



# Western Canadian Grain Handling and Transportation System

CHAMBER OF SHIPPING  
BUSINESS OF SHIPPING CONFERENCE  
VANCOUVER, BC  
SEPTEMBER 9, 2024



# Grain Monitoring Program



- Performance Measures
  - Infrastructure, volume and performance metrics
  - Measures from farm to ocean vessel departure
  - Consolidated reporting, avoids commercial sensitivity
  - Suggests industry benchmarks
- 25-year time series providing ongoing assessment and analysis
- The Grain Monitor strives to retain a neutral and balanced position on issues
- Subscribe @ [www.grainmonitor.ca](http://www.grainmonitor.ca)

## Grain Monitoring Program Weekly Performance Update

For Grain Week 44 2023-24 CY  
June 11, 2024

**Summary**

	Week 44	Week 43	Year from Last Year
<b>1. Stocks in Store (000 tonnes)</b>			
Country Stocks	2,340.0	1,871.7	-25%
% of Working Capacity	41%	30%	
Terminal Stocks	1,146.0	1,144.7	8%
% of Working Capacity	19%	19%	
<b>2. Country Deliveries (000 tonnes)</b>			
Country Deliveries	1,045.2	826.6	42%
<b>3. Port Performance (Cont)</b>			
Vancouver Imports	3,553	5,043	29%
Prince Rupert Imports	541	1,051	37%
Churned Imports	0	0	0%
Thorvald Ship Imports	1,287	1,772	57%
Total Weekly Imports	5,481	7,822	31%
4. Weekly Rating Average	7,892	8,796	10%
5. % 24-hr vessel rating average	100%	11%	10%
<b>6. YTD Stocks</b>			
Country Stocks	336,922	335,005	-6%
<b>7. Weekly DWT of the</b>			
Terminal Shipments Year-to-Date (000 tonnes)	1.7%	18.8%	-12.3%
Vancouver	24,134.0	23,674.4	-2%
Prince Rupert	2,896.1	3,811.5	-26%
Churned	0.0	0.0	0%
Thorvald Ship	4,650.4	5,965.5	-22%
Total Weekly Canada	24,579.7	23,271.3	6%
<b>8. Vessels at Port as of Jun 8, 2024</b>			
Vessels Unlump in port	13	11	14%
Vessels Cleared	7	11	-36%
Vessels Arrived	3	8	-63%
<b>9. Vessels Unlump in port</b>			
Vessels Cleared	2	2	0%
Vessels Arrived	1	2	-50%
<b>Weeks Reported Jun 10, 2024 to Jun 16, 2024 (Week 44)</b>			
Shipments	0		
Shipments Report	0		

**1. Stocks in Store (Page 2)**

- Country stocks increased to 2.34 MMt in Week 44 utilizing 41% of the system's working capacity. Stocks in primary elevators is still low.
- Total western port terminal stocks increased to 1.15 MMt in Week 44, adding 5% of the working capacity.

**2. Country Deliveries (Page 1)**

- Deliveries to primary elevators were 1.05 MMt in Week 44.

**3. Port Performance (Pages 3-5)**

- Total western port arrivals were 30% lower than the 4-week rolling average and 31% higher than Week 43 last year. Week-over, arrivals were 4,991 cars (compared to 3,553 and 5,043 cars last year) that were 41% higher than the 4-week rolling average and 24% higher than Week 43 last year. Year-to-date total western port arrivals are 6% lower than the 4-week rolling average and 31% higher than Week 43 last year. Year-to-date total western port arrivals are 6% lower than the 4-week rolling average.
- The 24-hour vessel rating average rose 10% to 7,892, up from 7,174 in the previous week. The OCF for Week 44 is 1.7% from 1.5% the previous week. The OCF for Week 44 is 1.7% from 1.5% the previous week. At the time of publishing, Prince Rupert had not yet reported Week 44 OCF.

**4. Shipments (Page 6)**

- Year-to-date Western Canadian shipments from port terminal elevators at Week 44 are 1.7% lower than the 4-week rolling average and 11% higher than the 3-year average.

**5. Vessels (Page 2)**

- Vancouver vessel fleet for Week 44 2023-24 CY increased to 13 vessels. The vessel fleet for Week 43 2023-24 CY was 11 vessels.

## Grain Monitoring Program Report for April 2024 / Q3 2023-24 CY

Release Date: May 29, 2023

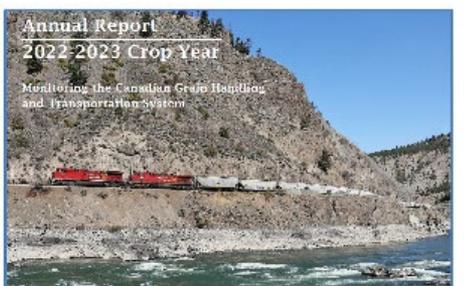
**GMP Dashboard**

Value as of	MAH	APR 2024	2023-24	Year from 2020
<b>Western Canadian GMP Performance (Pages)</b>				
Total Terminals	412	354	427	62%
Average Capacity	297	223	268	41%
Country	7.0	6.3	6.3	63%
Loaded Terminals	7.0	8.4	10.0	102%
Shipments	7.0	8.4	10.0	102%
<b>Four Traffic (000 tonnes)</b>				
Primary	3,713.3	4,137.7	38,292.2	-61%
Secondary	1,490.0	2,056.8	41,327.7	-24%
Canada (WCF)	2,825.1	3,472.8	28,440.2	-67%
Shipments	2,825.1	3,472.8	28,440.2	-67%
<b>Working Performance</b>				
Year Loads	10,490	10,807	8,995	-82%
Total Weekly	16.4	14.1	10.3	103%
Port Performance				
Year Loads	20,075	20,020	200,414	-10.8%
Year Terminals	14.3	10.8	10.4	-12%

**Highlights for April 2024 and Third Quarter 2023-24 CY**

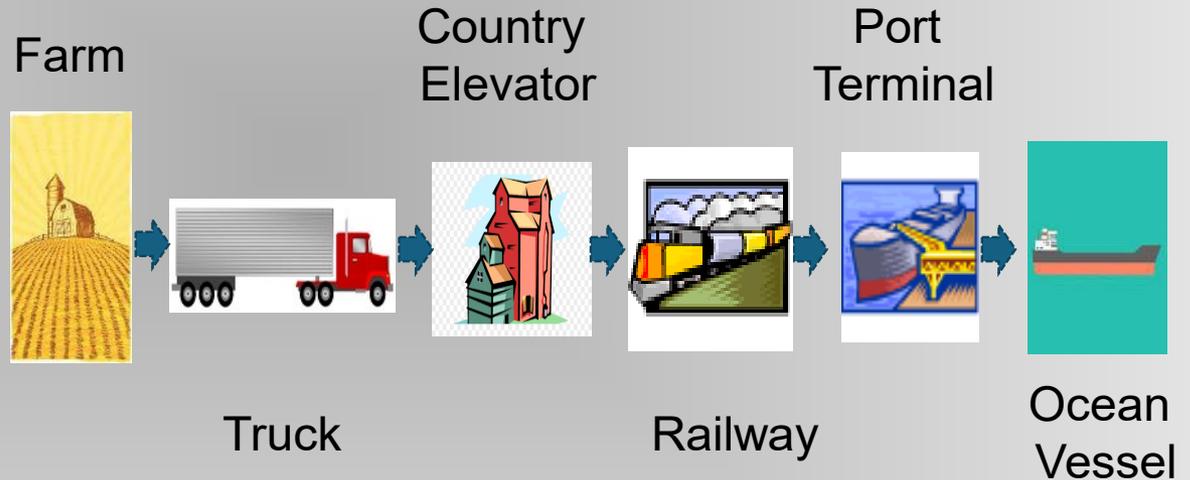
**Table and Movement (Page 1)**

- Country stocks increased to 2.34 MMt in the first three quarters of the 2023-24 crop year, 6% higher than the previous year.
- Total western Canadian shipments to all destinations, both at international elevators and production elevators, in the first three months of the 2023-24 crop year totaled 41.3 MMt, down 18% from 49.8 MMt in the same period last year.
- U.S. shipments from Western Canada totaled 28.4 MMt in the first three quarters of the crop year, down 57% from last year's 66.8 MMt.
- Average weekly primary-elevator stocks increased 4.8% from the same period last year, while average grain-in-elevators grew 4%.
- Average weekly port terminal stocks increased 37% from the same period last year, while average grain-in-ports grew 12%.
- The percentage of the ports in operation at destinations to Western Canadian ports increased by 14.2% in April to 14.1 days from 12.4 days in March. The 172 average days to 10.2% to 10.3 days from the 12.8 days posted a year earlier. In comparison, the 140 days to 10.3% increase, down to an average of 21.9 days.
- The average vessel time in port during the first three quarters of the 2023-24 crop year was 10.6 days, a 17% decrease from that reported the previous year.
- Performance and cost of time facilitated through the first quarter, jumping to 21.9% in February before settling to 14.1% in April. The

