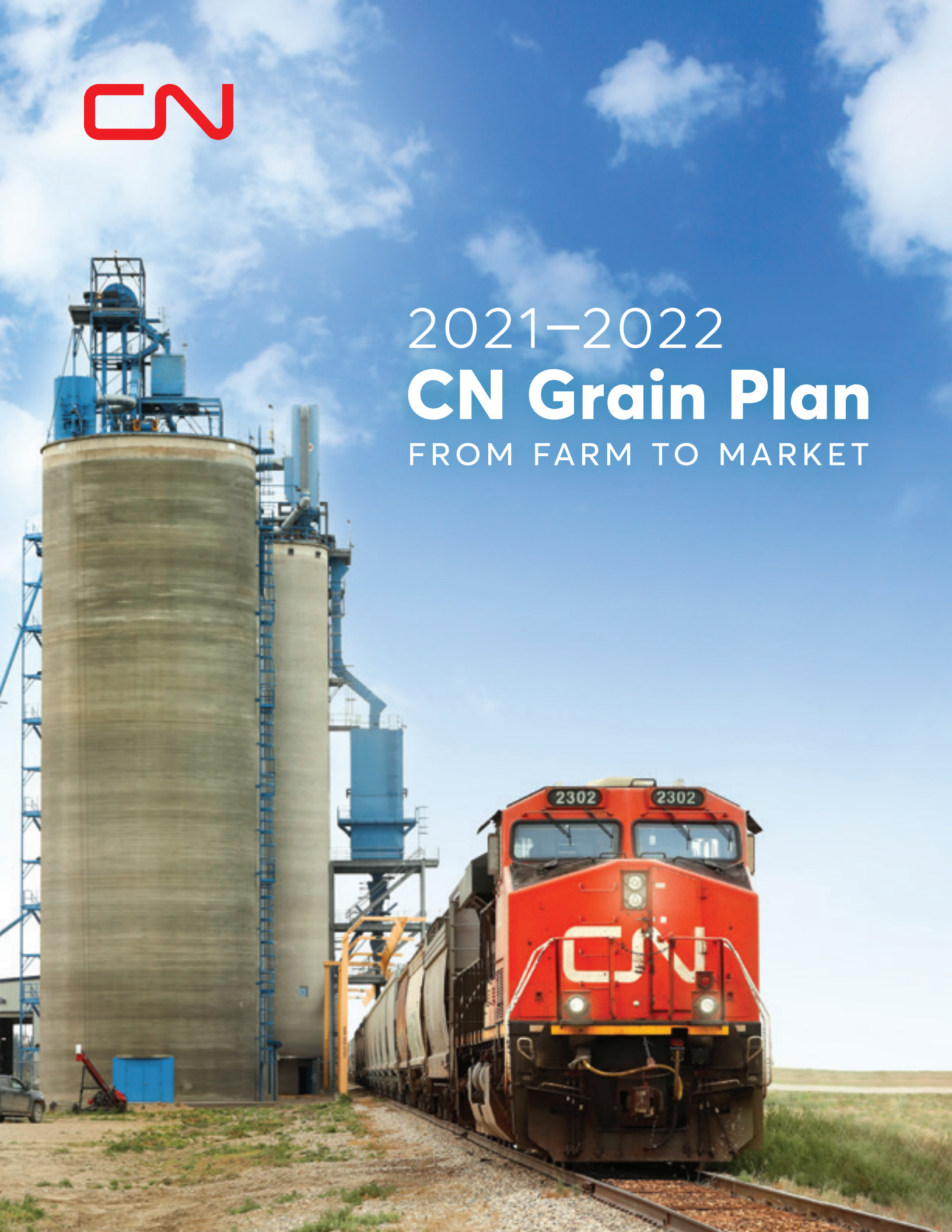

2021–2022
CN Grain Plan
FROM FARM TO MARKET

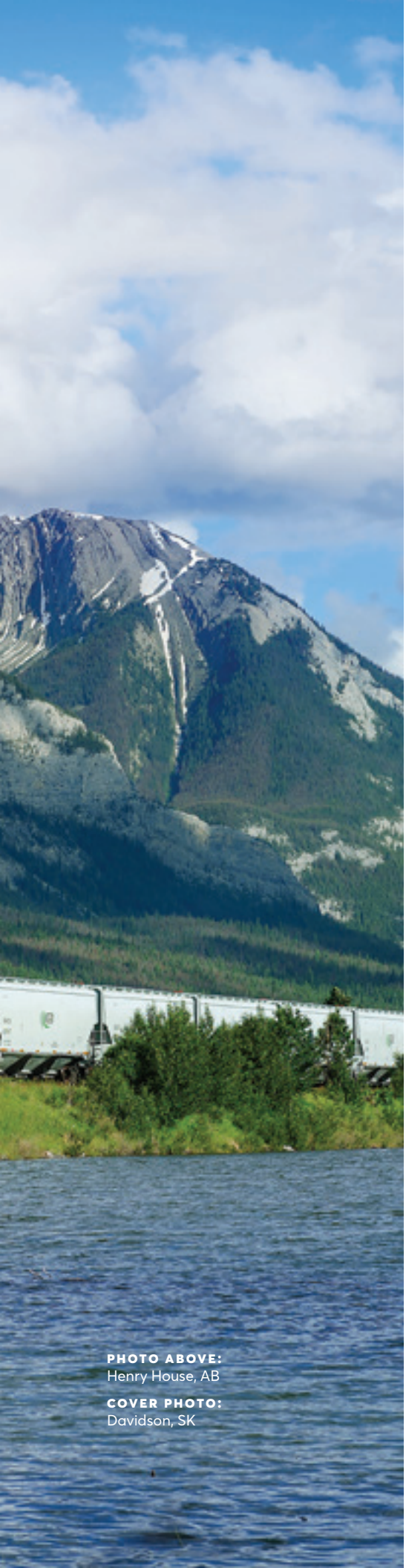

PHOTO ABOVE:
Henry House, AB

COVER PHOTO:
Davidson, SK

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Skeena Sub, BC

1 Message from JJ Ruest

CN is pleased to submit our 2021–2022 Grain Plan – *From Farm to Market.*

The Minister of Transport introduced a policy in 2018 whereby Class I railways must submit annual grain plans. The annual exercise has proven to be very useful to our cross-functional planning process and to inform our customers and other stakeholders about the realities of moving grain by train — from the planning stage all the way to delivering products to terminals.

Our Grain Plan has two main objectives. First, to set out CN's assessment of how much grain and processed grain products it expects to move over the course of the 2021–2022 crop year based on the information available, including the expected size of the crop. Second, to assess CN's ability to move this anticipated volume of grain, ensuring we have the resources and focus necessary to do so.

CN is committed to delivering on its Grain Plan. We will keep our stakeholders regularly informed of our progress toward achieving the plan, as we have voluntarily done in the past. We will also keep them informed on other matters of interest surrounding the the transportation of the crop. This will be done through our proactive weekly reports and monthly grain plan updates, communicated to all stakeholders, including Canadian farmers.

CN is not limiting its outlook to the coming crop year. The plans we have been producing and acting upon since 2018 are purposefully designed to also meet our long-term goals of strengthening the farm-to-global-market supply chain and of enhancing Canada's reputation as a reliable and quality supplier to international grain markets. We are clearly on the right path to achieving this, as shown by our strong results.

In 2020–2021, CN's solid execution and higher end-to-end grain supply chain capacity, combined with high demand, allowed us to establish — once more — another record for grain movement. In fact, the end of crop year 2019–2020 set the tone with a very strong finish. Beginning in March 2020, CN produced 14 consecutive months of record grain movement. In all, during crop year 2020–2021, CN moved 31 million metric tonnes (MMT) of Canadian grain via carload, which represent 1.6 MMT more than the past record set in 2019–2020 and 2.9 MMT more than the three-year average. Moreover, CN moved over 1.1 MMT of Western Canadian grain via intermodal, in addition to volumes moved from Eastern Canada.

