.) and liquid bulk commodities (petroleum products, chemicals, etc.).

6.3.1 Arrow Transportation Systems

Arrow Transportation Systems specializes in transportation of industrial commodities. Core services offered include trucking, material handling, Logistics, consulting and advisory services, and technology solutions. Arrow facilities in Kamloops include the company's head office and two operating facilities:

- The Arrow-Operated CPT Campbell Creek reload (profiled in section 6.1).

- Bulk trucking (co-located with Arrow-owned Riverside Fibre).

Arrow has formed a joint venture (the Arrow/SSN Joint Venture) with the Stk'emlupsemc te Secwepemc to provide trucking service to the New Afton mine.

6.3.2 Trimac Transportation

Trimac Transportation provides bulk transportation services and related commercial services (tank cleaning, transloading, etc.) across North America.

6.3.3 Westcan Bulk Transport

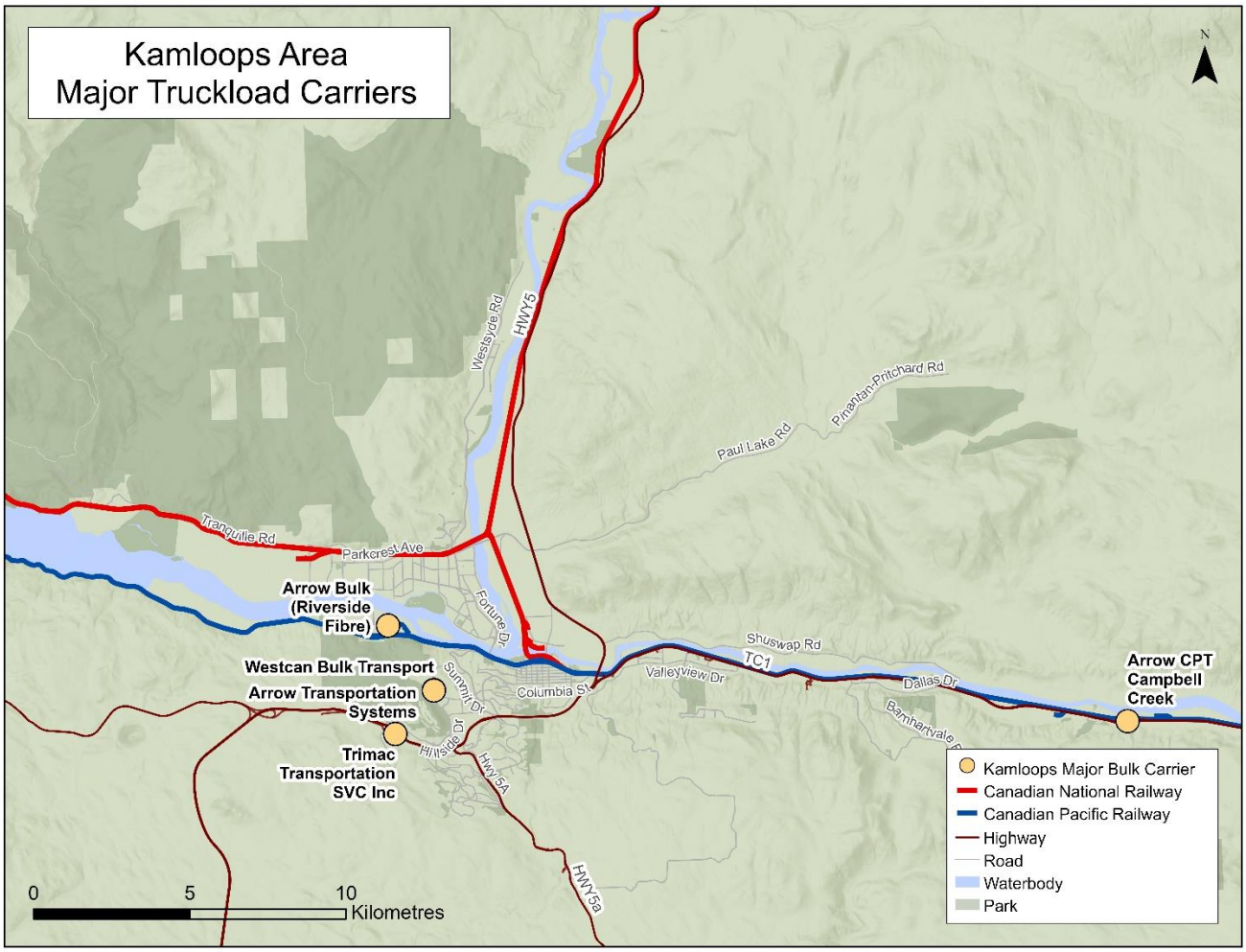
Westcan is one of the largest niche bulk commodity haulers in western Canada. The company is headquartered in Edmonton, and operates sixteen locations located throughout Alberta, British Columbia, Saskatchewan, Ontario, and the Western Arctic. Key services include bulk transportation, product handling and warehousing, and flat deck service. Westcan was purchased by the U.S. Kenan

[23] "TFI's textbook M&A strategy could lead to US headquarters" Transport Dive November 25, 2020 https://www.transportdive.com/news/TFI-trucking-logistics-mergers-acquisitions-shareholder-2020/589307/

Advantage Group in 2013. Kenan Advantage group was purchased by the Ontario-based OMERS pension fund in 2015.

The locations of major truckload carrier facilities in Kamloops are shown below.

Figure 6-2 Kamloops Major Truckload Carriers



6.4 Owner-Operators

In 2016 the Canadian Trucking Alliance estimated that owner-operators account for approximately thirty percent of the for-hire driver pool in Canada.[24] Canada Revenue Agency defines an owner-operator as "a person who owns or leases the truck they drive".[25] Owner-operators (O/Os) may contract exclusively

[24] 'CTA Study: Truck Driver Shortage Accelerating' Canadian Trucking Alliance June 14, 2016 http://cantruck.ca/truck-driver-shortage-accelerating-according-to-new-cta-study/

[25] "Truck Drivers" Canada revenue Agency https://www.canada.ca/en/revenue-agency/services/tax/canada-pension-plan-cpp-employment-insurance-ei-rulings/cpp-ei-explained/truck-drivers.html

with a single carrier ("dependent contractors"), or contract with multiple carriers ("independent contractors"). A study published in 2008 noted that "Carrier stakeholders indicate there are few, if any true independent O/O' s in Canada".[26] Based on Census data, Statistics Canada estimated that sixteen percent of truck drivers in Kamloops were self-employed in 2016.

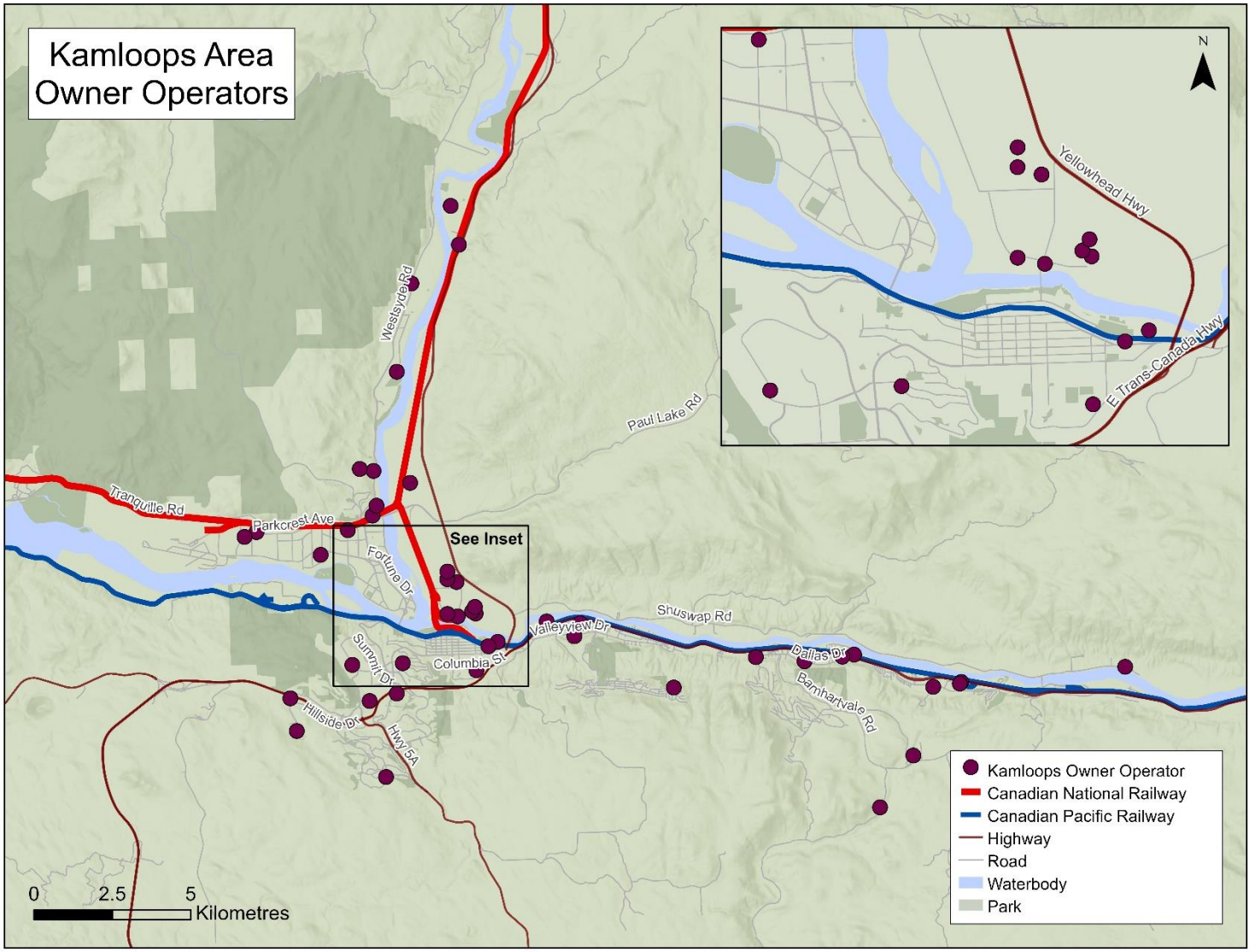
It can be difficult to identify owner/operators because they are typically not included in local business directories and may not hold local business licences. For purposes of this study, an attempt has been made to identify Kamloops owner/operators through analysis of data from the Safety and Fitness Electronic Record (SAFER) database on trucking companies ("carriers") authorized to operate in the U.S. which is maintained by the Federal Motor Carrier Safety Administration (FMCSA). The (SAFER) System allows public access to company safety data for all carriers with a USDOT number. The information provided includes the carrier's name, address, and the number of trucks and drivers registered with FMCSA. This approach is likely to underestimate the actual number of owner-operators in Kamloops since it does not include carriers who only provide service in Canada; unfortunately there is no publicly accessible database similar to the U.S. SAFER database which lists carriers registered under the National Safety Code in Canada.