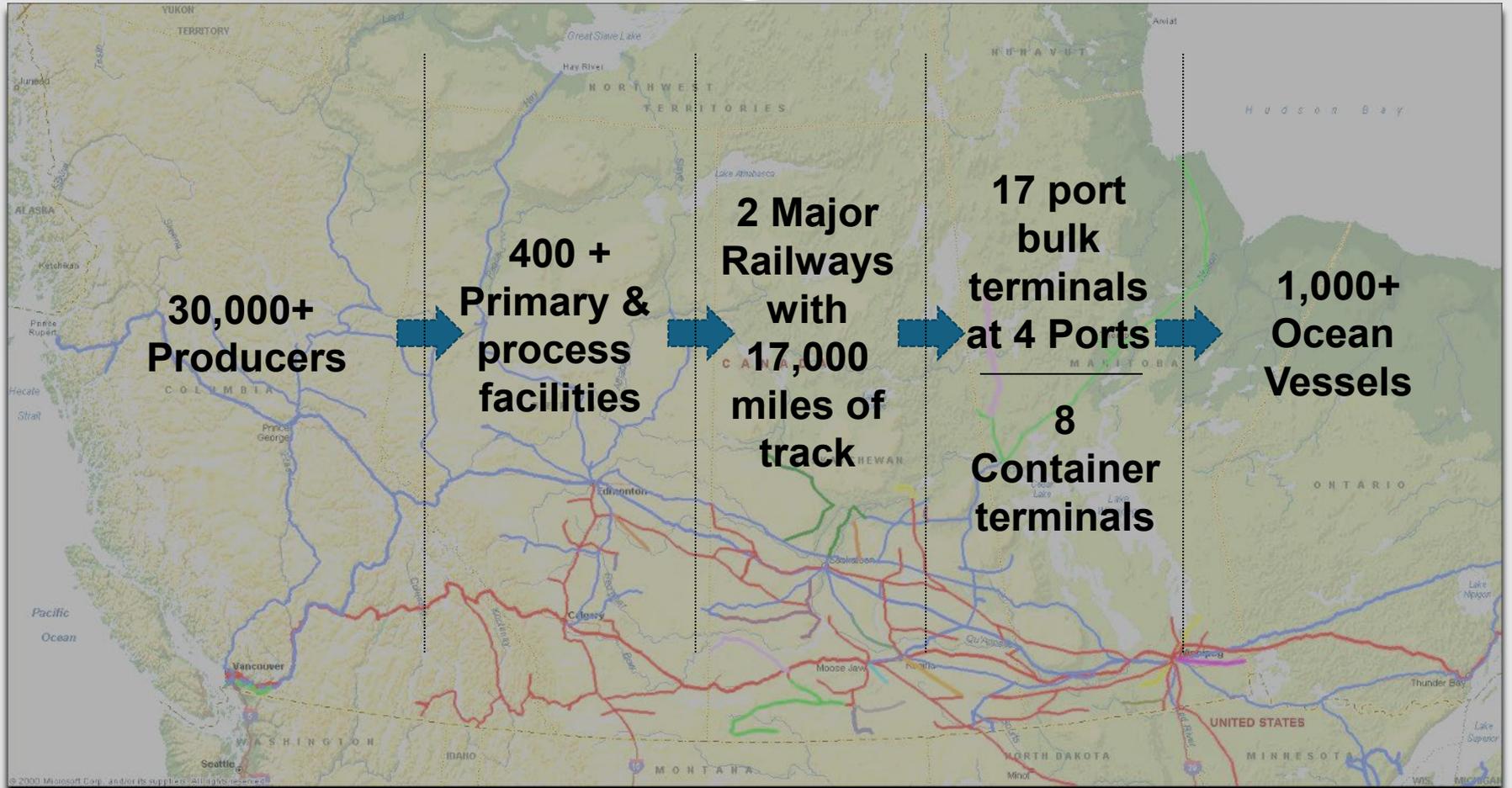


# GHTS Overview

- Canada in Global Market
- Western Canadian Grain Supply
- Country Elevator Network
- Grain Movement
- Rail Capacity
- Port of Vancouver
- Climate Concerns
- Other Issues



# The Canadian “Playing Field”



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# Canadian Grain Logistics in the Global Market



## Length of haul to port of export



- Brazil: 100 – 150 miles (Truck 90% ++)
- Australia: 50 – 150 miles (Truck 50%/ Rail 50%)
- United States: 350-600 miles (Rail 60%+, Truck –Barge)
- Canada: 790 – 1,150 miles (Rail 95%, Truck 5%)

## Agriculture dependency on Exports (% of Crop Exported)



- Brazil: 57% (163 M of 287 M)
- Australia: 23% (17 M of 74 M)
- United States: 20% (100 M of 500 M)
- Canada: 60% (62 M of 95 M)
- *Covers all field crops exported against total grains production*

## Other Issues

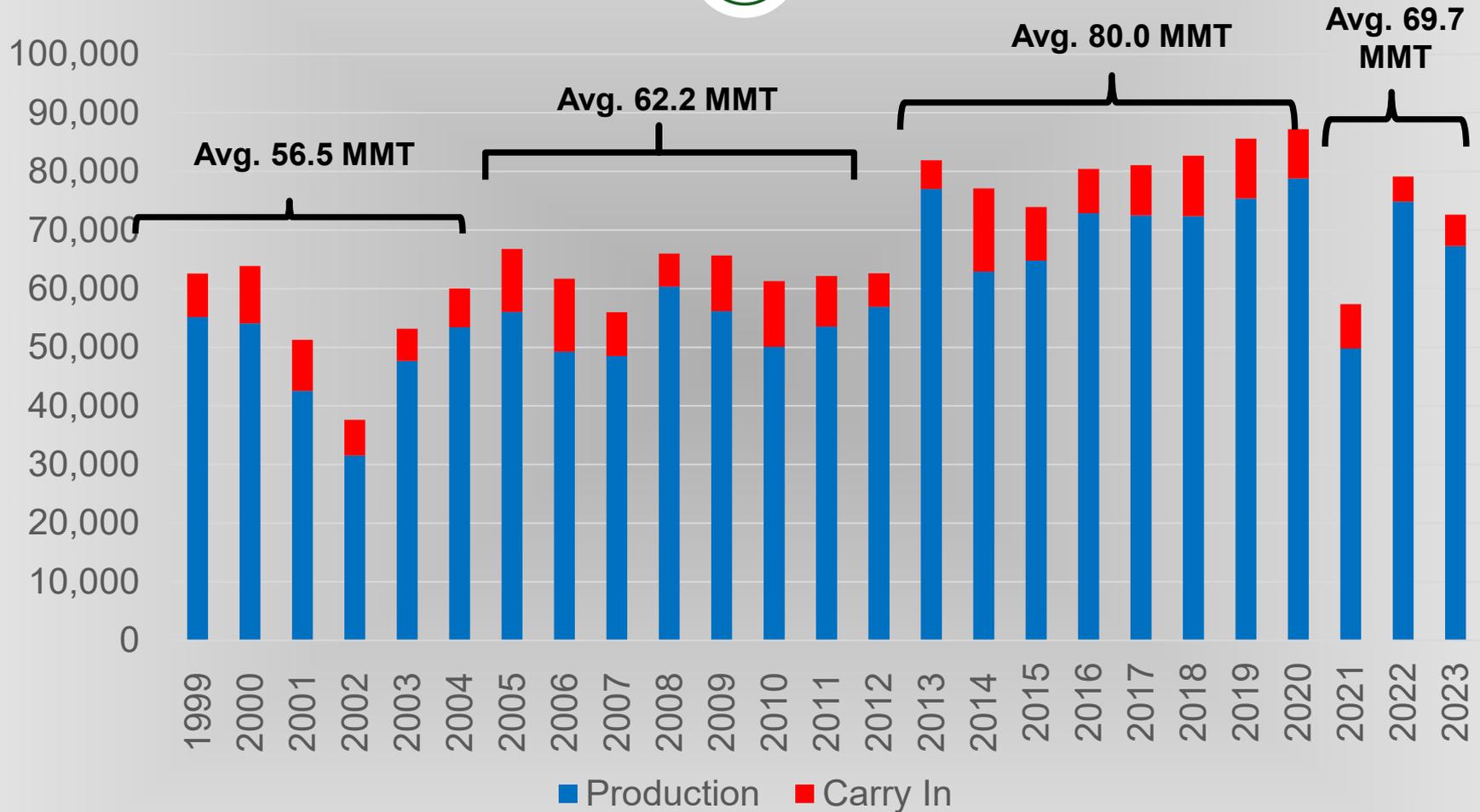


- Climate
- Distance to market (ocean)
- Relative market position (size)



# Total Grain Supply

(Western Canada Production and Carry-In Stock MMT)





## Country Elevators

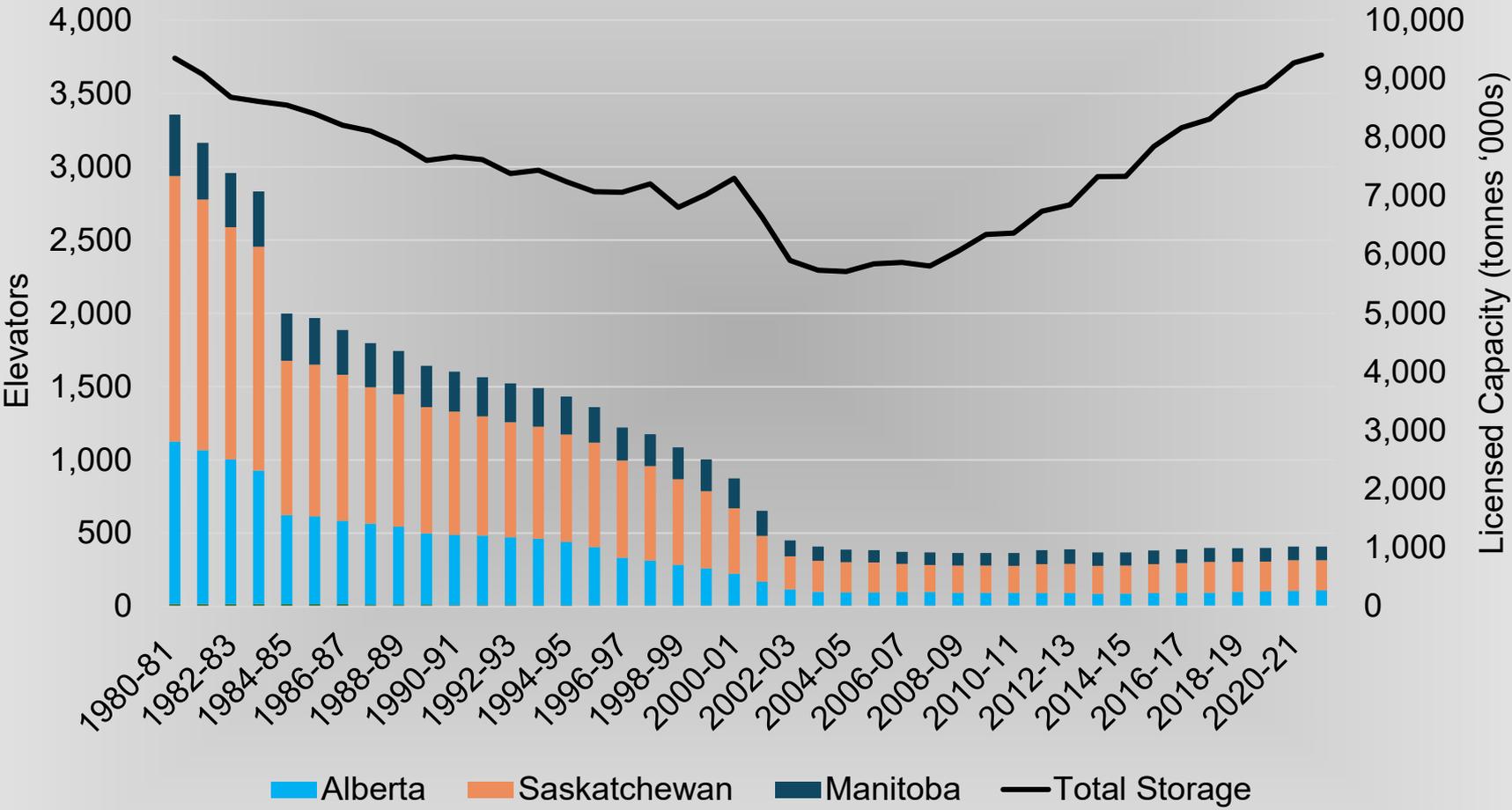
- 1980 had ~3300 elevators
- 1990 had ~1000 elevators
- 2024 had ~400 elevators
- First loop-track country elevator – Paterson Grain at Long Plain (Gleichen), AB opened in 2012
- July 2024 – 51 licensed loop-track facilities