Davidson, SK

The exceptional last crop production in Western Canada, combined with very high demand for grain in world markets, drove this unique performance. Our record grain movement is also due in no small part to all the players in the end-to-end grain supply chain, all of whom had to deal with pandemic-related issues and challenges. It must also be emphasized that CN would not have been able to keep up with these extraordinary circumstances without the expertise and can-do attitude of our people, as well as our strong investments in modern grain hopper cars and network infrastructure, such as long sidings and double track made in recent years.

Investments by our customers are also a major contributing factor to synergies across the entire grain supply chain. Modern grain capacity in Western Canada is increasing rapidly with our customers investing in high-throughput elevators with bigger trains capacities, while new export grain facilities in the Port of Vancouver, served exclusively by CN, have increased Vancouver nameplate grain handling capacity significantly.

Although we achieved our best grain movement in 2020–2021, we are looking long term. We continue to make capacity-expanding investments to our network and into modern grain hopper and locomotive fleets. A recent example of this strong commitment toward the Canadian grain industry is the announcement, in May 2021, of the acquisition of 1,000 additional new-generation, high-capacity grain hopper cars. These are part of a broader 3,500-car fleet renewal program over the next three years, which will bring CN's fleet of new-generation, high-capacity hoppers to 6,000.

"We are enhancing Canada's reputation as a reliable and quality supplier to international grain markets."


Vegreville, AB

Another example of CN's engagement to growth and strategic investment is our proposal to combine with Kansas City Southern and create the premier railway for the 21st century, seamlessly connecting ports and rails in the United States, Mexico and Canada. This will greatly benefit grain customers by offering more market opportunities. While CN is looking forward to finalizing this agreement, it cannot come into effect before 2023; therefore, it will have no bearing on the 2021–2022 Grain Plan.

We work closely with our customers and their industry associations to secure realistic and timely forecasts of volumes and shipping patterns, as these are essential to our people and demand planning processes. Furthermore, our focus on the safety of our employees and the communities in which we operate remains a core value of our company, and we fully understand the expectations of our customers, governments, and the communities we serve on this front.

Based on all these factors, we firmly believe that we are well positioned to meet the transportation needs of our customers for the 2021–2022 crop year. As the economic recovery continues — in concert with our industry-leading capital investments, cutting-edge technologies and, most importantly, the dedication and know-how of our people — we are optimistic about the future, especially regarding the movement of Canadian grain, *From Farm to Market*.

JJ Ruest
President and CEO

2 The 2020–2021 Crop Year in Review

There is nothing like looking back at past performance to draw lessons and determine how best to meet the needs for grain transportation in the future, and to plan accordingly.

Results Achieved

Overall, CN moved a record of 31 MMT of Western Canadian grain via carload in 2020–2021, exceeding the previous record set in 2019–2020 by 1.6 MMT. This performance compares well against the upper end of the 27.5 MMT to 29.5 MMT range of grain movement CN had projected for the 2020–2021 crop year, as reset upwards from the range originally published in the 2020–2021 Grain Plan.

Moreover, CN moved over 1.1 MMT of Western Canadian grain via intermodal, in addition to volumes moved from Eastern Canada.

Lessons Learned

This performance was achieved while facing some challenges, which pertained mainly to inclement weather in Western Canada (early November snowstorm and 10 days of persistent extreme cold in February) and on having to adjust resource levels in relation to sharp, uneven swings in overall demand for rail transportation services because of the pandemic.

On the other hand, crop year 2020–2021 also introduced some opportunities. A good example is the surge in demand for grain due to the pandemic, to a point where it became the main factor, along with strong operational performance, in CN's record grain movement for 14 consecutive months.