Of the 64 carriers engaged in freight movements located in Kamloops listed in the SAFER database, 50 or seventy-eight percent fit the typical definition of an owner-operator (i.e. carriers with one truck and one driver). Most of these carriers probably work in the for-hire trucking sector, though some appear to be companies engaged in hauling their own goods ("private trucking"); for example, Bridgeport Floors.

The locations of these carriers are shown in the figure below. For a significant number of these carriers, the registered business address is in a residential neighbourhood. Infrastructure requirements for owner/operators are typically limited to a space to park their truck when it is not in use.

[26] The Status of Owner-Operators Under the Canada Labour Code: Is Change Needed? Garland Chow, Sauder School of Business, The University of British Columbia and Rob Weston, Principal, Transwest Consulting 2008 p. 5.

Figure 6-3 Kamloops Owner-Operators



6.5 Other Specialized Services

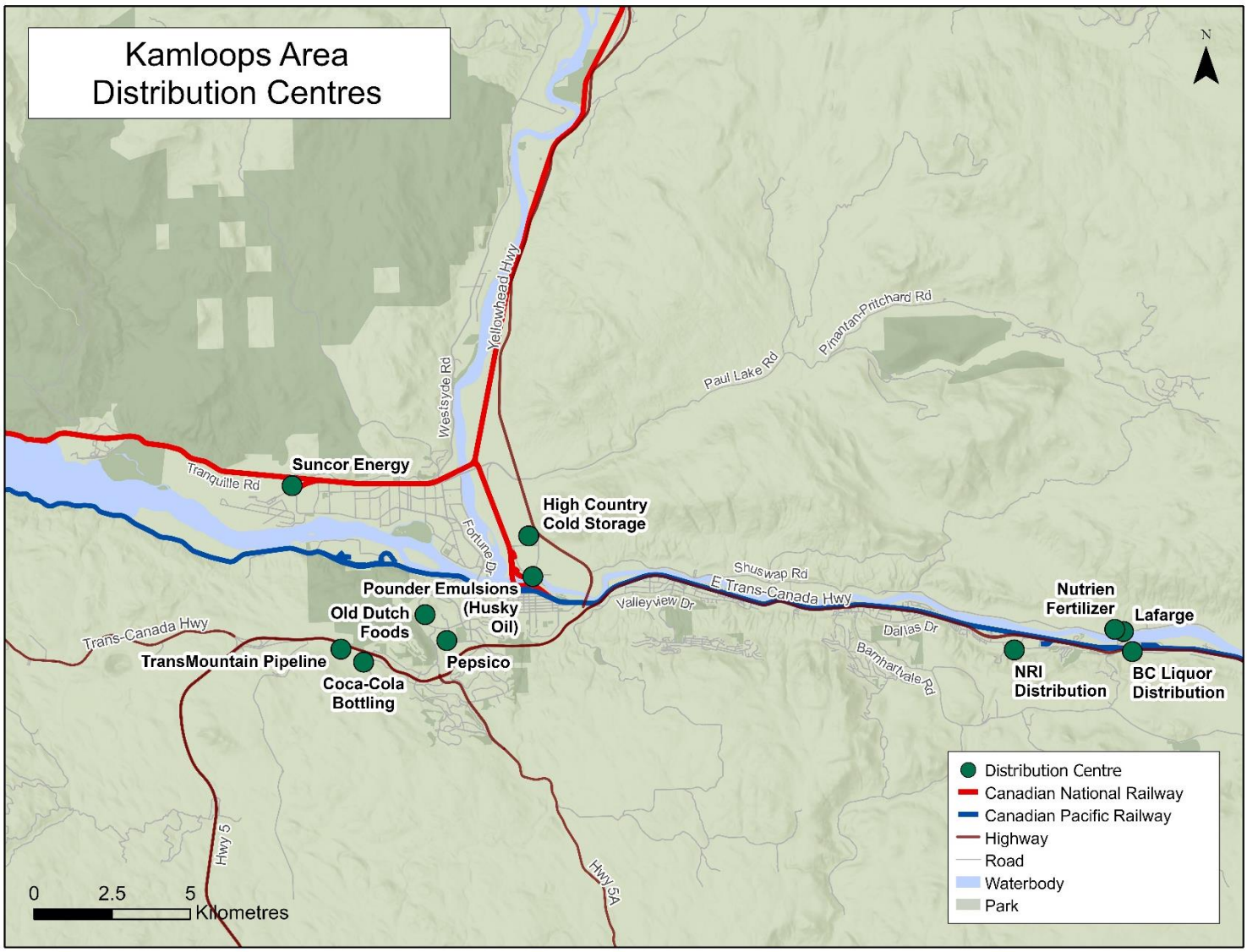
Due to the relatively high volume of truck traffic, Kamloops has a large number of commercial truck stops. Commercial truck stops represent a specialized segment of the service station industry. Services available at commercial truck stops vary widely, from basic cardlock facilities for refuelling to full service or "comprehensive" facilities with a wide variety of services including truck parking, food stores, restaurants, banking (ATM's), laundry, showers, and other services. Most commercial truck stops in BC also offer services to automobile traffic. A 2016 study conducted for the BC Ministry of Transportation and Infrastructure in 2016 found that Kamloops had the second largest cluster of truck stops in BC, with eight establishments. The largest was Prince George, with fifteen truck stops.[27]

[27] Truck Stop Services in BC - Market Research Davies Transportation Consulting Inc. for BC Ministry of Transportation and Infrastructure September 15, 2016.

7 WAREHOUSING AND DISTRIBUTION CENTRES

The locations of selected distribution centres in Kamloops are depicted in the figure below.

Figure 7-1 Kamloops Selected Distribution Centres



7.1 Large Scale Distribution Centres

7.1.1 NRI Distribution

NRI Distribution is a 3rd Party Logistics (3PL) firm specializing in premium brands of sporting goods and other consumer goods. The company began operations in Kamloops in 1997 with five employees and 9,360 square feet (sq. ft.) of warehouse space. Between 1999 and 2008 NRI expanded to occupy 426,681 sq. ft. in three buildings in Western Canada. The largest is approximately 142,000 sq. ft. and was built in

Kamloops in 2008, incorporating new technologies in warehouse management systems (WMS) and physical handling equipment to improve service to their customers and their retail customers across Canada. In addition to the Kamloops facilities, NRI now operates facilities across North America including Surrey BC; Montreal QC; New Jersey NJ; and three in the Los Angeles area. The company has recently announced new locations in Toronto and Pennsylvania. In 2017 the company moved its head office and management to Los Angeles from Kamloops.[28]

7.1.2 BC Liquor Distribution Branch

The Liquor Distribution Branch (LDB) is responsible for the importation, distribution, wholesaling and retailing of beverage alcohol in British Columbia and is the sole importer of liquor into the province. The Kamloops facility is one of two LDB distribution centres; the other is a 400,000 sq. ft. facility which was redeveloped at a cost of $57.1 million in Delta and opened in 2018. The Kamloops facility has a building area of approximately 86,600 sq. ft. on a 4-acre lot for a Floor Area Ratio (FAR) of 50%.

7.2 Other Consumer Goods Distribution and Warehousing

Snack food retailers (including Old Dutch, Pepsi, Coca Cola) operate small distribution facilities in Kamloops. These facilities are unlikely to be scaled up, as these companies maintain facilities in multiple small cities in the BC Interior, including Kelowna and Prince George.

High Country Cold Storage offers cold storage warehouse services.

7.3 Industrial Distribution Centres

Distribution centres for industrial products include:

- Lafarge: cement products.
- Nutrien: liquid fertilizers.
- Pounder emulsions: asphalt products.

These facilities are profiled in more detail in section 5.7 Rail Shippers.

7.4 Petroleum Products

Suncor Energy receives refined petroleum products (gasoline, diesel fuel) by rail and pipeline for local distribution by truck.

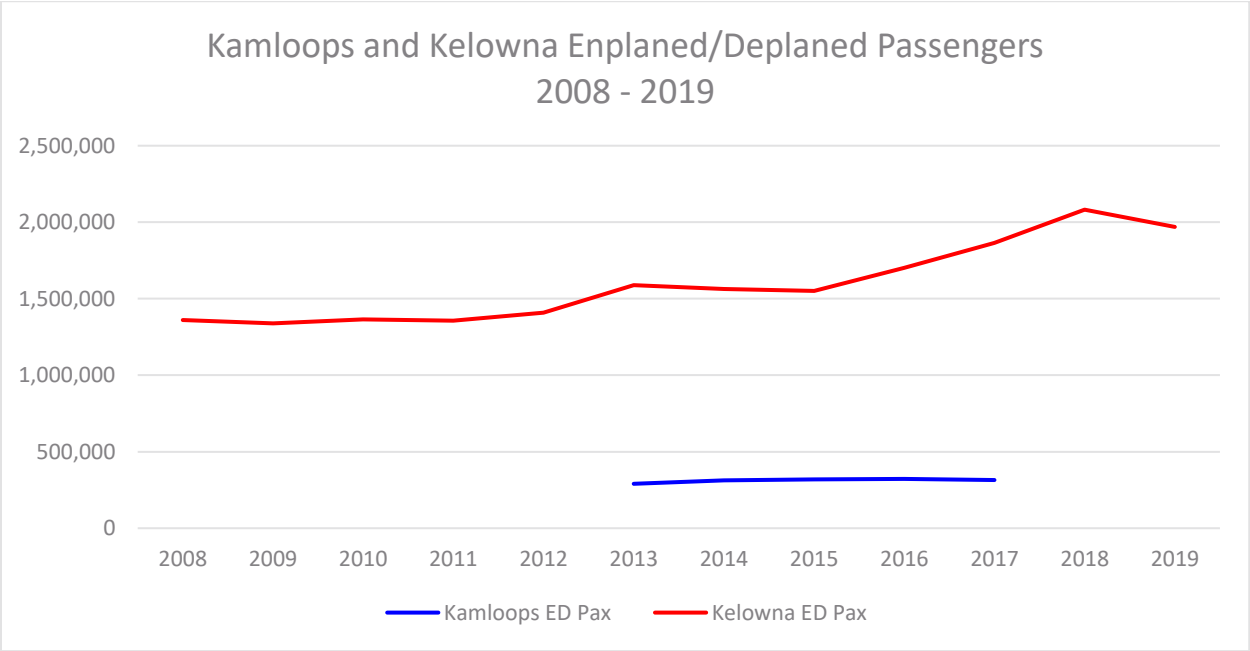
Transmountain Pipelines' Kamloops Terminal has two storage tanks and serves as a hub for local distribution of refined petroleum products shipped by pipeline from Edmonton, AB.