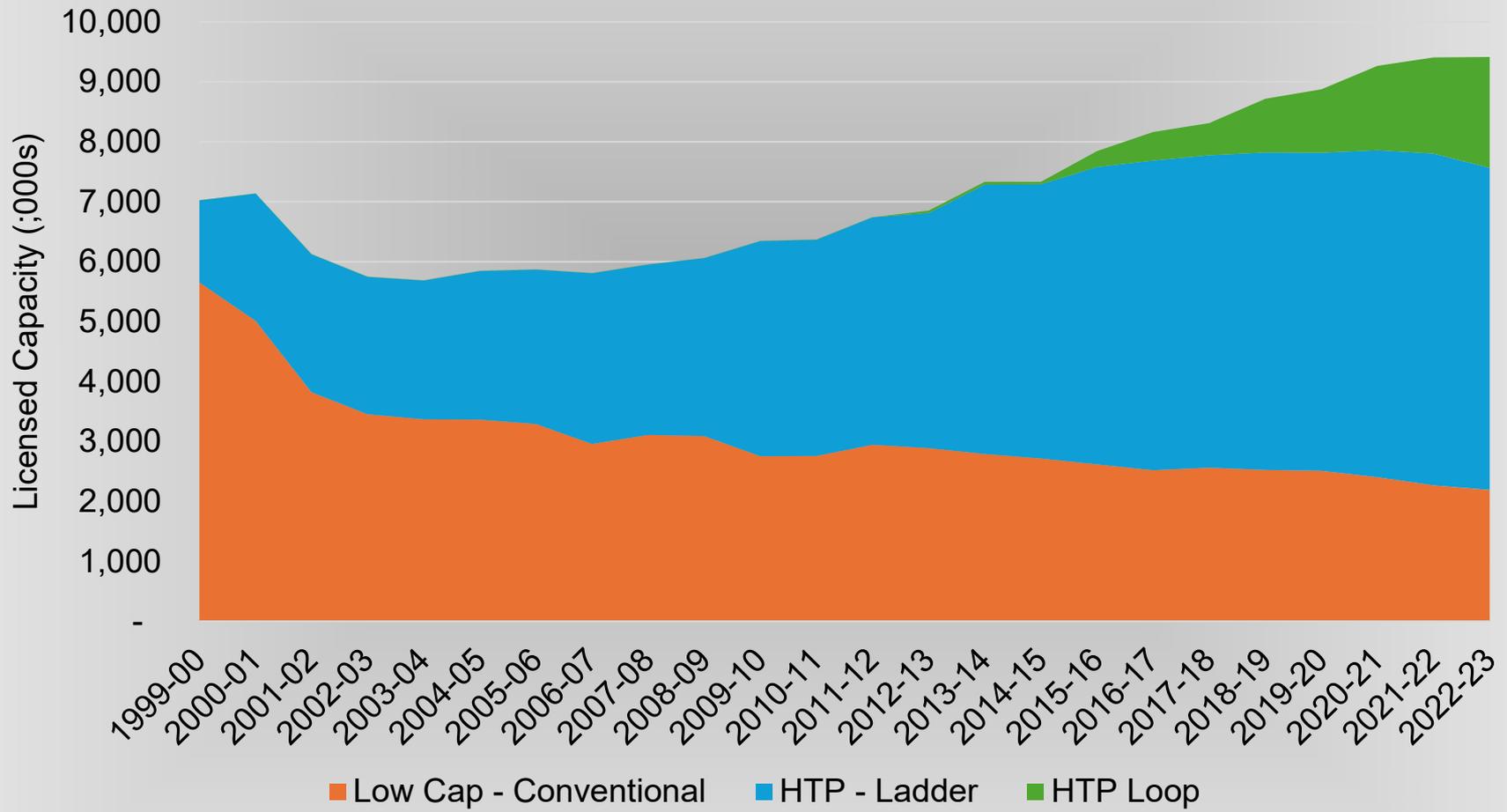
Paterson Grain @ Bowden, AB



# Rationalization of the Country Network



# Shift in Country Storage



Low Cap - Conventional HTP - Ladder HTP Loop

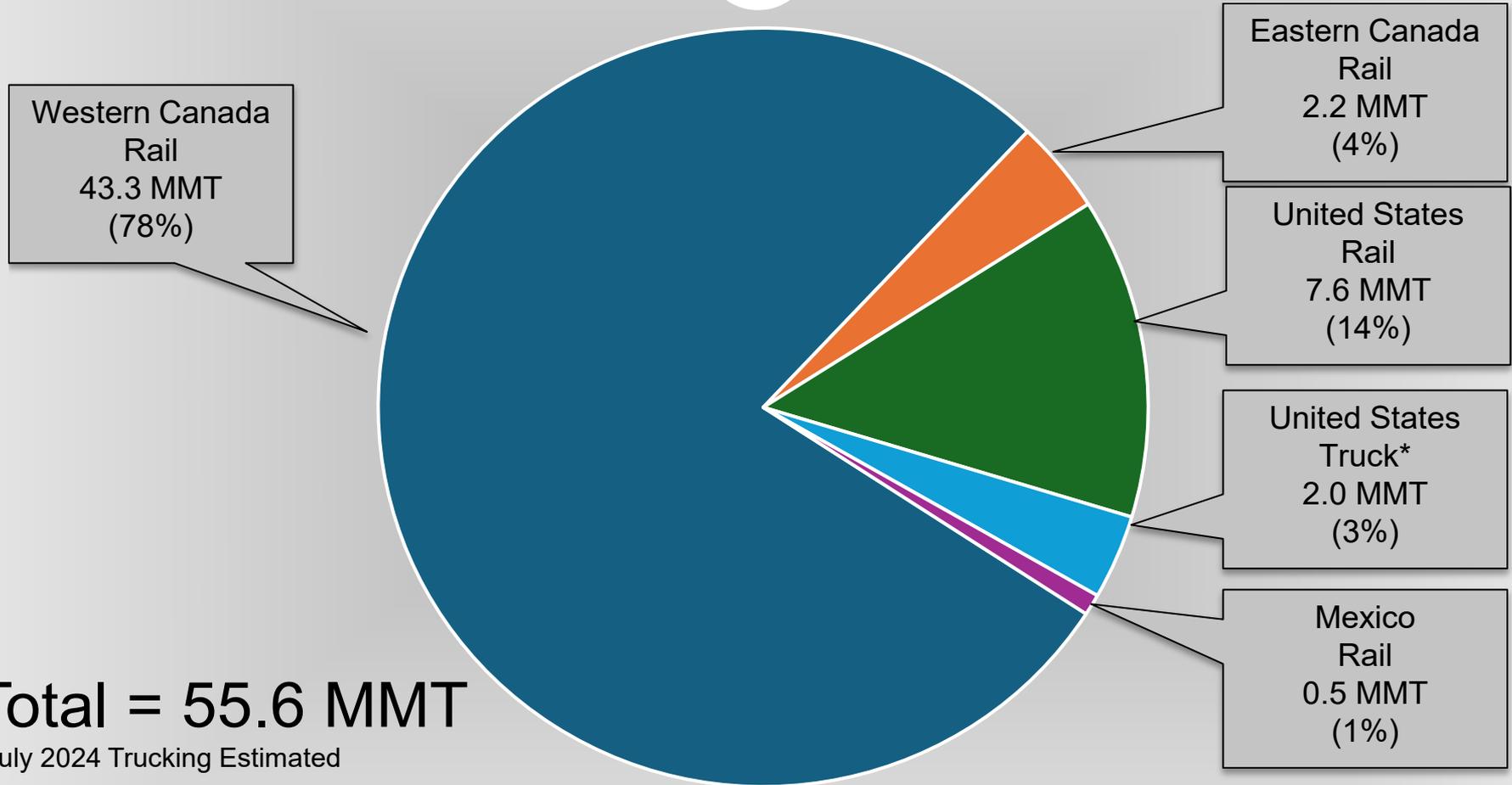


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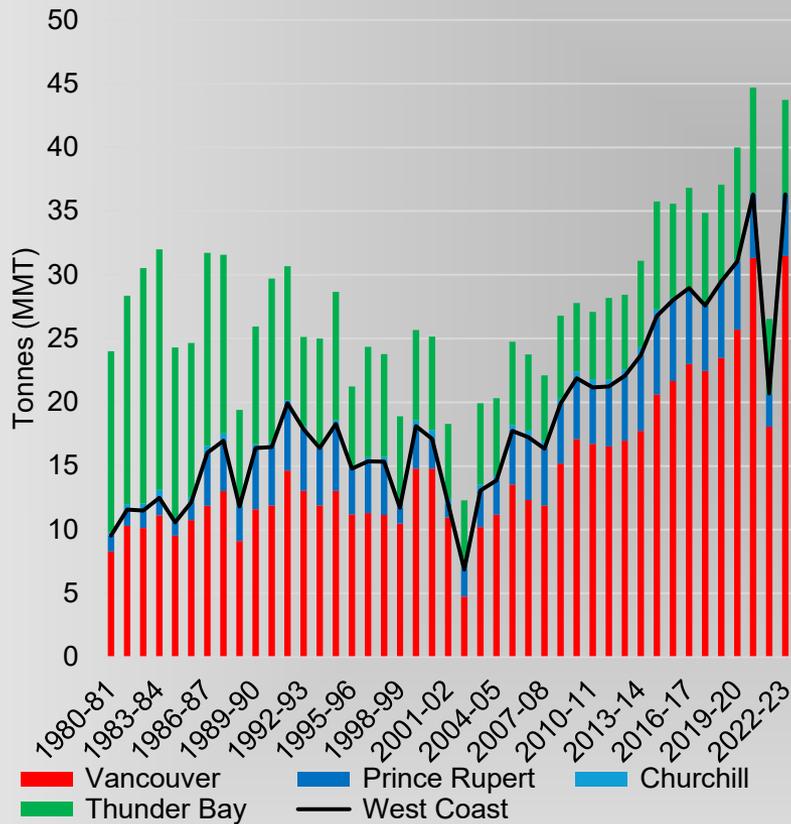
# Where Does Western Canadian Grain Go?