Jasper, AB

Despite these unforeseen events, important lessons can be drawn from the 2020–2021 crop year. The first pertains to difficulties sourcing crews in a timely fashion because of the uncertain and unstable demand for CN's combined rail traffic business. This was due to:

- The time between furloughed employees' recall and completion of the required safety training refresher before they can fully resume work.
- The variability and unevenness in the recovery across all CN's business segments, resulting in challenges in timing the recall of crew resources to match overall demand.

CN's customers' forecasts are critical to putting in place adaptive contingencies. To that effect, frequent and open communication with customers ensures customer forecast updates are shared and CN better understands and adjusts to the uncertainties that can impact markets and demand. Further, maintaining open lines of communications fosters collaboration between CN's team, customers and supply chain partners, allowing to better balance strategic initiatives with customer demand and supply chain capacity, making the service more efficient.

The second lesson relates to the importance of building for the future. CN invested $10 billion in its rail network infrastructure and rolling stock over the last three calendar years. These investments have been instrumental in achieving last crop year's record performance and have formed the building blocks upon which CN has increased, and continues to increase, its capacity, fluidity and resilience, while enhancing safety.

RECORD MOVEMENT OF GRAIN IN 2020–2021 CROP YEAR

STRATEGIC CAPITAL INVESTMENTS AND EMPLOYEES' COMMITMENT WERE KEY TO SUCCESSFUL RESULTS

$3.0B OF NEW INVESTMENTS IN 2021

ANTICIPATING MOVING 25.5 TO 28.0 MMT OF BULK AND PROCESSED GRAIN IN UP TO 7,800 CARS PER WEEK (6,250 IN THE WINTER MONTHS)

Aberdeen, SK

3 Other Considerations

In addition to looking back — and drawing lessons to identify practices worth repeating or to be eliminated — strong planning of grain movement requires estimating crop production and quality, which hinges on growing, harvest, and commercial conditions. Inherent realities of the rail business are also factors to include in the planning.

Growing, Harvest and Commercial Conditions

The crop growing season and harvest conditions affect crop quantity and quality, which in turn influence grain transportation demand. While recognizing that the right weather conditions — which are always unpredictable — are required to maximize crop yield potential, the industry consensus is that baseline yield potential can be expected to increase 2% to 3% annually.

However, over the past 10 years, compound annual growth in crop production in Western Canada has been roughly 4%. This higher level of growth is attributable to a combination of increased yields and increased harvested area, reflecting that the amount of cropland left as summer fallow has declined by almost 10 million acres over the past 10 years. With summer fallow area approaching just one million acres, future increases in crop production potential will mostly be a function of improved crop genetics and more intensive crop management techniques. These factors translate into an upside on Western Canadian crop production potential of over 80 MMT within the next five years.

With summer fallow area approaching just one million acres, future increases in crop production potential will mostly be a function of improved crop genetics and more intensive crop management techniques.

Acheson, AB

Commercial factors influencing potential grain demand come in many forms, from ongoing trade disputes, import restrictions, global competition, duties, diplomatic tensions, etc. These conditions can affect rail traffic volumes in different ways. For crop year 2021–2022, the main factors are:

- **COVID-19** — Specific to grain movement, the pandemic generated extraordinarily strong demand for Western Canadian grain as certain countries increased their purchases.
- **Canadian dollar** — Between May 2020 and May 2021, the Canadian dollar increased steadily from 0.72 to 0.82 USD, with a slight drop in June 2021. This relatively strong Canadian dollar is not expected to negatively impact demand for Canadian grain.
- **Trade issues and tariff barriers** — Trade issues, whether ongoing or in the near future, have the potential to impact overall grain movement in 2021–2022.

Factors Intrinsic to Rail

Difficult environmental conditions and safety imperatives can have significant impacts on the capacity of the end-to-end grain supply chain at any point in time, no matter the extent of investments and best practices. As such, these challenges need to be part of any plan.