[28] "NRI President and CEO Relocating to U.S. Headquarters in California" Canadian Sporting Goods Association September 16, 2017 https://csga.ca/nri-president-ceo-relocating-u-s-headquarters-california/

8 KAMLOOPS AIRPORT

Kamloops Airport (YKA) functions primarily as a passenger flight hub for the Kamloops region. The airport is managed and operated by Vantage Airport Group under a long-term lease agreement. Kamloops Airport competes with the Kelowna International Airport (YLW) for aviation traffic. Due to its higher population, YLW has much higher levels of both passenger and air cargo, and a wider variety of scheduled air services. Total enplaned and deplaned passenger traffic at the two airports from 2008 to 2019 is shown below. Statistics for KLA are not available for all years because the small number of air carriers serving the airport prevents disclosure under Statistics Canada's confidentiality policy.

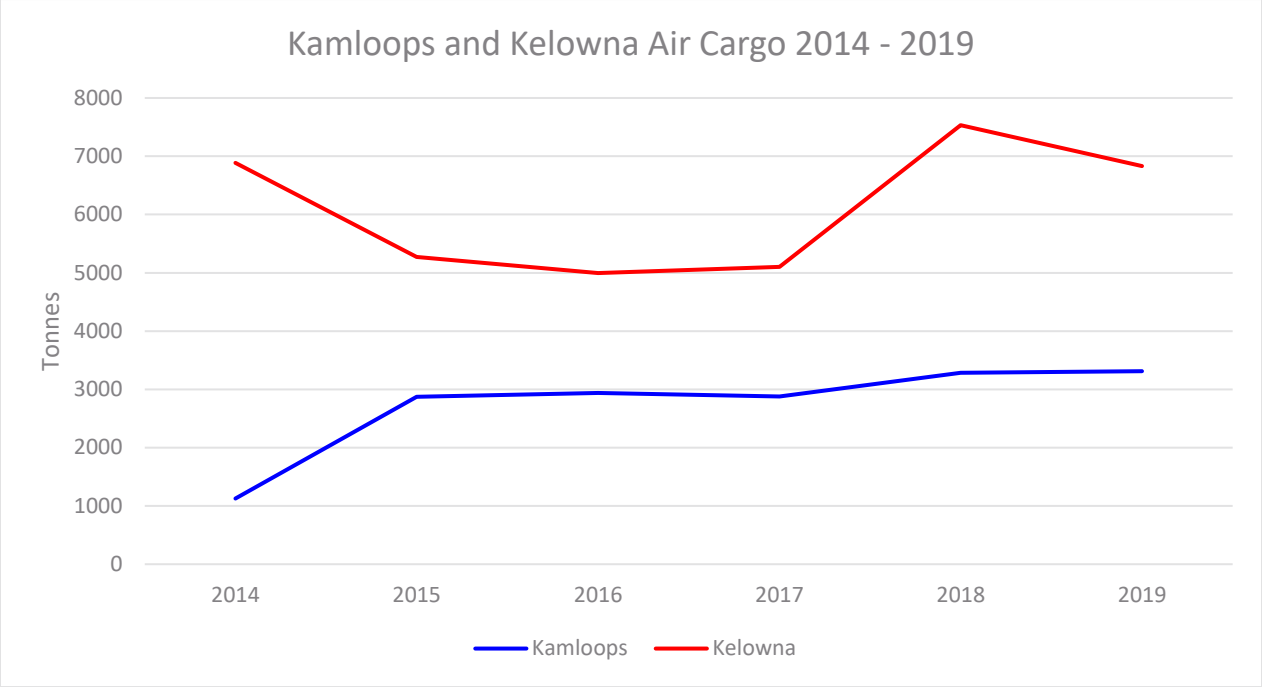
Figure 8-1 Kamloops and Kelowna Enplaned/Deplaned Passengers 2008 – 2019



Air cargo service at YKA is provided by KF Cargo who operate a feeder service from Prince George to Vancouver International Airport via Kamloops. The service provides a single daily flight in each direction on weekdays using a Convair 580, a low wing medium range commercial transport with a maximum payload capacity of 16,000 lbs and cargo volume of 2,578 sq metres.

Most air cargo is carried in the belly hold of commercial passenger aircraft, so Kelowna's advantage in passenger flights carries over into the air cargo market. Annual air cargo traffic YKA and YLW is shown in the figure below. The relatively low volume of cargo traffic at YKA is not sufficient to support stand-alone air cargo facilities at the airport or in the City of Kamloops.

Figure 8-2 Kamloops Air Cargo 2014 – 2019[29]



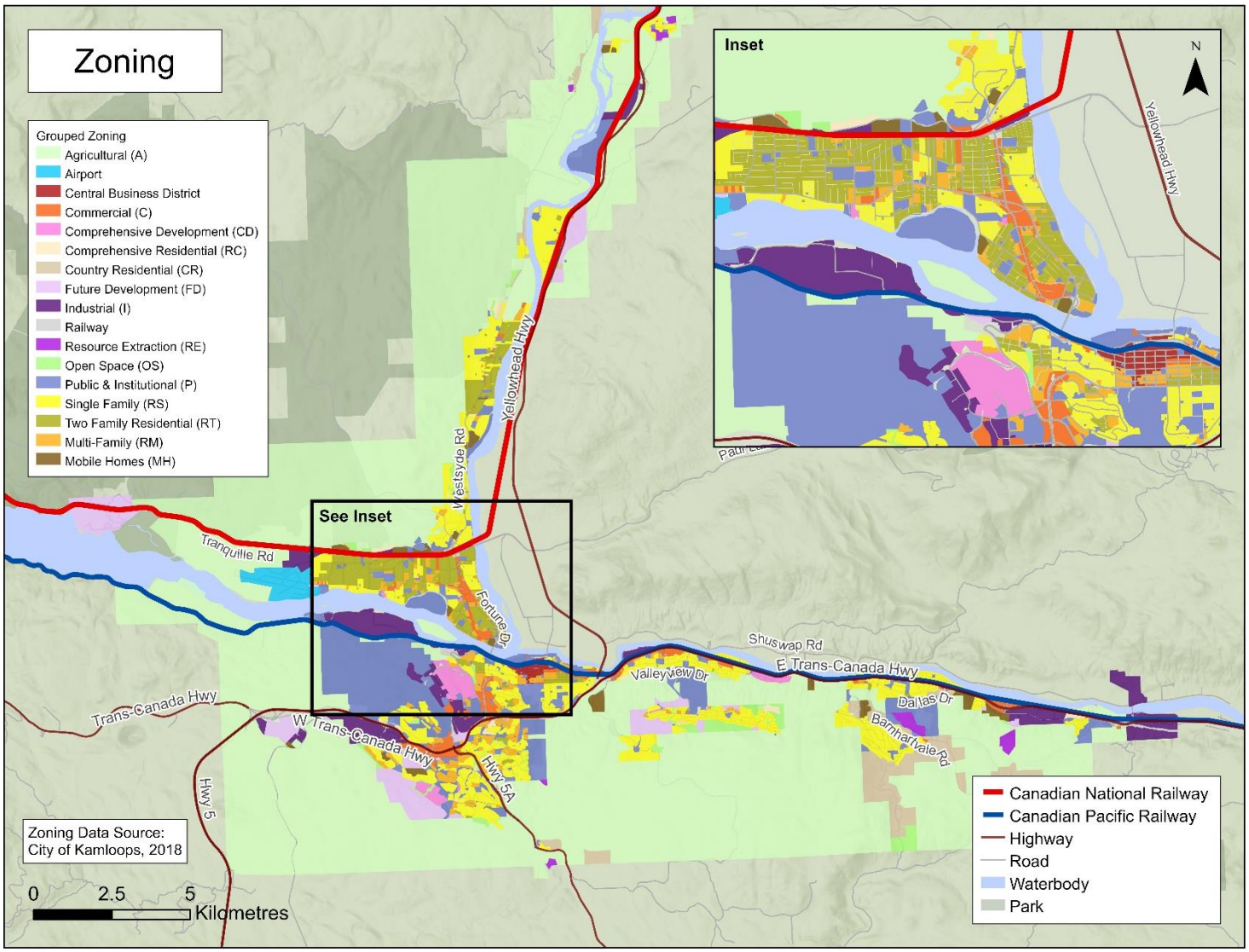
[29] Source: Air cargo traffic at Canadian airports, annual Statistics Canada Table 23100254.

9 KAMLOOPS INDUSTRIAL LAND MARKET

9.1 City of Kamloops Current Zoning

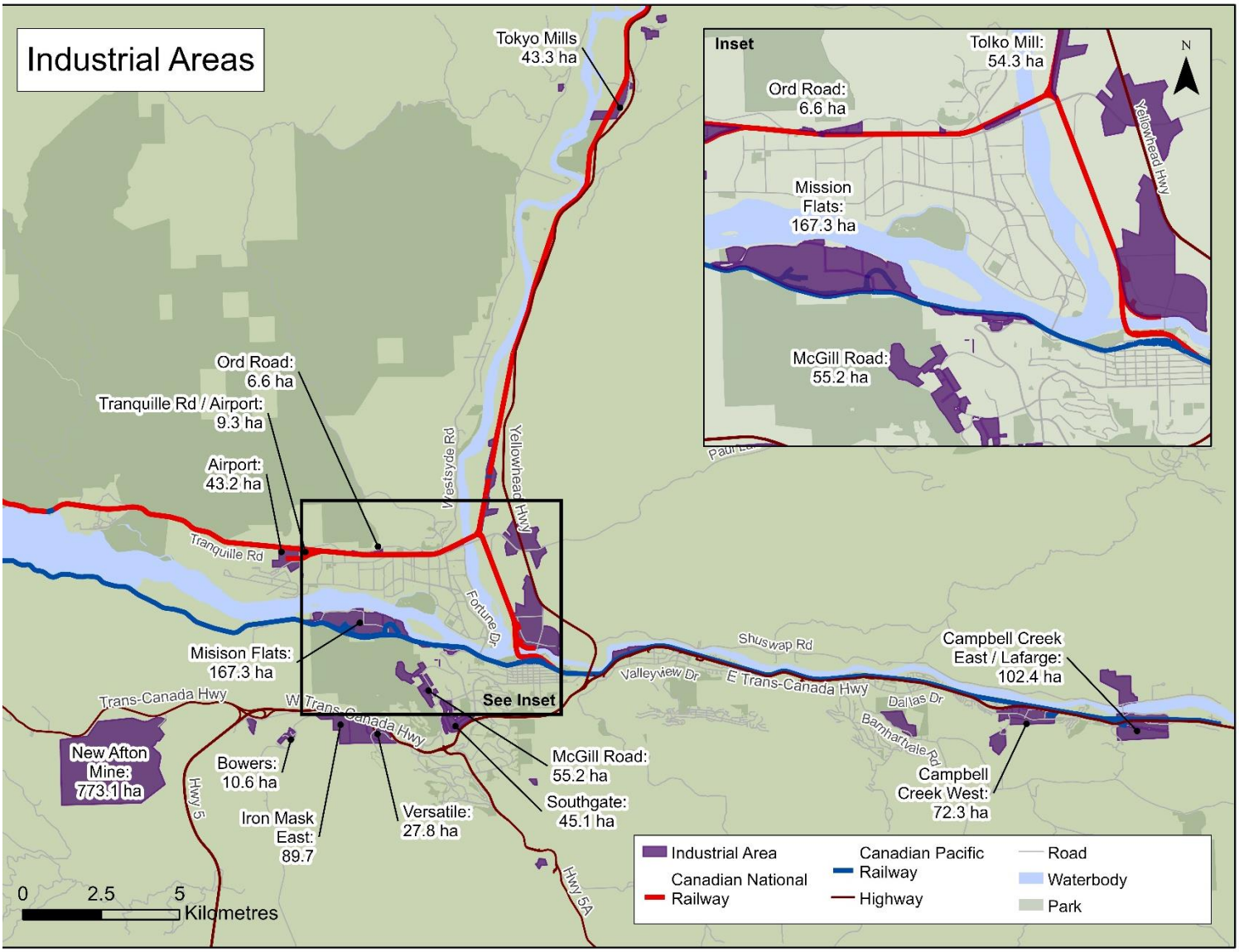
A map showing current zoning in the City of Kamloops is shown below.