2023-24 Crop Year

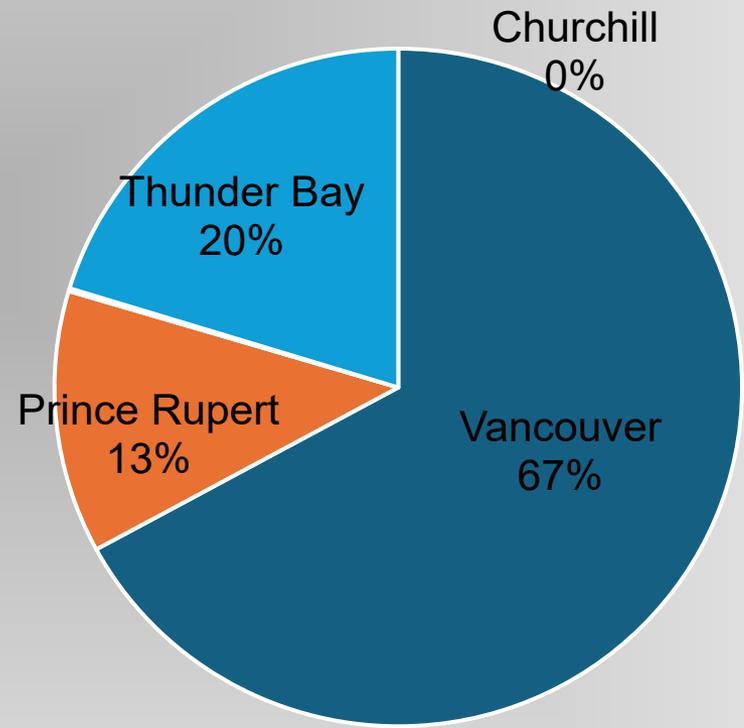


# Western Port Volumes

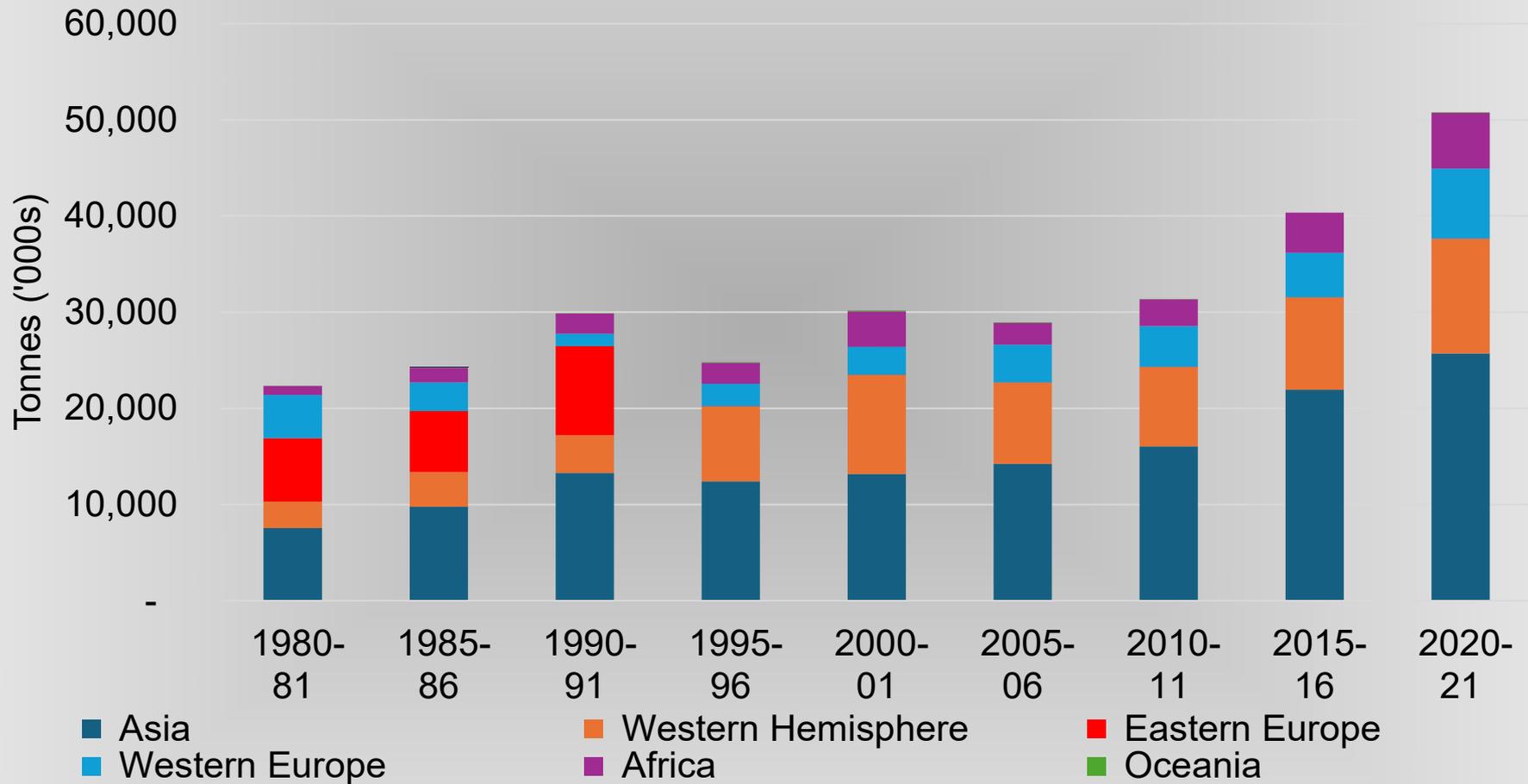
## Historic Volume by Port Destination (1980-81 to 2022-2023)



## 5-Year Average Port Proportion (2019-20 to 2022-23)



# Canadian Grain to Export Regions





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# Grain Carrying Capacity

- Simplified explanation is the combination of:
  - How fast the railcars move
    - ✦ Car cycle times
  - How many railcars are available
    - ✦ Hopper cars in service of moving grain
    - ✦ Crews & locomotives to move them
  - How much volume per train
    - ✦ Newer high-capacity hopper cars vs standard
    - ✦ Train lengths

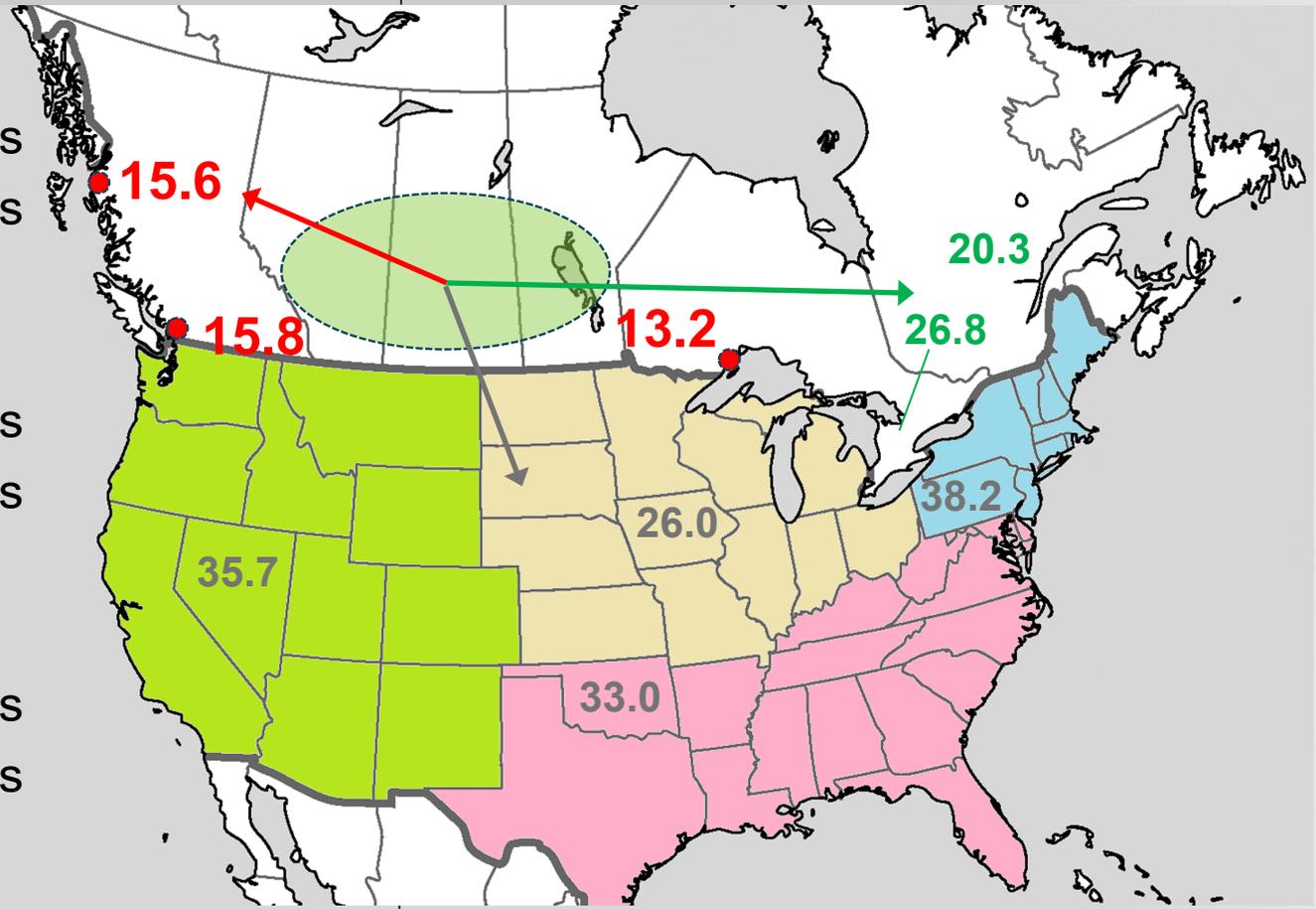


# Western Canadian Car Cycles

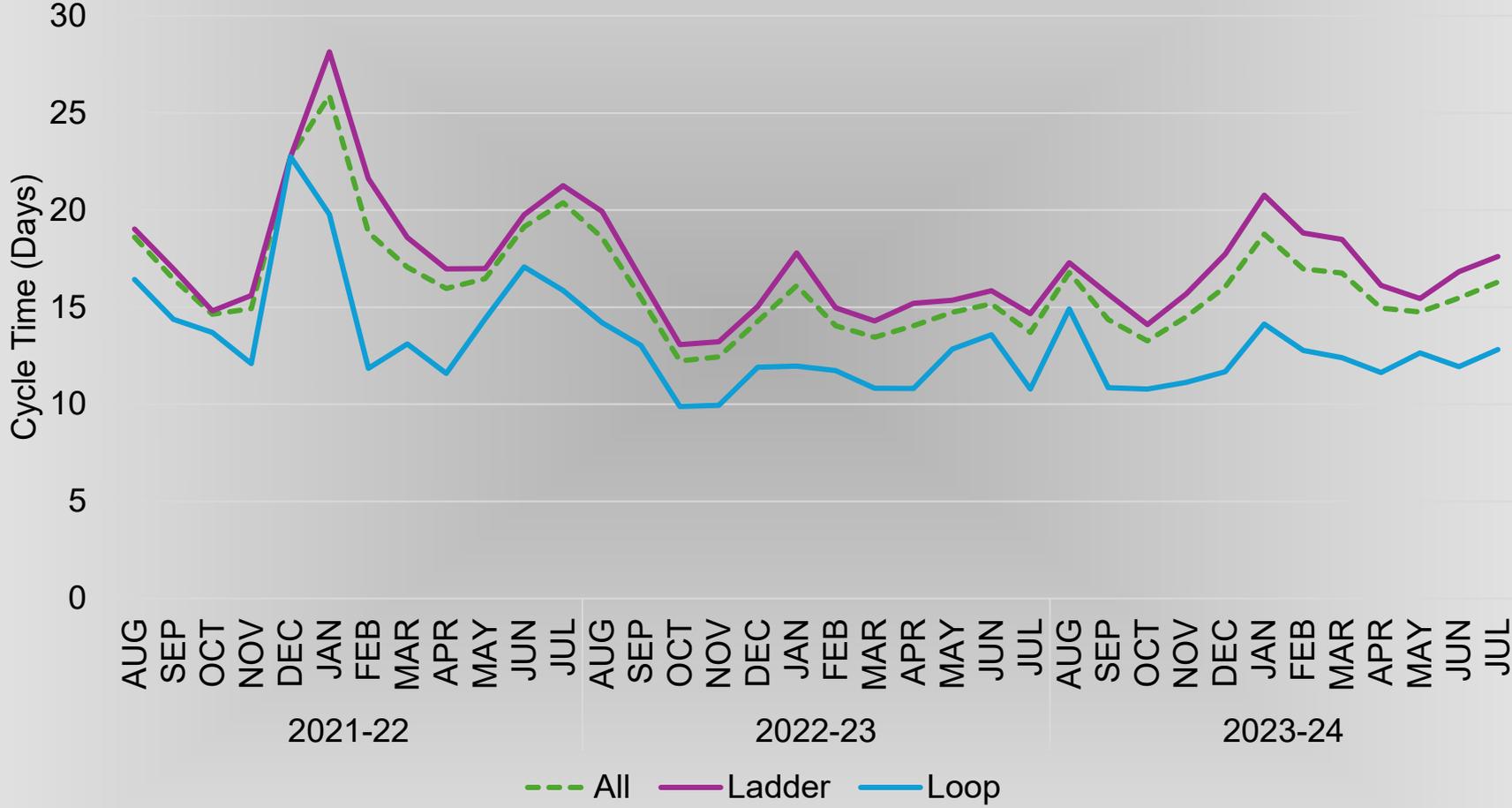
2023-24 Crop Year (GMP Monthly Tables 5B Series)