- **Operational performance of terminals** — Inclement weather (e.g., persistent heavy rainfall on the West Coast) and the mix of products and grades (particularly in years when crop quality is average to below average) can prevent destination terminals from operating at optimal levels. In such cases, the terminals may not be able to accommodate the traffic directed towards them, and CN must hold trains at origin or along the route. The resulting congestion affects the supply chain upstream and the overall fluidity of the network.
- **Cold weather** — CN moves grain to three main destinations: Vancouver, Prince Rupert and Thunder Bay. The closure of Thunder Bay during winter, which removes upwards of 1,000 CN unloads per week, significantly affects the overall capacity of the system. Persistent extremely cold weather and heavy snowfall also hamper rail operations and network fluidity. Safety imperatives also require CN to impose a four-tiered system of restrictions,[1] which come into effect as temperatures drop below -25°C.
- **Track disruptions** — The very nature of any rail network makes it vulnerable to disruptions caused by washouts, rock falls, landslides, etc. CN invests heavily in technology to detect, mitigate and prevent these events.

Current Capacity

Moving large volumes of grain, while keeping pace with the recovery of other commodity groups in the aftermath of the pandemic, was a result of the can-do attitude of CN's employees supported by the **investment of more than $10 billion** in capital over the last three years. Aside from regular maintenance and safety-focused undertakings, these investments included strategic projects such as the acquisition and implementation of cutting-edge technology and modern equipment, along with the addition and lengthening of passing siding tracks (up to 12,000 feet long) and twinning of key segments of our mainline. Here are highlights of interest to the grain industry:

- Three long **siding additions** on the Edmonton-to-Prince Rupert corridor for increased capacity to/from the Port of Prince Rupert.
- Multi-year capacity enhancements in both the Vancouver and Prince Rupert areas, matching new port terminal capacity and enabling greater throughput:
  - Two new export terminals in the **Port of Vancouver**, served exclusively by CN. The first (**G3 Vancouver**) is located on the North Shore of Vancouver, equipped with three loop tracks, one of which is capable of accommodating trains up to 8,793 feet in length. Trains unload in continuous motion using the same motive power that delivered the train to the facility.
  - The **Fraser Grain Terminal** is a state-of-the-art facility served directly by CN and able to receive up to 120-car trains on a semi-loop, creating an additional 3.5 MMT of nameplate export capacity on the West Coast.

[1] Refer to CN's Winter Plan for details.


Davidson, SK

- Total of 150 miles of new **double track** completed since 2018.
- Major **yard capacity expansion** projects in key locations, which extended yard tracks for greater throughput.
- Delivery of the last 41 units of our 2017 purchase of 260 new high-horsepower and fuel-efficient **locomotives**, for a total fleet of over 2,200.
- Delivery of 1,500 high-capacity **grain hopper cars** purchased in 2020, bringing the total number of new-generation hopper cars in service since 2018 to 3,500. Each car will move more grain due to its:
    - Increased **volume**: capacity of 5,431+ cubic feet, compared to standard jumbo hoppers of 5,150 cubic feet, or the 4,550-cubic-foot capacity of Government of Canada hopper cars.
    - Reduced **length**: 55 feet, 8 inches long, compared to 58 to 60 feet for other hoppers, making it possible to fit more new-generation hopper cars onto the same amount of track capacity (up to 10 additional cars more).
    - Reduced tare **weight**: Given that these are lighter than older hopper cars, and given the maximum permissible weight per car, this lightening means CN can haul more pounds of grain per car (more payload per car).

  The above advantages add up, allowing CN to handle 20% to 40% more grain per train, depending on the type of grain transported and the track length at origin.
- Acquisition of 41 additional **air distribution cars**, for a total of 101 since 2019, for more reliable train operations during cold winter weather.

Difficult environmental conditions and safety imperatives can have significant impacts on the capacity of the end-to-end grain supply chain at any point in time, no matter the extent of investments and best practices.