Figure 9-1 City of Kamloops Zoning



Industrially-zoned sub-areas are highlighted in the figure below.

Figure 9-2 City of Kamloops Industrial Zoning



In February 2011 the City of Kamloops published a review of industrial land availability which estimated a total industrial land inventory of 772.85 ha, of which 202.95 ha was vacant.[30] A comparison with a current estimate of industrial land based on GIS data suggests that the total industrial land inventory has declined by almost 39 acres, though a portion of this difference may be due to inaccuracies in the GIS data.

[30] Industrial Land Review City of Kamloops 2010 – 2015 City of Kamloops Development and Engineering Services Department February 2011 p. 4.

The sub-area with the most significant variance from the 2010 data McGill Road, which declined from 72 ha of industrially zoned land in 2010 to 55 ha in 2021. There were several rezoning applications for parcels in this neighbourhood to accommodate growth of Thompson Rivers University, including rezoning of the 1.7 ha site of the former Canadian Freightways truck terminal from I-1S to CD-11 (Comprehensive Development). This site was purchased by Thompson Rivers University in 2015 to accommodate future expansion.

The 2011 report estimated that approximately twenty-four percent of the industrial land base was vacant in 2010. The largest area of vacant industrial land (54.7 ha or 135 acres) was in the Mission Flats, primarily due to the closure of the Weyerhaeuser sawmill in 2006.[31] This site was purchased by Cando Rail and redeveloped as a rail transload and railcar storage facility in 2017.

Figure 9-3 Kamloops Industrial Land by Sub-Area 2010 and 2021

Kamloops Industrial Land by Sub-Area 2010 and 2021			
Name	**2010 Total Ha**	**2010 Vacant Ha**	**2021 Total Ha**
Airport	46.5	23.0	43.2
Tranquille Rd/Airport	31.0	20.0	31.0
Ord Road	6.4	0.0	6.8
Tolko Mill	44.4	12.4	43.3
Mission Flats	174.0	54.7	167.3
McGill Road	72.0	7.8	55.2
Bowers	11.0	3.0	10.6
Iron Mask East	89.0	13.3	89.7
Versatile	31.0	1.6	27.8
Southgate	42.0	0.6	45.1
Kelly Douglas	18.0	2.4	18.0
Campbell Creek West	75.0	26.5	72.3
Campbell Creek E/Lafarge	111.0	3.5	102.4
Total	751.3	168.8	712.7

Permitted transportation-related uses within each industrial zoning category are summarized below.

[31] Industrial Land Review City of Kamloops 2010 – 2015 p. 16.

Figure 9-4 Kamloops Industrial Zones Transportation Uses

Kamloops Industrial Zones Transportation Uses						
	Zoning					
Activity	**I-1 Light Industrial**	**I-1S Industrial Park**	**I-2 General Industrial**	**I-3 Heavy Industrial**	**T-1 Railway**	**T-2 Airport**
Cartage, hauling, moving and storage	1	1				
Commercial cardlock facilities	1					
Truck travel centre	1		1			
Warehousing/miniWarehousing	1	1	1			
Wholesale distribution	1	1	1			
Transportation depots		1				
Railway lines, stations, yards					1	
Airport						1

9.2 City of Kamloops Official Community Plan (KAMPLAN)

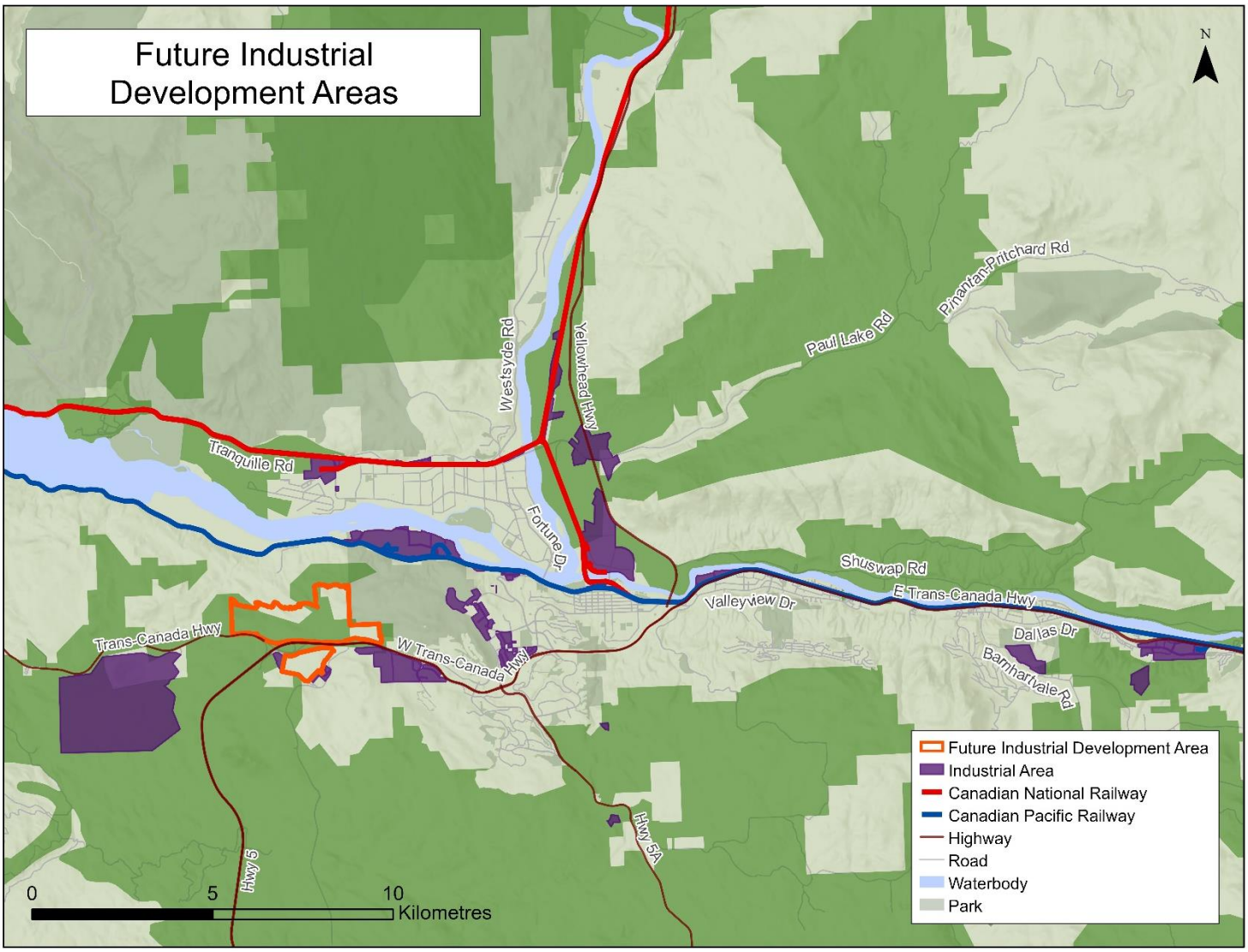
The City of Kamloops Official Community Plan[32] (OCP) proposes development of additional industrial lands in the southwest sector of the city. However, large portions of the major area identified for future development (Iron Mask North) lie within the Agricultural Land Reserve, and this issue is highlighted in the OCP:

> *Note: The use of ALR land is subject to the Agricultural Land Commission Act (ALCA) and Regulation and any provincial Orders of the ALC. The ALC has not endorsed the re-designation of ALR lands for industrial purposes within Iron Mask North Expansion Area Future Industrial Development Area nor does the establishment of this area within the OCP denote ALC support for the non-agricultural use of these lands. The non-agricultural designation of ALR land without endorsement of the ALC is considered to be inconsistent with the ALCA and Regulation and is, to the extent of the inconsistency, of no force or effect as per s. 46(4) of the ALCA.*[33]

The locations of the areas designated for future industrial development are shown in the map below.

[32] https://cranbrook.civicweb.net/filepro/documents/567?preview=3124
[33] KAMPLAN p. C-26.