- Western Canada
  - 2023-24 = 15.3 days
  - 2022-23 = 14.0 days
- Eastern Canada
  - 2023-24 = 25.8 days
  - 2022-23 = 24.3 days
- United States
  - 2023-24 = 26.8 days
  - 2022-23 = 26.1 days



# Car Cycles – Ladder vs Loop Origins



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Photo: G3 Terminal Vancouver

**Next-generation terminal elevator, with loop track capable of holding three 150 car trains**



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# Why does Vancouver get the most grain?



- Asia/Pacific market focus
- Logistics cost structure has three major components
  - Rail Transportation to port (plus St. Lawrence Seaway for Eastern)
  - Port handling fees
  - Marine transportation to destination
- Canada is BIG – rail transportation can be as much as 3x ocean costs, per tonne
- Transportation costs vary by distance
  - Rail \$25 to \$80 per tonne of wheat
  - Marine \$10 to \$33 per tonne of wheat
- Most grain moves by rail to their closest port of export, with a “break-even” point in central/east SK

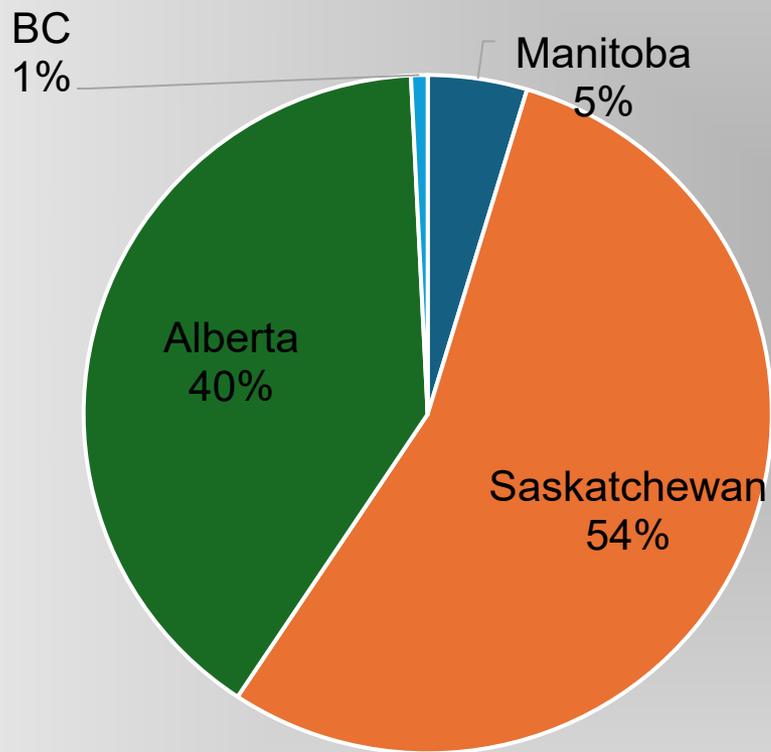


# Grain Shipments to Port by Origin Province

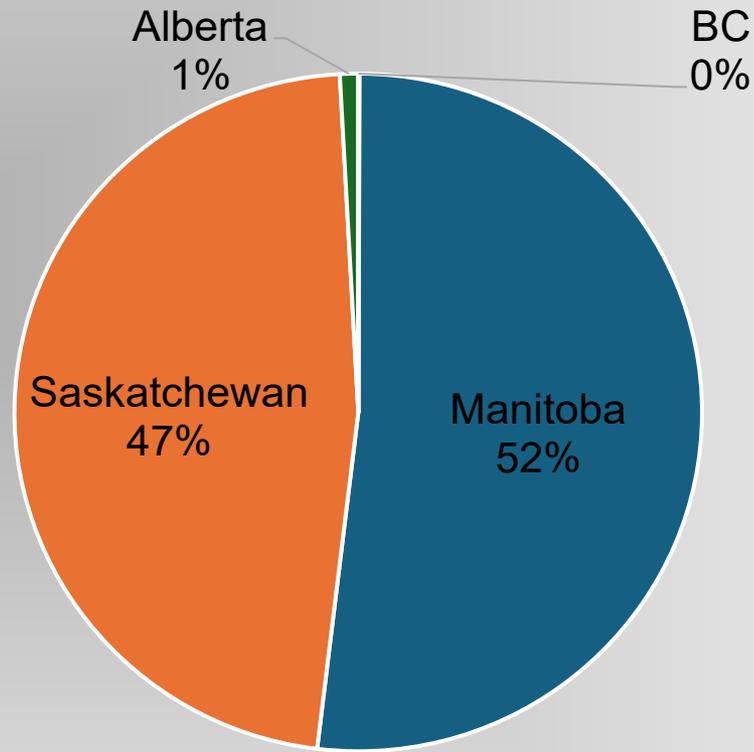