Blue River, BC

To further enhance its capacity and efficiency, CN has implemented the following procedures to complement the capital investments listed on the previous page. These **best practices** help increase capacity and maximize fluidity of the supply chain while improving safety:

- **Keeping trains at maximum safe lengths as temperatures drop** — This is achieved through "distributed power," which consists of placing one or more additional locomotive(s) in the middle and/or at the end of a train to improve train handling and better maintain air pressure in the braking system. It can also be achieved through using "distributed braking cars" (also known as air cars) to supplement the air supply to the train's air brake system.
- **Obtaining Agriculture Advisory Council insights** — CN created this Council, an industry first, in 2019. Composed of agriculture industry specialists, including farmers, the Council discusses issues that affect this industry and provides ongoing advice and feedback on grain production, market conditions and supply chain requirements, allowing CN to gain greater ability to plan and service this essential sector of the economy.
- **Working in close collaboration** — Daily contact with grain shippers, inland and waterfront terminals, and other railways to manage the flow of grain and other traffic to match train delivery to vessel arrivals and improve overall network fluidity.
- **Adapting the fleet** — Rightsizing by fully deploying cars at times of peak demand and placing them into storage when demand declines to alleviate congestion. Typically, grain supply chain capacity is significantly underutilized in spring and summer due to the normal harvest cycle. As a result, a significant portion of CN's hopper car fleet is in storage during that time.[2] They are stored "close to the service point" in areas where they are most likely to be used when needed back.
- **Taking orders for hopper cars** only after ensuring that the receiving terminal[3] can fully process them upon arrival.

[2] This did not happen in the summer of 2020. Instead, to meet the exceptional pandemic-driven demand, CN adjusted its fleet size, the availability of its crews and its operations.

[3] In recent years, CN has moved from a general car allocation program for the movement of bulk grain to various commercial programs tailored to the specific needs of its customers, enabling them to secure priority car supply. The result is a more timely allocation of hopper cars that better meets the needs of grain shippers. Details about CN's programs, guidelines and list of producer loading sites can be found at https://www.cn.ca/en/your-industry/grain/grain-documents-and-programs/.

Moving large volumes of grain, while keeping pace with the recovery of other commodity groups in the aftermath of the pandemic, was a result of the can-do attitude of CN's employees.

- **Rerouting traffic when disruptions occur**, including over alternate CN tracks or via other railways at CN's expense, to meet its commitments.
- **Proactively and voluntarily updating the Grain Plan monthly** on CN's website to reflect changing conditions, and sending detailed weekly progress reports to the various stakeholders, assessing CN's performance against the crop year plan in terms of volumes moved and cars spotted. These have proven to be very effective in increasing flexibility, allowing all parties to be more responsive and adjust as necessary to deal with the vagaries of the grain season, as they occur.
- **Increasing capacity with intermodal options in the Prairies**. Containers, which bring a variety of products from Asia through Canadian ports into North America, would normally return to port empty. Filling those containers represents an opportunity for grain shippers. CN's Saskatoon Intermodal Terminal and the opening of the InterMobil East Regina Intermodal Terminal in 2019 allow them to move grain in containers on CN tracks directly to Western Canadian ports and onwards to export destinations.
- **Gaining efficiencies.** With the increased capacity each new-generation hopper car offers, CN can move more grain with the same amount of resources, unlocking additional grain supply chain capacity. Between the acquisition of new high-efficiency hopper cars, the increase in the size of CN's fleet integration programs, and the increased use of customer-supplied-and-controlled hopper cars for bulk grain movement, the average tonnage shipped per hopper car over the past five crop years has increased by over four metric tonnes, or over 4%. That means more grain moving during peak post-harvest demand in the fall and winter, in particular.


CN
CN
113656
CN

Aberdeen, SK

4 The Plan for 2021–2022

As in previous years, CN has prepared this Grain Plan in accordance with the requirements of Canada's *Transportation Modernization Act* and with input from its key stakeholders. This section opens with the expected grain volumes and related demand. It then presents the supporting car shipment forecasts before closing with new investments and measures that will be added to those already in place; thereby ensuring the capacity required to meet the demand for grain transportation safely and efficiently in the coming 12 months.