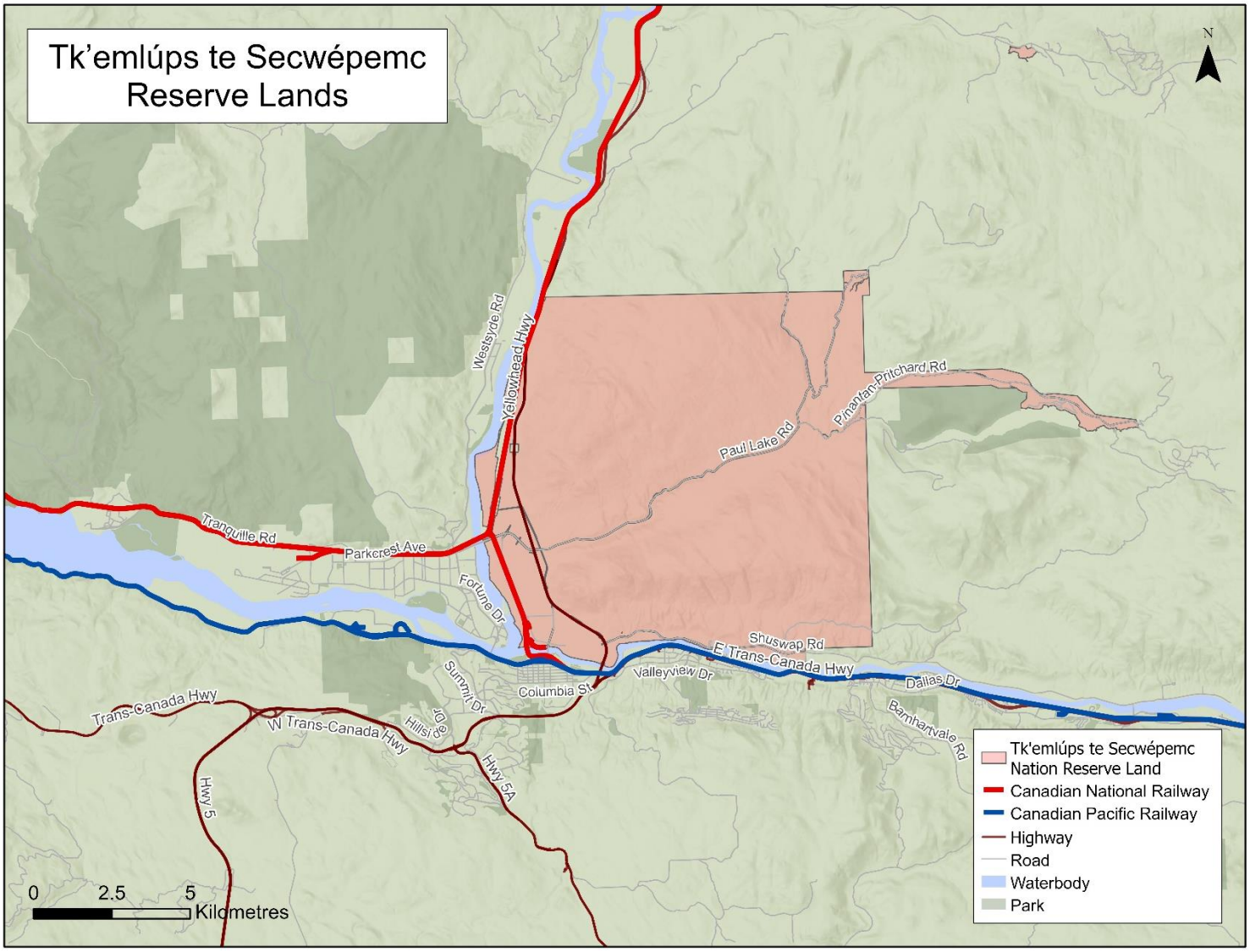
Figure 9-5 City of Kamloops Future Industrial Development Area



9.3 Tk'emlúps te Secwépemc Lands

Over the past 40 years, the Tk'emlúps te Secwépemc Band has successfully developed and operated one of the largest industrial parks in Canada – the 350 tenant Mt. Paul Industrial Park. Economic development activities are overseen by the Kamloops Indian Band development Corporation (KIBDC). The Band is developing a Master Plan for the 7-Mile project, an 81 ha (200-acre) rail-related industrial and highway commercial development on designated band lands.

Figure 9-6 Tk'emlúps te Secwépemc Reserve Lands



9.4 Industrial Land Demand

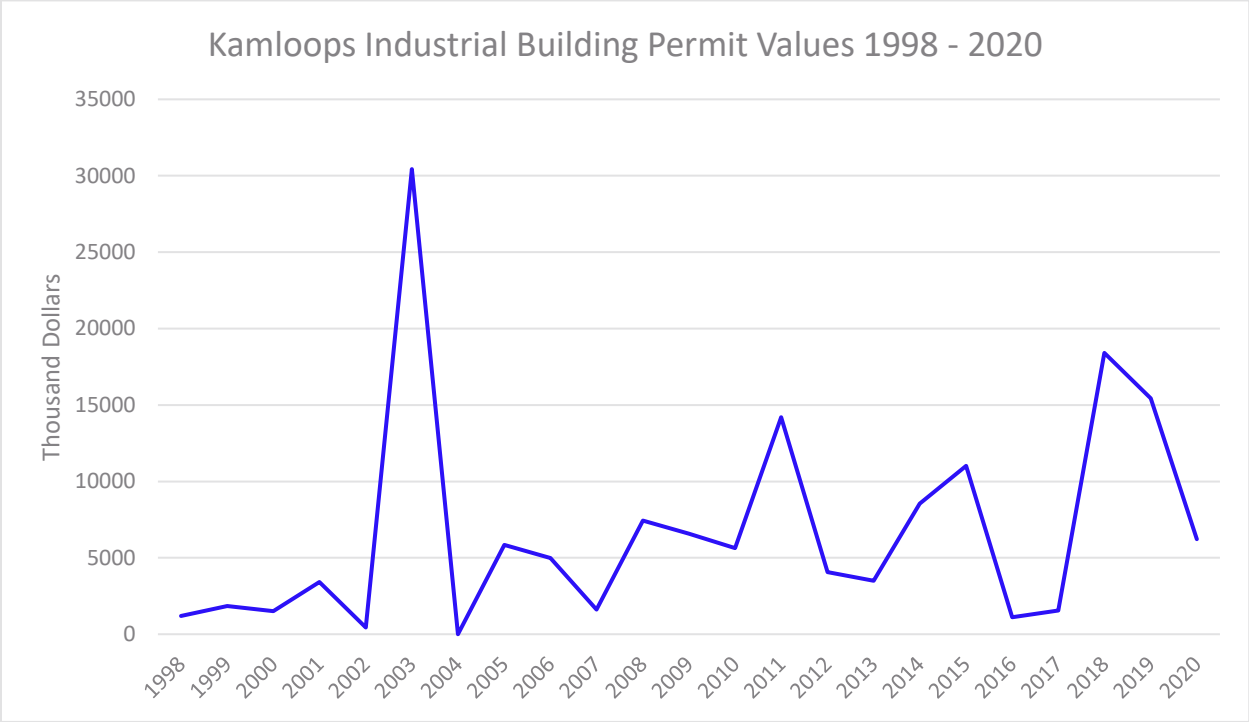
The traditional measure of demand for land is measured by the absorption rate. That is the rate at which vacant land or repurposed property is utilized for development.

The 2011 report found that the amount of vacant industrial land actually increased in the decade prior to 2010, but this was due to closure of several major industrial enterprises including the Weyerhaeuser sawmill in Mission Flats, cedar shake mill and Kamloops Wood Products in Campbell Creek West, the Imperial Oil petroleum distribution facility in Iron Mask East. Accounting for these factors and changes

due to the subdivision of larger parcels, average absorption from 2002 to 2010 was estimated at .88 ha/year. Based on building permit data, absorption was estimated at 6.04 ha per year.[34]

The absorption rate for commercial and industrial and within Kamloops since 2010 is difficult to measure due to a lack of publicly available data. The value of industrial building permits in Kamloops from 1998 to 2016 is depicted below.[35]

Figure 9-7 Kamloops Value of Building Permits 1998 – 2020



9.5 Land Prices

indicative industrial land prices for Kamloops and for potentially competing jurisdictions are shown below. The sources of these estimates include:

- Kamloops: current listings for industrial parcels in Campbell Creek West (10 acres for $4.5 million) and Iron Mask West (14 acres for $4.55 million).

- Metro Vancouver: Translink (the regional transit authority) has recently purchased a 27-acre parcel in Coquitlam near the Braid Street Skytrain station for $82 million ($3 million per acre). Other recent transactions include the $146 million acquisition of a 19-acre parcel in Burnaby by Larco Investments

[34] Industrial Land Review City of Kamloops 2010 – 2015 p. 6.

[35] Source: "Building Permits, Housing Starts & Sales" BC Stats
https://www2.gov.bc.ca/gov/content/data/statistics/economy/building-permits-housing-starts-sales

Ltd. $7.7 million per acre) and the $51 million sale of a 13.8-arce riverside site in Burnaby ($3.7 million).[36]

- Kelowna: recent sale of a 7-acre property at $1.425 million per acre and a recent listing for $2.5 million per acre.[37]

- Calgary: the City of Calgary has lots for sale in the North Dufferin Industrial park starting at $600,000 per acre; recent listings in the East Shepard Industrial Area include 10.4-acre and 23.8-acre parcels for $705,000 per acre.

Figure 9-8 Kamloops Comparative Industrial Land Costs

Kamloops Comparative Industrial Land Costs	
Location	**$ per Acre**
Kamloops	$325,000 - $450,000
Metro Vancouver	$3 million - $ 5 million
Kelowna	$1.4 million - $2.5 million
Calgary	$600,000 - $750,000

9.6 Kamloops Property Taxes

The Kamloops mill rate for transportation-related land use (Light Industry Class 5) are significantly higher than in competing B.C. jurisdictions. Actual taxes for similar facilities may be lower in Kamloops due to lower assessed land values.

Figure 9-9 Kamloops Comparative Light Industrial Property Taxes

Comparative Mill Rates Light Industrial Class 5 Properties			
Municipality	**Municipal**	**Other**	**Total**
Kamloops			19.08
Surrey	4.26	4.97	9.23
Delta	5.98	2.30	8.28
Kelowna	6.78	3.15	9.93

[36] Soaring industrial land prices define a strong sector Business in Vancouver September 23, 2020 https://biv.com/article/2020/09/soaring-industrial-land-prices-define-strong-sector

[37] "Booming Kelowna has one of Canadas worst industrial space shortages" Real Estate News Exchange September 23, 2020 https://renx.ca/kelowna-booming-industrial-sector/

10 NEEDS ASSESSMENT AND SWOT ANALYSIS

10.1 Key Success Factors

10.1.1 An Adequate Catchment Area

Potential demand has been analyzed using the concept of "catchment area" i.e. the geographical region which can be economically served from a specific location. Transportation facilities require a minimum level of demand for successful commercial operations (minimum scale of operations). For example, an LTL trucking company requires sufficient traffic at each terminal location to cover the fixed costs of operating the terminal, and the variable costs of operating trucks on a regular schedule.

For freight transportation services related to local consumer goods, the primary determinant of demand is the population of the surrounding area and relative transportation costs. At the simplest level, relative transportation costs are primarily determined by distance.

For freight transportation services related to industrial goods, the primary factors determining the potential catchment area include the types and quantities of goods produced in the region, the origins and destinations of production inputs and finished products, service characteristics and characteristics of the transport networks.

From a more complex supply chain perspective, relatively lower costs for other cost elements (investment, procurement, production and inventory costs) may be sufficient to offset higher transportation costs and enable a community to participate in broader markets. For example, lower industrial land prices in Kamloops may be sufficient to attract additional investment in distribution facilities for offshore imports destined for North American markets as land prices and lease costs continue to rise in Greater Vancouver. However, Western Canada regional competition with locations such as Calgary will remain fierce and the level of property taxes has the potential to impact business expansion or location decisions.

10.1.2 Logistics Facilities Site Requirements

While each specific type of logistics facility has its own site requirements, there are some general site requirements for logistics facilities including:

- Good access to a major highway (and rail line for rail-based services).
- Large footprint to enable easy maneuvering of large vehicles.
- Relatively flat topography. Properties with slopes over ten percent (10%) are not suitable for logistics facilities or generally for forklift operations (i.e. containers and wood products etc.). Property slopes of a greater grade may be suitable for tank farms (all liquids) and aggregates or anything that can be moved by conveyor belt. Maximum permissible grades on rail service tracks are typically 1.5% to 2%.

10.1.3 Good Access to a Highway Network

Kamloops is well-located on the major east-west truck routes between Metro Vancouver and the major Alberta population centres of Calgary and Edmonton. The routing through Kamloops accounts for an estimated sixty percent of east-west interprovincial heavy truck traffic on the TransCanada Highway.