5-Year Average



## Vancouver Traffic by Origin

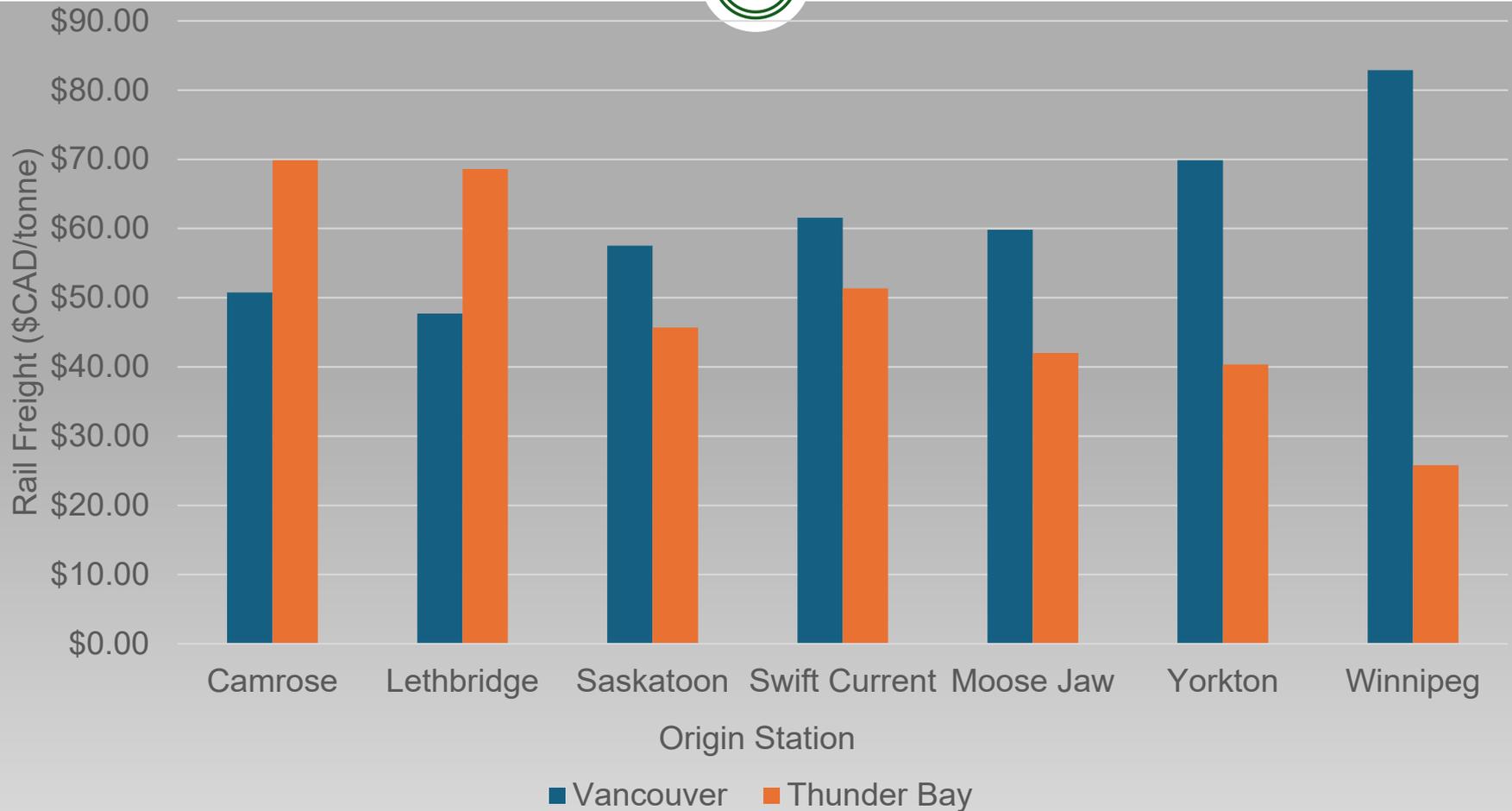


## Thunder Bay Traffic by Origin



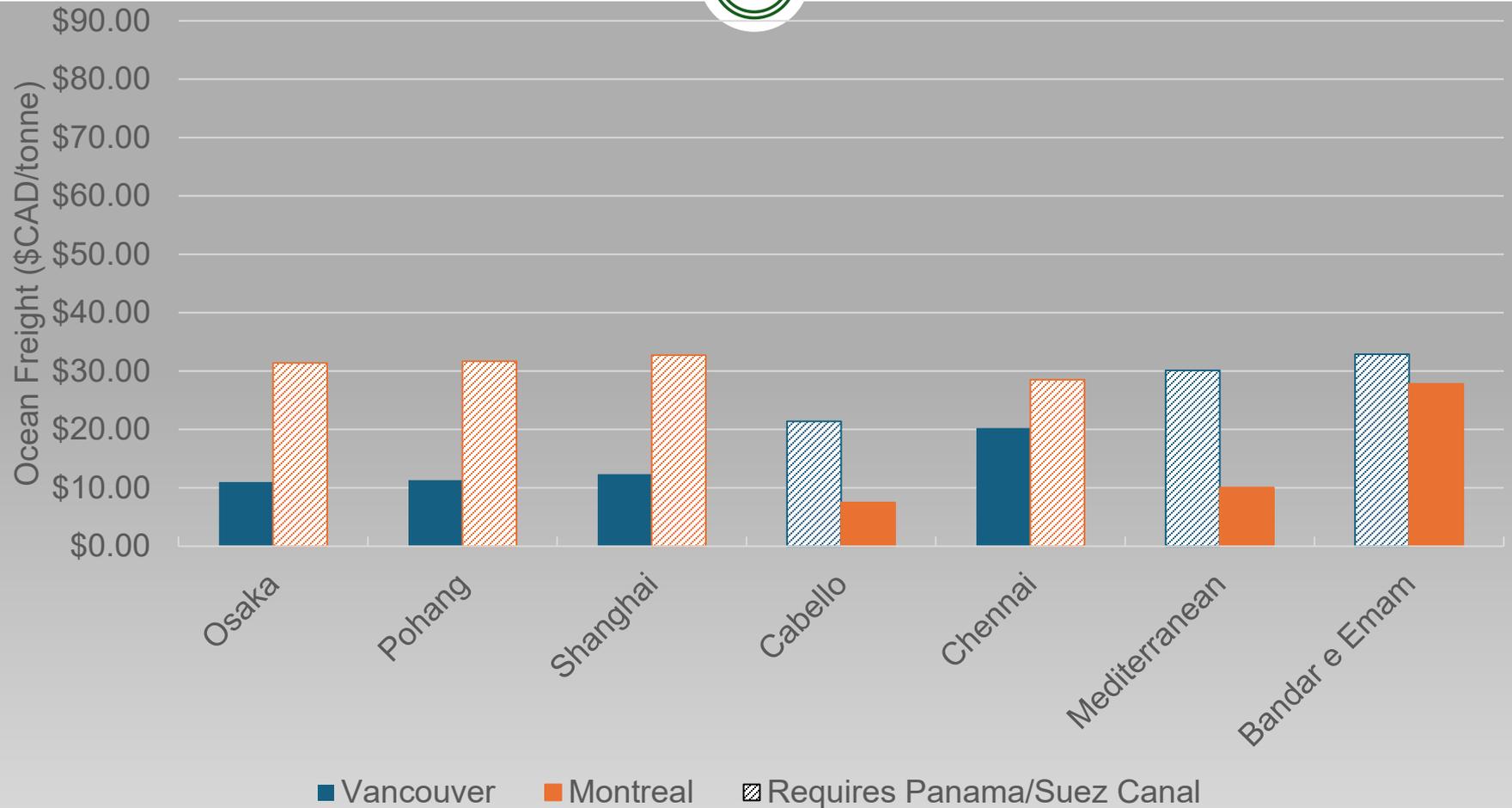
# Rail Cost to Vancouver & Thunder Bay

(\$CAD/tonne Wheat, August 2023)



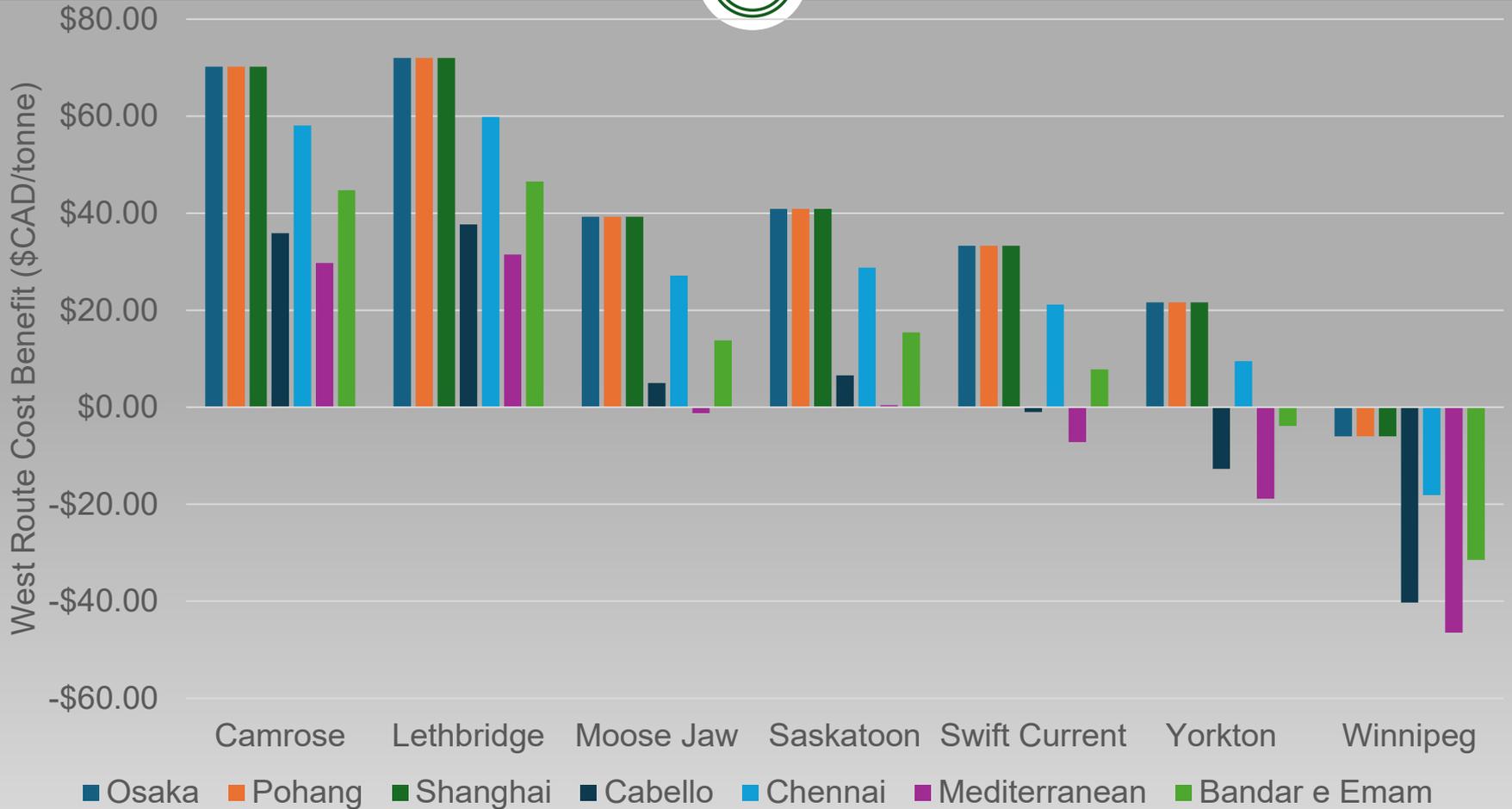
# Marine Cost From Vancouver & Montreal

(\$CAD/tonne Estimate, August 2023)



# Vancouver Cost Benefit by Orig/Dest Pairs

(\$CAD/tonne Wheat, August 2023)





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- Winter operating for railways
- Loading grain during inclement weather (Port of Vancouver)
- Wildfires, floods, other natural events



# Impact of Cold on Train Length



## Maximum Train Length Based on Ambient Temperature

	Above -25C	-25C to -30C	-30C to -35C	Colder than <35C
<b>Head End Power</b>				
Bulk	10,000	8,800 -12%	6,000 -40%	4,500 -55%
Manifest	10,000	7,000 -30%	6,000 -40%	4,500 -55%
Intermodal	12,000	8,000 -33%	6,000 -50%	4,500 -63%

## With Distributed Power

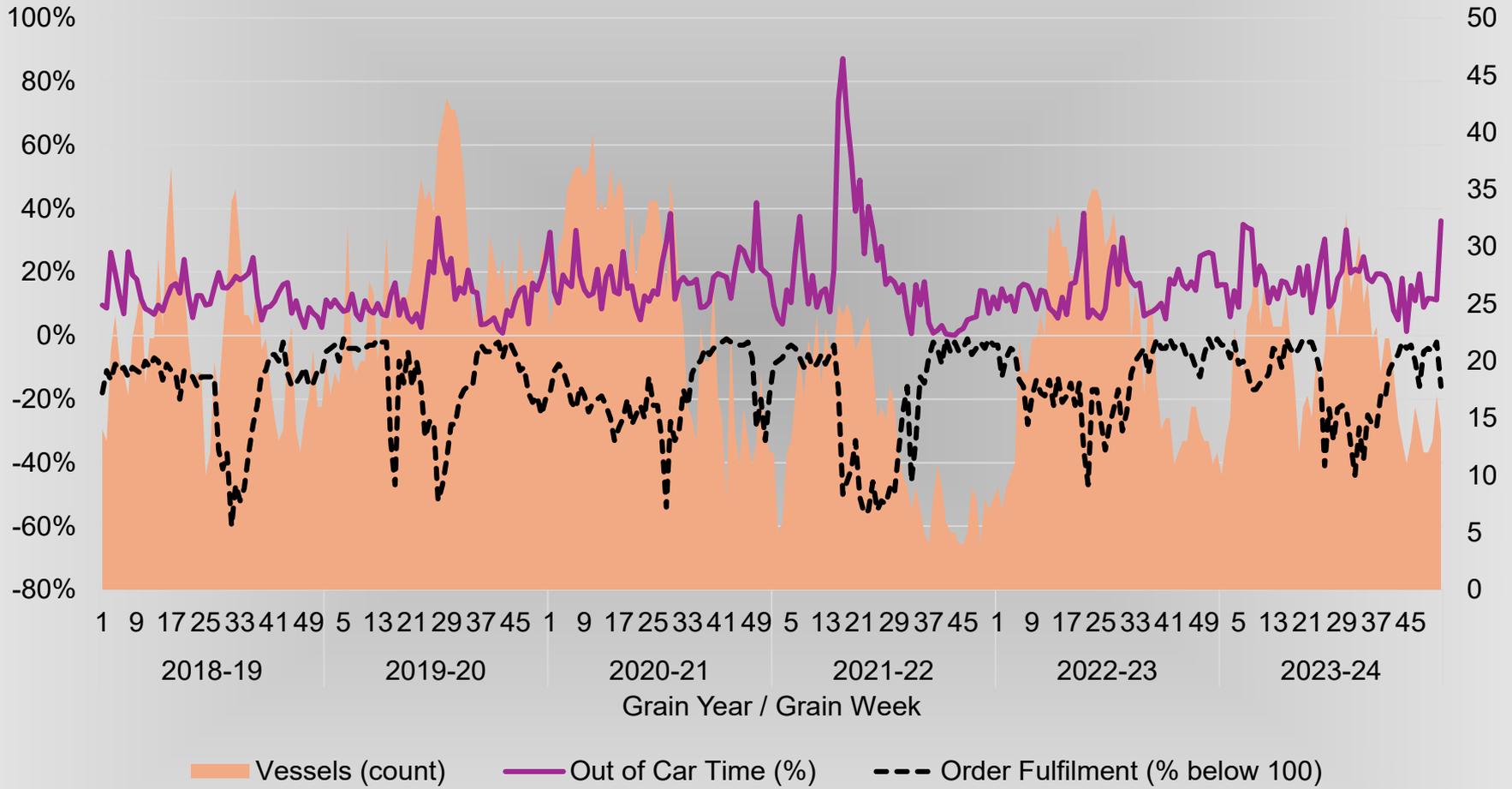
Bulk	11,300	11,000 -3%	9,000 -20%	7,500 -34%
Manifest	11,300	10,000 -12%	8,500 -25%	7,000 -38%
Intermodal	14,000	12,000 -14%	10,500 -25%	8,500 -39%