10.1.4 Reliable and Competitive Rail Service

Rail service requirements differ depending on the type of facility. Industrial customers often require one of the two types of carload railway service: “unit train” or “manifest” operations. A unit train is a single train consisting of multiple cars loaded with a single commodity, typically shuttling between a single origin and destination and returning. “Manifest” rail services consist of shipments of single cars or blocks of cars assembled into trains with mixed commodities.

Due to its location on the CN and CP mainlines linking the Port of Vancouver to the rest of Canada and Eastern U.S., there is a very high volume of rail traffic transiting Kamloops. Unit train traffic includes coal shipments from Teck’s mines in southeast BC, potash shipments from Saskatchewan mines, westbound grain shipments, by-product sulphur from oil and gas operations, and intermodal trains carrying international and domestic containers. These operations have minimal direct interaction with the local Kamloops economy.

Transload operations and local industrial shippers in Kamloops use manifest rail service to ship single cars or smaller blocks of cars.

An Inland Port or rail intermodal facility requires intermodal rail service. The closest Class 1 intermodal terminals are located in Metro Vancouver and Calgary. Expansion of intermodal service to additional terminals imposes very high system costs on rail operations and is likely to occur only where incremental traffic volumes are sufficiently high to offset these costs.

10.1.5 Phased Development to Limit Initial Capital Investment

The availability of sufficient serviced industrial land to enable firms to build initial capacity and expand in stages on the same site can impact investment decision making regrading location analysis. Jurisdictions with reasonably priced municipal service ready industrial land that can be brought into production in a timely and cost-effective manner have a location advantage over jurisdictions with complex and expensive regulatory systems that prevent a business from acting quickly on market conditions and economic outlooks over the short to mid-term.

10.2 SWOT Analysis

10.2.1 Consumer Goods Sector

The table below shows Strengths, Weaknesses, Opportunities and Threats for the consumer goods sector. For consumer goods, the primary factors determining the potential catchment area for new logistics developments include regional population and distance.

Figure 10-1 Kamloops Consumer Goods Sector - Transportation Strengths, Weaknesses, Opportunities and Threats

Consumer Sector	
Strengths	**Weaknesses**
Relatively Low Industrial Land Prices relative to Metro Vancouver and Calgary	Relatively high property taxes
Central location Vancouver-Calgary - Edmonton	Distance from Port terminals increases inbound transportation cost for imported goods
Good highway access	Limited air cargo service
	Relatively small population base limits local consumer market.
Opportunities	**Threats**
Expansion of distribution facilities related to international trade through the Port of Vancouver	
Potential redevelopment of forest-related industrial sites	

Major opportunities for consumer goods in the transportation and warehousing sector in Kamloops include:

- Potential expansion of distribution activity related to international trade through the Port of Vancouver, particularly for imports of consumer goods. Rising congestion and costs in Metro Vancouver were identified as potential drivers for development of an Inland Container Terminal in Kamloops as early as 2006, with a primary focus on transloading forest products into international containers.[38] However in Canada the Class 1 railways to date have not expanded their intermodal (containerized) rail services to small centres, which is a prerequisite for the kind of facility proposed in the 2006 Venture Kamloops study.

- Industrial land availability has reached a critical tipping point in Metro Vancouver, and prices have risen to a level almost ten times that of industrial land in Kamloops. The primary driver of these trends has been the development of large-scale distribution centres handling consumer goods imported through the Port of Vancouver destined in large part for markets in the U.S. mid-west. For Kamloops to be competitive in participating in enhanced regional market access, the advantage in lower facility costs must be sufficient to offset the higher transportation costs resulting from the increased distances for both inbound and outbound transportation. The success of NRI Distribution in Kamloops has demonstrated that expansion of large-scale distribution activities to Kamloops is feasible for certain types of consumer goods.

[38] Opportunity Assessment for an Inland Intermodal Container Facility in Kamloops Satwinder Paul and Nova Woodbury, Advanced Technology Centre, Thompson Rivers University, for Venture Kamloops, September 2006,

The availability of large parcels of industrial land previously occupied by forest products mills can provide opportunities for redevelopment. Examples in Kamloops include the development of NRI Distribution's four buildings on the former site of a Log Home manufacturer, and redevelopment of the former Weyerhaeuser sawmill site as a transload/railcar storage facility by Cando Rail.

10.2.2 Industrial Sector

For industrial goods, the primary factors determining the potential catchment area include the types and quantities of goods produced in the region, the origins and destinations of production inputs and finished products, and service characteristics. The location of regional logistics facilities along with the configuration of the railway networks and railway service philosophy also plays a role in determining the level of demand for transportation of industrial commodities.

Figure 10-2 Kamloops Industrial Goods Sector - Transportation Strengths, Weaknesses, Opportunities and Threats

Industrial Sector	
Strengths	**Weaknesses**
Location at intersection of CN and CP Rail lines serving Port of Vancouver provides good rail access	
CN/CP Rail interchange enables competitive railway access through regulated interswitching rates	
Good highway access	
Opportunities	**Threats**
Potential redevelopment of forest-related industrial sites	Vulnerability of forest sector to ongoing decline due to timber supply constraints
Availability of vacant rail-served sites in Mount Paul Industrial Park (Tolko and Wilkinson Steel) for redevelopment	

Potential opportunities for transportation and warehousing of industrial goods include:

- The availability of vacant industrial lands with direct rail access may provide an opportunity for new carload rail shippers serving regional industrial markets. There are currently two vacant sites in the Mount Paul Industrial Park, including the former Wilkinson Steel site and the Tolko reload facility which is no longer in use following closure of Tolko's Kelowna mill.

The availability of transload facilities or industrial lands with good access to a Class 1 railway is also beneficial for maintaining the position of Kamloops as a major hub for project logistics cargo in British Columbia. Maintaining access to these facilities on the Provinces's heavy-haul road network is important for expanding the market reach of Kamloops to support major capital projects in the natural resource sector.

11 TRANSPORTATION AND WAREHOUSING OPPORTUNITIES

11.1 Warehouses and Distribution Centres

A study published in 2010[39] found that from 1995 to 2006 growth in the North American warehousing sector was driven primarily by growth in the very large distribution center, or mega-DC (employing more than 100 workers in facilities greater than 500,000 square feet). These large facilities generally focusing on consumer goods have enabled reductions in distribution costs due to economies of scale. However, in some locations demand is the driving force in the need for modern warehouse and distribution facilities including:

- Reduced management costs (fewer managers per employee).

- Larger warehouses are also able to handle the high volumes of traffic required to make 24-hour operations economically feasible. In turn, operating around-the-clock allows management to better schedule truck loading and offloading and reduce driver wait times and help ensure fewer truck movements during times of peak traffic congestion.

- Extending the hours of operation also allows deliveries to be scheduled around times of typical highway congestion or to match port or rail operating schedules.

- Increasingly sophisticated technology enables processing of large amounts of data to facilitate optimization of warehousing and distribution activities.

Analysis of the locations of large distribution centers in the United States found that they are highly clustered and in reasonably proximity. The study also found that while access to a single regional population center remains desirable, a new breed of mega-DC has emerged which optimizes access to multiple regional markets. This spatial restructuring has increased dependence on trucking, as the last leg of the supply chain has become even longer.

In the Canadian industrial land market, construction is slightly weighted towards speculative projects offering larger bay sizes and higher clear height. The demand for these facilities is driven by three key sectors: e-commerce, warehousing and supply chain-logistics. Sustainability is an evolving trend in the design of industrial facilities, including energy-efficient features and low-maintenance designs. Buildings with these features are marketed to major domestic and U.S. retailers with near-term plans to expand or establish distribution networks as part of their e-commerce and omni-channel strategies, which are marrying warehouse/logistics and retail. For example, demand by multinational retailers for large-block

[39] Andreoli, D, Goodchild, A. and Vitasek, K. (2010), '*The rise of mega distribution centers and the impact on logistical uncertainty*', Transportation Letters: The International Journal of Transportation Research. https://depts.washington.edu/pcls/documents/research/Goodchild_RiseOfMegaDCs.pdf

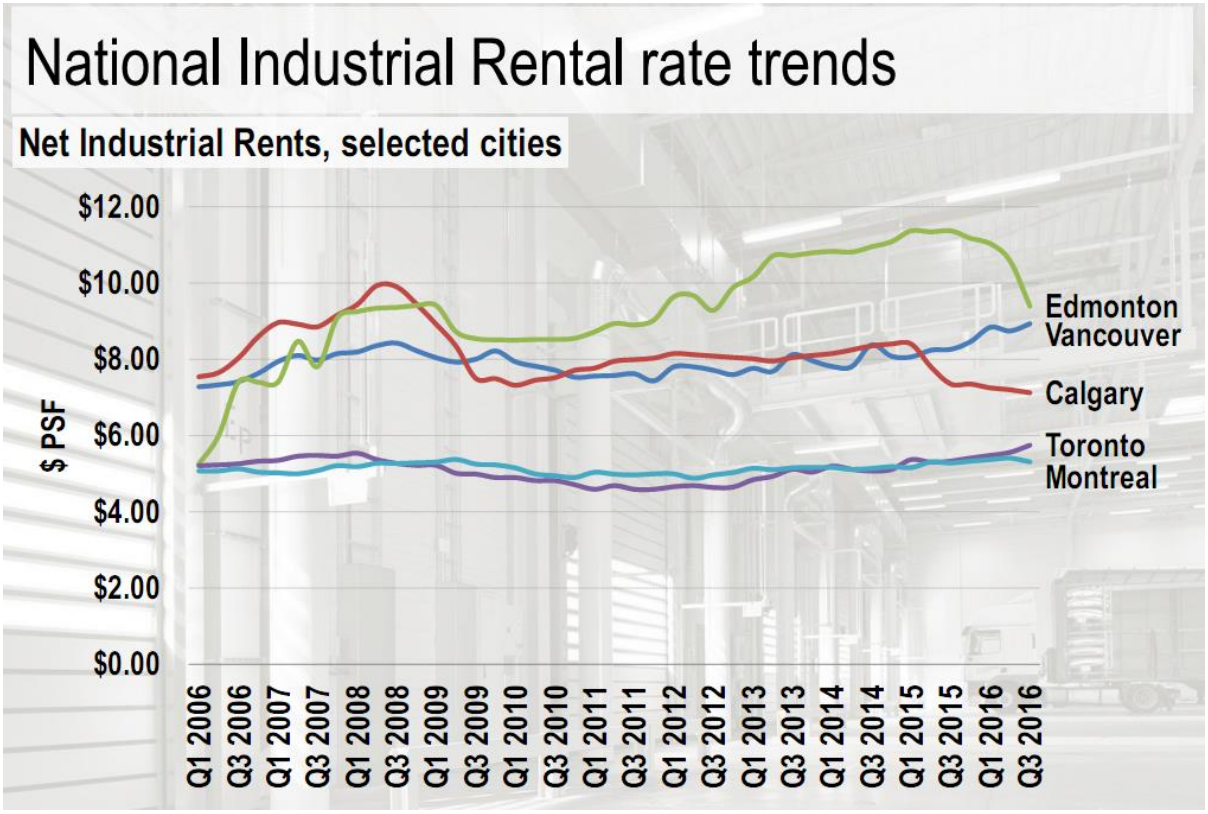
industrial space has contributed to the development of modern facilities focused on maximizing trailer parking and truck-level doors, as well as high clear heights.

Firms are developing specialized distribution facilities to perform specific functions, including store replenishment, on-line order fulfillment and omni-channel marketing. The pattern of Western Canadian logistics activities for major Canadian retailers established in the first decade of this century was a focus on transloading imports from international to domestic intermodal containers in Metro Vancouver, and the use of Calgary as the distribution hub for Western Canada.

The specialization in import transloading rather than regional distribution has been a major factor in the scale of logistics development in Metro Vancouver relative to Calgary. High land costs and limited availability of large parcels of land suitable for development and with capacity for future expansion has resulted in limited growth in the construction of very large industrial warehouses in the Lower Mainland compared to other North American locations.

Indutrial rental rate trends for major Canadian cities from 2006 to 2016 are shown below.

Figure 11-1 Industrial Rental Rate Trends 2006 – 2016[40]



Calgary's dominance as the distribution hub for Western Canada eroded somewhat from 2010 to 2015, as industrial rents climbed to levels comparable to those in Metro Vancouver. However costs in Metro

[40] Source: Canadian Industrial Market Overview 2016 Toronto Real Estate Forum Wendy Waters GWL Realty December 2016.

Vancouver have continued to rise, while those in Calgary have declined as a result of the economic downturn in Alberta.

Expansion in the Lower Mainland has occurred in a number of areas, including the 769 ha (1,900 acre) Campbell Heights industrial business park in South Surrey; the initial 40 ha (90 acre) Phase 1 development of the 120 ha (300 acre) Deltaport Logistics Centre on Tswawassen First Nations lands close to Deltaport in Delta; and infill and redevelopment along River Road in Delta following completion of the South Fraser Perimeter Road linking Highway 1 to Deltaport at Roberts Bank.

High industrial land prices and low vacancy rates continue to drive industrial rents in Metro Vancouver higher. Average rents increased more than 30% from 2017 to 2020 in Burnaby, Richmond and Surrey, which is likely to spur renewed interest in options outside of Metro Vancouver.

Figure 11-2 Metro Vancouver Industrial Rents 2017 – 2020

Municipality	Gross Rent $ per sq ft 4Q 2017	Gross Rent $ per sq ft 4Q 2020	% Change
Burnaby	$13.25	$18.48	39%
Richmond	$13.25	$17.32	31%
Delta/TFN Lands	$12.63	$15.97	26%
Surrey	$12.09	$16.62	37%
Langley	$13.17	$14.82	13%

The primary physical site requirement for development of large-scale distribution facilities is the availability of large parcels of flat land with good highway access. To ensure sufficient space for trucking activities, a maximum Floor Area Ratio (FAR) of 50% is typical. On this basis, a 200,000 sq ft warehouse would require a 4 ha (10 acre) site.[41]

Current land availability in Kamloops appears more than sufficient to accommodate development of additional distribution facilities if the lands are properly serviced with municipal infrastructure on a timely and costs effective basis. There are currently two sites for sale in Kamloops industrial parcels in Campbell Creek West (10 acres for $4.5 million) and Iron Mask West (14 acres for $4.55 million). Longer term expansion of the distribution sector may require redevelopment of existing industrial properties, or preparation of new lands for development. There may be suitable land available in the Mount Paul Industrial Park.

The one area where action might be taken by the City of Kamloops is the Light Industrial property tax rate. The existing rate is much higher than other B.C. jurisdictions, and this may be a consideration in site selection, particularly since the potential competitive advantage Kamloops is hoping to capitalize on is lower fixed costs for warehouse facilities relative to competing locations.

[41] The largest existing NRI Distribution facility in Kamloops covers approximately 142,000 sq ft on a 6.5 acres site for a FAR of 50%.

11.2 Rail

11.2.1 Rail Facility Site Requirements

The site selection criteria for rail facilities have elements in common or "generic criteria". These include:

- Land parcels of sufficient size to accommodate the transload facility and associated rail and road infrastructure, and with appropriate topography to accommodate rail operations if necessary.
- Appropriate land use designations (industrial zoning) and not close to environmentally sensitive areas.
- Availability of vacant land, land prices, transportation access, utilities and services.
- Proximity to existing and potential shippers.
- Availability of additional industrial land in close proximity for potential additional industrial developments associated with a transload facility.
- The ability of a site to accommodate Class 1 railway economics and operating model.

11.2.2 Railcar Storage

The long-term trends which have driven growth in demand for car storage include:

- An increasing share of private railcars in the overall railcar fleet. The large railways' focus on reducing their own costs has made them reluctant to invest in rail cars, and reductions in the railway car fleet have led to problems for shippers due to unreliability in car supply for handling their freight in a timely manner. In addition, traffic for certain hazardous goods (particularly crude oil) has increased and the railways do not supply railcars for this traffic.
- Increases in railway charges for storing private railcars on their tracks. CP currently charges $130 per day for storing private railcars on their track in the Vancouver area[42]; CN charges $155[43]. Charges outside of urban areas are lower, but still substantial ($70 for CP and $90 for CN).

Short term demand for railcar storage depends on the level of utilization of the private railcar fleet. When shipment volumes fall below anticipated levels, railcars are taken out of service and shippers need

[42] CP Tariff 2 Railcar Supplemental Services.
[43] CN Shipping Regulations and Optional Services CN 9000-AE (S3) Effective April 1, 2021.

to move them off the Class I railways' networks to avoid high storage charges. Kamloops is ideally situated due to its strategic location on the CN and CP mainlines serving the Port of Vancouver.

The largest existing facility offering storage services for private railcars in BC's Southern Interior is Ashcroft Terminals. The facility was developed on a 320-acre site with direct access to CP Rail and adjacent to the CN Rail line in the Fraser Canyon 97 km west of Kamloops. A controlling interest in the company was bought by the Singapore-based terminal operator PSA International in 2018, and a $28.2 million expansion of infrastructure on the site is under way, assisted by a $9.2 million contribution by the federal government. Ashcroft Terminals was originally conceived as an Inland Container Port for transloading of bulk containers into containers for export through the Port of Vancouver, and that remains the goal. However, most of the company's revenue appears to come from railcar storage, and to date the facility does not receive regular intermodal rail service.

The rail facility developed by Cando Rail in Kamloops in 2017 provides railcar storage services. Nationally, Cando Rail is a major supplier of railcar storage services. In October 2020 Cando opened a new railcar storage terminal with the capacity to store up to 1,900 railcars utilizing a loop-track system in Sturgeon County, Alberta. Development was supported by a federal contribution of $15 million from Transport Canada under National Trade Corridors Fund program. Cando's Kamloops facility also offers transloading services, and is currently transloading construction materials for the TransMountain Pipeline expansion project.

The proposed North Thompson Rail Terminal has also been designed to provide railcar storage.

Railcar storage can be considered as the first activity which has been substantially displaced due to congestion and lack of infrastructure in Metro Vancouver. The railways have implemented high storage charges in urban areas to discourage private car owners from storing their railcars on Class 1 track, thus sparking the development of railcar storage facilities ion private track outside of urban areas. While these facilities are a valuable asset for communities, they provide a relatively low employment density.

11.2.3 Rail Transload Facilities

Multimodal service for bulk and breakbulk freight[44] is provided by truck-rail transload or "reload" facilities where freight is transferred between truck (typically in full truckload service) and rail. Transload facilities in BC are typically used for the following reasons:

- Truck to rail transload facilities were established to maintain service to rail shippers affected by rail line abandonment. Transload facilities are also used to enable access to rail transportation where the traffic volume is not sufficient to justify investment in a branch line.

[44] Breakbulk Cargo encompasses a variety of goods that must be loaded individually, and not in intermodal containers nor in bulk as with oil or grain. Common commodities transloaded in the Columbia Basin include lumber and steel.

- Transload facilities enable shippers captive to a single railway to access competing railways to obtain lower rates.

- Access to a railway for mineral or some other form of industrial material handling requirements.

Historically the primary market for transload operations in Kamloops has been forest products, with the Arrow transload facility on CP Rail and Tolko operating a facility in the Mount Paul industrial park. Following the closure of their Kelowna mill, Tolko has ceased operating their transload facility and the site is currently idle.

The new Cando Rail facility is currently offering transload services, and the proposed North Thompson Rail Terminal is also planning to offer transload service. These facilities are likely to be adequate for demand in the short to medium term.

11.2.4 Carload Rail Service

The currently vacant Tolko transload and Wilkinson Steel sites in Mount Paul Industrial Park may provide opportunities for the establishment of new industrial facilities for which rail transportation would be an advantage, especially for shippers requiring “manifest service”, or for major industrial, infrastructure or natural resource development opportunities that could make use of project cargo logistics facilities from time to time.

11.2.5 Rail Intermodal Service

In North America, rail intermodal service refers to the transportation of cargo in standardized steel containers. Intermodal services are divided into two categories based on the type of containers used:

- International intermodal traffic is shipped in standard international containers designed for use by international shipping lines to be transported by oceangoing vessels, typically 20-foot and 40-foot containers.

- Domestic intermodal traffic is typically shipped in large containers, typically 53 feet in length to correspond to the maximum length limitations of over-the-road highway trailers.

In general CN and CP do not provide service to smaller rail hubs in Canada, focusing on unit train operations between intermodal terminals in large urban areas. Intermodal train lengths have increased to 12,000 feet or longer, and are shuttled between large origin-destination terminals to maximize railway efficiency and minimize transit times. Successful development of a rail-served Inland Container Terminal would require a change in the railways’ current operating model.

11.3 Trucking

11.3.1 Less than Truckload (LTL) Truck Services

Less Than Truckload (LTL) means a shipment that does not require a full 48-or 53-foot trailer. LTL carriers require a network of terminals and generally operate with hub-and-spoke system of pickups and deliveries. LTL service is less competitive than truckload service, because the relatively high fixed cost of terminal operations and regularly scheduled services represent a barrier to entry in the otherwise deregulated trucking industry.

The catchment area for LTL services is limited by the distance that pickup and delivery operations can be economically carried out. This is determined by the type and size of trucks, distribution of customers, typical loading and unloading times, etc. In this regard it is useful to note that the LTL carriers serving Cranbrook also maintain (through ownership or contractual arrangements) facilities in Castlegar. This suggests that expanding services westward would be difficult; and the close proximity of Calgary and Lethbridge to the east would also make expansion difficult. However, it is important for the community over the longer term to have a sufficient commercial industrial land base that can retain existing service providers looking to consolidate their regional presence or move to a new location when their existing capital stock and building become functionally outdated.