Source: Railway Association of Canada



# Rail Performance vs Vessel Lineup

Vancouver 2018-19 to 2023-24



# Loading in the Rain - Overview

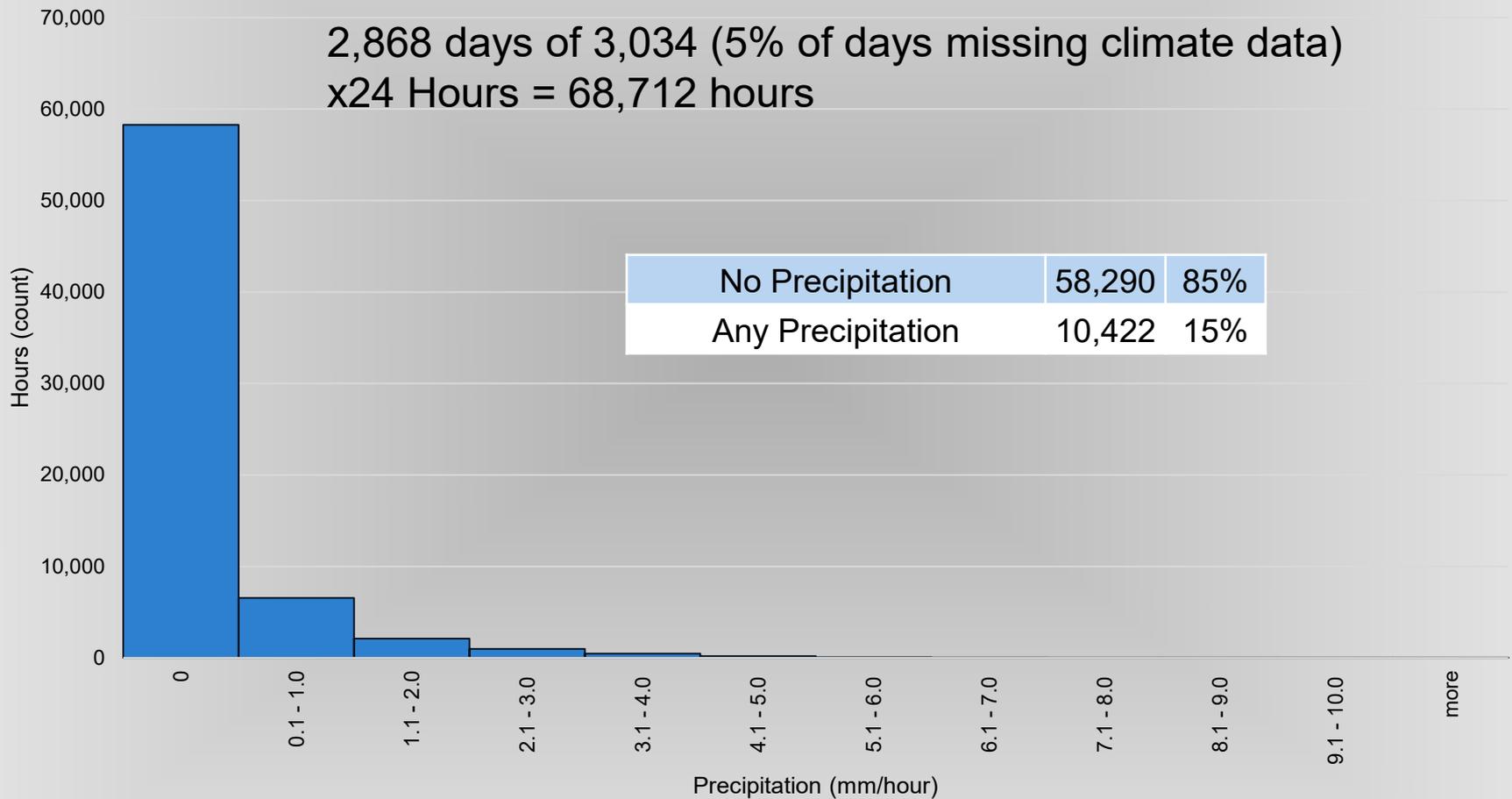


- Approximately 15% of hours have any amount of rainfall
  - Overwhelmingly considered light precipitation (below 2.5 mm/hr)
  - Occurs during peak grain demand periods (Sep through Feb)
- Loading ceases per the shipmaster's request
  - The Canadian Grain Commission (CGC) also informs terminals of risks to cargo
- Long term analysis:
  - Slight impact to vessel loading
  - No discernable impact on railcar unloading
- In “high” demand periods:
  - Moderate impact to vessel loading
  - Slight impact to railcar unloading as terminal storage fills



# How much rain does Vancouver get?

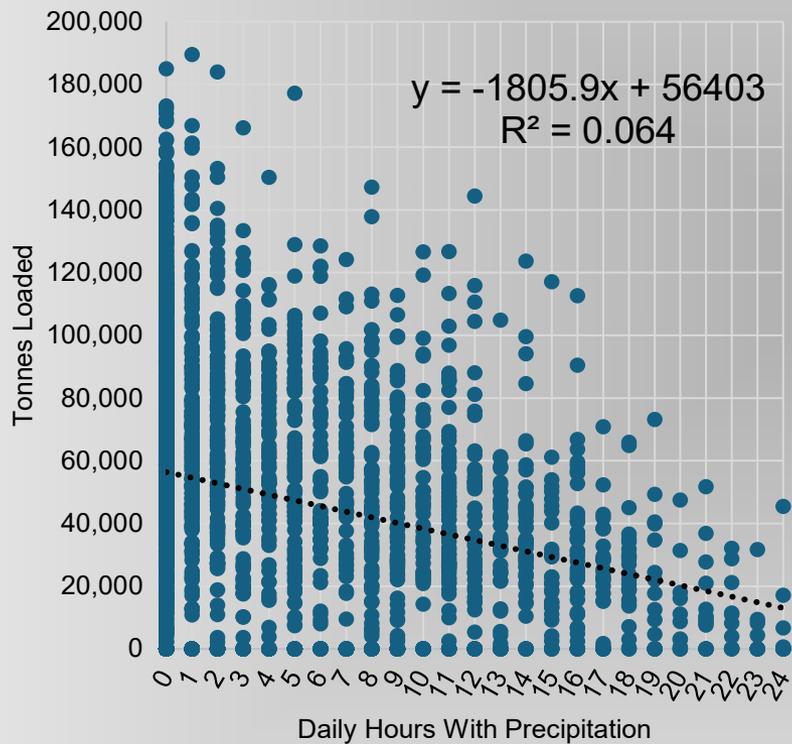
Vancouver Rainfall – Hours (Aug 2015 to Nov 2023)



# Long Term Historic (2015-16 to 2023-24)

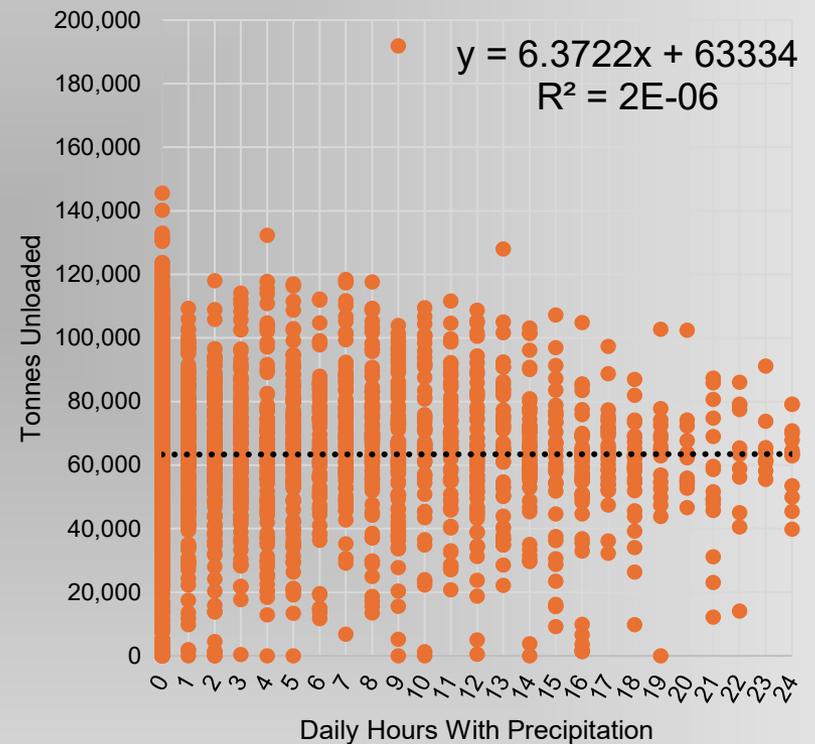


## Vessel Loading



● Tonnes Loaded    ..... Linear (Tonnes Loaded)

## Railcar Unloading



● Tonnes Unloaded    ..... Linear (Tonnes Unloaded)