11.3.2 Truckload Truck Services

Truckload carriers specialize in the transport of full trailer loads of a single commodity from origin to destination. Truckload carriers often specialize in moving a specific kind of freight. Some carriers will primarily transport food and perishable items, whereas others may specialize in moving poisonous and hazardous materials. Carriers may choose to transport only specific commodities due to specialized equipment and/or insurance requirements.

A truckload carrier typically requires no fixed infrastructure for handling freight. Facilities typically consist of a fenced yard (paved or gravel) and an office and/or maintenance building.

12 RECOMMENDATIONS

Based on the demand analysis, the most promising potential opportunity is expansion of the Distribution Centre sector for international imports. There appears to be sufficient industrial land available to accommodate this growth in the short term. If Kamloops wishes to position the City for long term growth in this sector, development of additional suitable industrial lands may be required. The key to competitiveness in this sector is sufficiently low fixed costs (industrial rents) to offset the higher transportation costs incurred from a relatively remote location, and the key competing location in the future may be the City of Calgary. It may be worthwhile to undertake assess the longer-term competitiveness of Kamloops as a location for this activity, taking into account all costs (facility costs, transportation costs, labour availability, land costs, taxes, etc.) if the City plans to invest in additional industrial lands to capitalize on this opportunity.

13 APPENDIX A FREIGHT TRANSPORTATION BACKGROUND

Rail transportation is primarily suited to the transportation of relatively low value, heavy commodities over medium to long haul routes. This is due to the cost structure of railway operations. Railways have high fixed costs because of the substantial capital investments required for construction and maintenance of tracks and yards, and the costs of locomotives and rail cars. Railway variable costs are relatively low, because rail operations are substantially more fuel efficient than trucking, and personnel costs are much lower per unit of freight. In British Columbia the major commodities carried by the railways include coal, potash, sulphur, grain, chemicals, forest products and intermodal containers.

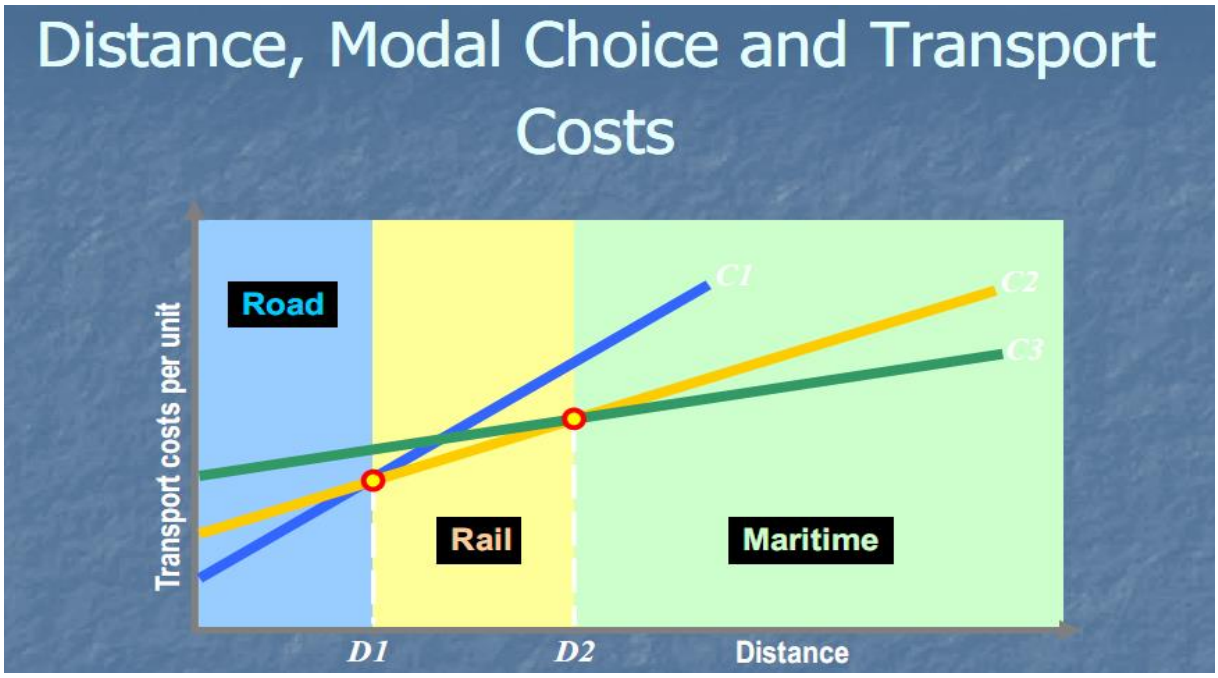
Truck transportation is more suitable for the transportation of high value, time sensitive commodities over short to medium distances. Trucking provides better service in terms of frequency, transit time and reliability. Fixed costs are low relative to rail, because the major capital investment – the road system – is publicly built and maintained.

Trucking can be divided into two sectors: **Truckload** and **Less than Truckload (LTL)**. **Truckload Carriers** generally transport full loads of a single commodity from origin to destination, and fixed costs are limited to capital and maintenance costs of the truck. LTL carriers transport multiple shipments on a single truck, and typically also incur capital and operating expenses for operation of warehouse facilities required for cargo consolidation, loading, and unloading. The variable costs of trucking are higher per unit of freight due to lower fuel efficiency and the need for more labour (truck drivers).

Where available, **Maritime Transportation** provides a very efficient system for transporting large volumes of freight over long distances.

The impact of transport costs on the unit cost of transporting freight based on distance is illustrated below. For purposes of this study, the most important point to note is the cost advantage of trucking for short haul movements of freight.

Figure 13-1 Distance, Modal Choice and Transport Costs



Intermodal transportation was introduced as a means of combining the best features of each of these modes: high service standards, and low line-haul costs over long distances. The dominant form of intermodal transportation uses standardized containers which are easily transferred between modes, avoiding the need for multiple handling of cargo to transfer between trucks, rail cars and ocean vessels.

Intermodal service between North American origins and destinations was introduced by the railways in the 1950's in the form of Trailer on Flat Car (TOFC) service which directly loaded highway trailers onto railway flat cars to take advantage of lower line haul costs over long distances. This was followed by Container on Flat Car (COFC) service which made it unnecessary to transport the trailer but required the use of specialized container handling equipment. In Canada, the Class 1 railways have generally abandoned TOFC service in favour of COFC[45].

In Canada, the major railways have developed an intermodal system which is designed to maximize the efficiency of rail operations through concentration of traffic at a small number of high throughput intermodal yards. This enables them to run large trains on a frequent schedule between major urban centres. In Western Canada, CN and CP both operate intermodal yards in the Lower Mainland, Calgary, Edmonton, Saskatoon, and Winnipeg. CN operates a smaller facility in Prince George, and CP has a terminal in Regina. Traffic to and from the intermodal yards is transported by truck.

[45] CP still operates a TOFC service called Expressway on the high density freight corridor between Detroit and Montreal.
http://www8.cpr.ca/cms/English/Customers/New+Customers/What+We+Ship/Expressway/default.htm

The rapid increase in offshore trade has also resulted in major increases in the use of containers for transport of imports and exports by vessel, particularly for Asia-Pacific trade. In Western Canada, this traffic consists primarily of imports of consumer goods and exports of specialty grains and forest products. Most inbound containerized traffic at Western Canadian ports (Vancouver and Prince Rupert) is transferred directly to rail at the port terminals; export shipments are typically loaded in the Lower Mainland and transported to the port terminals by truck. Intermodal containers typically carry smaller payloads than full rail cars, which increases unit costs when they are used for inland transportation.

In addition to containerized methods of intermodal transportation, there are a number of options for transloading bulk or breakbulk commodities between rail and truck. This can provide a number of advantages:

- It can allow shippers without direct rail connections to access rail transportation through transloading from truck to rail (or vice versa).

- It can allow shippers with a connection to a single railway to access competing railways to access lower rates.

In Western Canada, the most common form of transload facility is a lumber reload which transfers lumber between truck and rail.

The advantage of transloading is that it allows shippers to take advantage of the lower long haul transportation costs of the rail system. However, shipments incur additional handling costs in the transfer between modes.

14 APPENDIX B OPPORTUNITY ASSESSMENT FOR AN INLAND INTERMODAL CONTAINER FACILITY IN KAMLOOPS

This study was undertaken by Satwinder Paul and Nova Woodbury of Thompson Rivers University for Venture Kamloops in 2006. The overall objective of the project was to conduct an opportunity assessment for an intermodal container facility in Kamloops.[46]

The major advantages of Kamloops as a location for an inland intermodal centre were seen to be its strategic location on the Trans-Canada and Yellowhead highways and the Canadian National (CP) and Canadian Pacific (CP) railways' mainlines serving the Port of Vancouver. The scope of the project included assessment of three options: Trailer on a flatcar/Container on a flatcar (TOFC/COFC) operations, Truck-Rail Bulk Trans-loading Facilities, and Truck-Rail Reload Facilities.[47] The report concluded that the best opportunity was a forest products handling facility reloading pulp and lumber onto railcars for domestic shipment, and into containers for offshore exports.

The study authors conducted interviews with a number of stakeholders involved in container logistics including CN and CP, existing reload operators in Kamloops (Tolko and Arrow), Lower Mainland transload operators, and forest products shippers. Stakeholders identified several obstacles to development of an inland intermodal facility for handling offshore exports:

- The railways would have to be convinced that the extra time and costs of providing switching service to an intermodal facility in Kamloops would be recovered through increased business.

- Lumber is typically trucked to reload centres in the Lower Mainland because trucks have quick response times, truck rates are more competitive than rail because of backhaul opportunity, and the large warehousing infrastructure associated with container stuffing facilities in the Lower Mainland allows for large storage for all product lines and the ability to consolidate customer orders to their specifications.

- Carload rail shipment is more economical than containers due to increased payload per car – for example, 85 tonnes in a boxcar vs 50 tonnes (25 tonnes per container on a double stack car) for intermodal.

Nine possible sites within the boundaries of the City of Kamloops were identified as potential sites. The most promising was in the Mount Paul Industrial Park adjacent to the existing CN yard. (This is the site currently proposed for construction of the North Thompson Rail Terminal).

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[46] Opportunity Assessment for an Inland Intermodal Container Facility in Kamloops Satwinder Paul and Nova Woodbury, Advanced Technology Centre, Thompson Rivers University, for Venture Kamloops, September 2006, Executive Summary p. i.

[47] Ibid.

Criteria for site selection included:

- Lowest possible transportation costs with easy road access;
- Direct rail service or in close proximity to rail that has the capability of access by spur;
- Proximity to existing and new customers, and;
- Access to suppliers and vendors.

It was estimated that the recommended facility would require a labour force of approximately 20 per shift.[48] The report recommended development of a business case to persuade the railways to offer intermodal service as a first step.

[48] Ibid., p. 32.