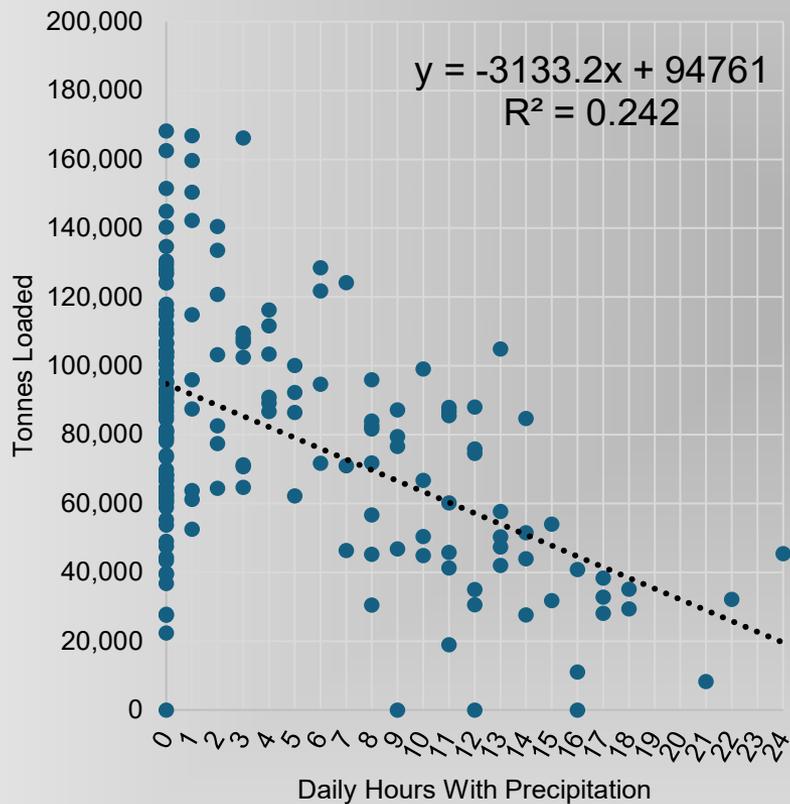
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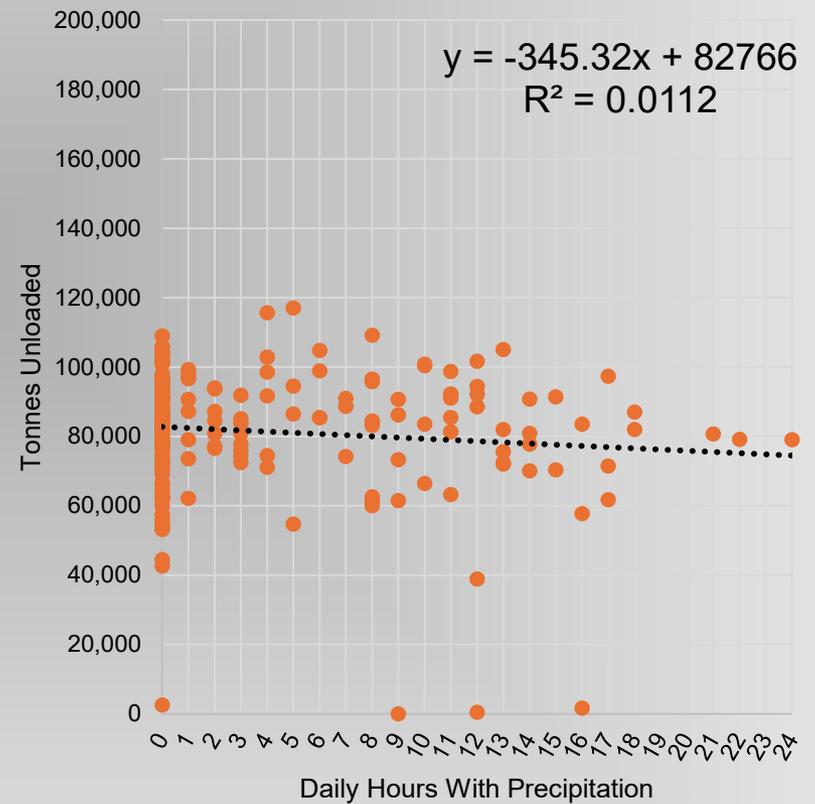
# High Demand Period (2020-21 Q1 to Q3)



## Vessel Loading



## Railcar Unloading



# Cold Weather vs Loading in the Rain



- Since 2015, up to 12% of days under winter operating conditions, varying by year and region
  - Winter operating conditions reduce bulk train lengths by 3-55%, depending on train configuration and minimum temperature
  - Distributed power configuration, or air cars, lessen the impact to train length
- Since 2015, it rains ~15% of the time over the Vancouver harbour
  - Upper limit on how many hours of loading are “lost”
  - In practice, not every terminal had a vessel ready during each of those hours, so the total loss is lower
- Vancouver terminal loading rates (onto vessels) exceed unloading rate (from railcars)
  - Terminals can “catch up” very quickly when they fall behind on vessel loading once the weather clears
- Rail “catch up” on delays from cold are not as immediate
  - The rail network handles more than just grain and all sectors are affected





- In Country:
  - Bunge-Viterra Merger
- On Rail:
  - **Extended Interswitching**
  - Work/Rest Rules
  - Recovery from 2024 Rail Work Stoppage
- At Port:
  - Active Vessel Traffic Management (AVTM)
  - Loading in the Rain
  - **Vancouver North Shore Access**



# Grain Supply Chain Issues



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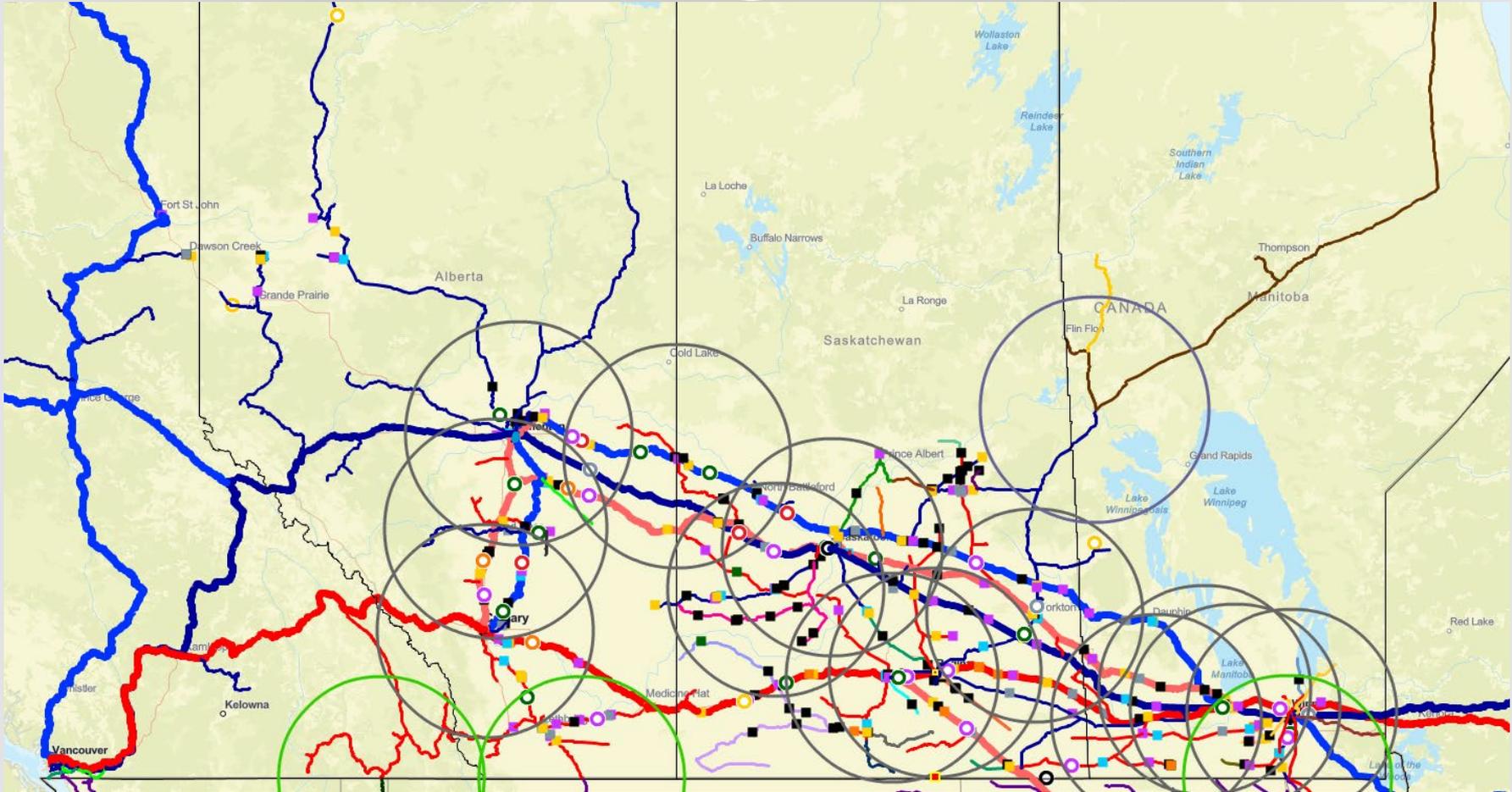
# Extended Interswitching



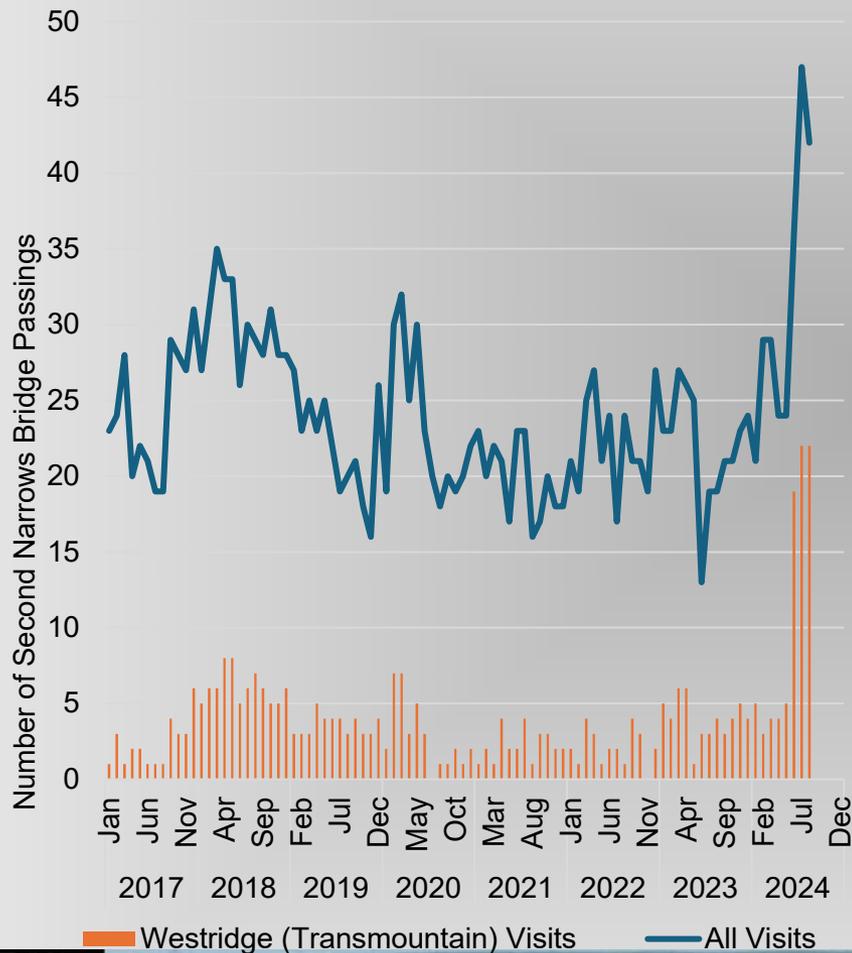
- Tool used to encourage market forces in the rail industry
- Provides access to competing railways for elevators within 160km of an interchange
  - 7% of elevators are within 30km of an interchange, the previous limit
  - 88% of elevators are within 160km of an interchange, the extended limit
- Even if extended interswitching is not directly used it still benefits shippers when it exists
  - Improved positions during negotiations for car supply and freight rates



# Extended Interswitching Network Map



# Monthly Visits to Terminals East of Second Narrows Bridge (Jan 2017 – Aug 2024)



- Transmountain expansion (TMX) is too recent to note any impacts to grain.
- TMX may not yet be at full capacity and peak grain shipping starts September.
- *North Shore rail capacity remains a concern for CN, the port, and all terminals affected.*

# Thank You

[www.grainmonitor.ca](http://www.grainmonitor.ca)



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