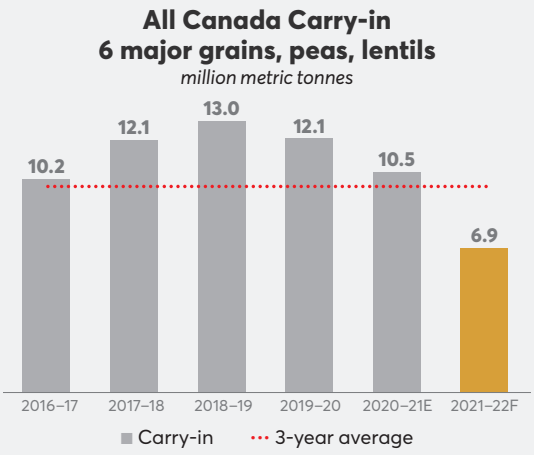
Projected Volumes to be Moved

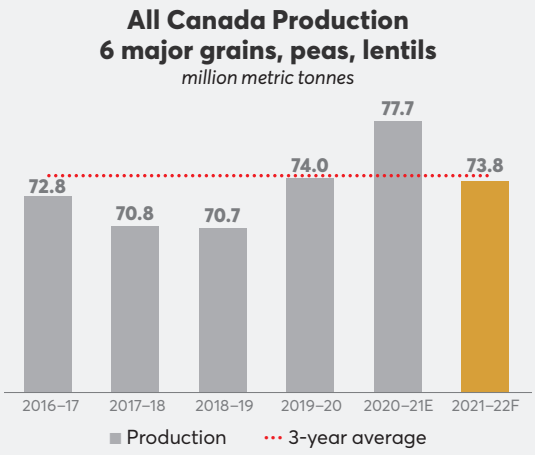
Forecasting the volume of grain traffic to be moved during the crop year requires the assessment of three key items.

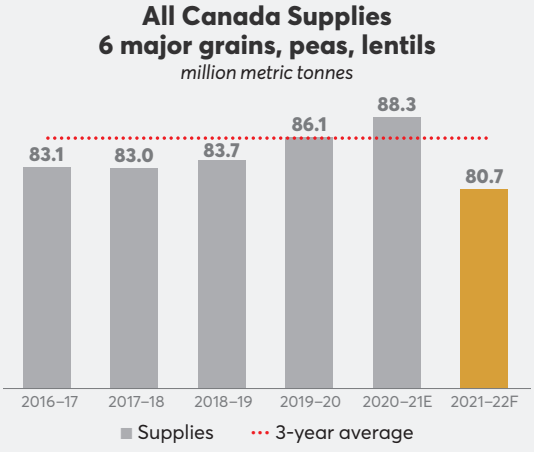
1. **Grain production**, the largest factor affecting the overall volumes to be moved.
2. **Carry-in** from the previous crop year, which, combined with grain production, reflects **total available supplies**.
3. **Domestic usage**, which must be estimated and deducted, leaving the balance as **exports** and **carry-out**.

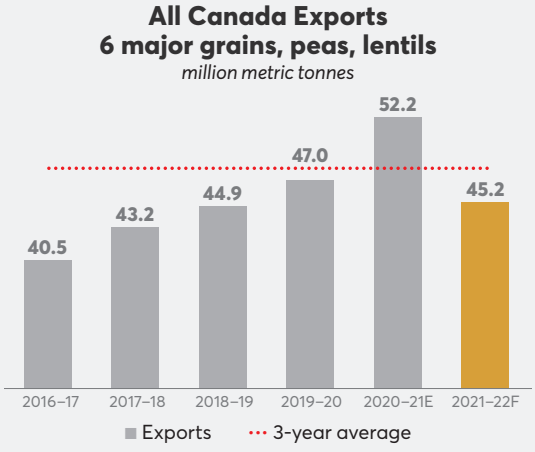
In projecting volumes, CN relies on feedback from external sources, including grain companies and private market analysts. This is why it engages with stakeholders and industry leaders. Agriculture and Agri-Food Canada (AAFC) projects the following for the 2021–2022[4] crop year:

- **Carry-in** supplies of the six major grains,[5] peas and lentils to be well below the three-year average of 11.9 MMT, and estimated at just 6.9 MMT.
- **Production** of the six major grains, peas and lentils to be 73.8 MMT, versus 77.8 MMT in 2020–2021 and the three-year average of 74.2 MMT.
- **Total available supplies** to be 80.7 MMT compared to 88.3 MMT in 2020–2021 and the three-year average of 86.1 MMT.
- **Exports** to be below the three-year average levels at 45.2 MMT, and significantly below the 2020–2021 levels (52.2 MMT).
- **Carry-out** for 2021–2022 to be below the three-year average at 7.0 MMT, due to expectations of a strong export program and reduced overall supplies.









[4] Based on the AAFC July 2021 Outlook for Principal Field Crops: https://agriculture.canada.ca/en/canadas-agriculture-sectors/crops/reports-and-statistics-data-canadian-principal-field-crops

[5] Wheat, barley, oats, flax, rye and canola.

These projections are used to estimate the overall grain movement demand for the crop year and measured against CN's market share for rail transportation services. However, it should also be noted that at the time of the writing of this document, significant areas of Western Canada were experiencing adverse growing conditions due to persistent hot and dry weather, which, as noted by AAFC, represented significant uncertainty with respect to crop production in 2021. Many of CN's customers and stakeholders have provided similar feedback. CN will update these estimates in its monthly Grain Plan updates as additional information becomes available.

Growing season conditions across much of the Prairies have been very challenging as many producers face extremely dry weather this year. CN will continue to work with farmers, agri-organizations and grain costumers to ensure it has the people, the assets, and the resources required to move the upcoming harvest for its Canadian customers.

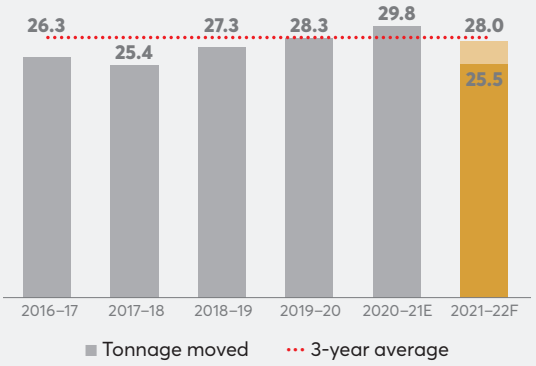
Grain Movement and Car Shipment Forecasts

GRAIN MOVEMENT

Considering the above forecasts and the key factors discussed in the previous section, **CN expects to move, over the course of the 2021–2022 crop year, 25.5 to 28.0 MMT of grain and processed grain products via carload**. This forecast is in the range of the past three crop years but below 2020–2021 levels due to a material reduction in total available grain supplies year over year. Grain volumes moved using intermodal equipment are in addition to this level of projected shipments.

CN Carload Movement of Schedule II Commodities

Western Canadian shipments (million metric tonnes)



Experience shows that forecasts may not always reflect reality. Therefore, CN will refine its assessment of anticipated volumes to be moved based on overall crop production and insights gained by maintaining open lines of communications and consultations with stakeholders in the grain supply chain.

CAR SHIPMENT

CN anticipates that, for the 2021–2022 crop year, over 90% of CN-supplied grain cars will be committed to customers in advance of harvest through commercial car supply agreements and other car supply products, with reciprocal penalties for both CN and the customer. CN makes commercial car supply products available to the market to ensure their widest possible application, with car block sizes of as few as 10 cars.

It is CN's view that the supply chain system can accommodate — and CN can handle — the following weekly average of grain car shipments and tonnage on a sustainable basis for the movement of bulk grain and processed grain products:

TABLE 1

Weekly Projected Shipments of Bulk Grain and Processed Grain Products (carloads and metric tonnes)

Maximum Sustainable End-to-End Supply Chain Capacity on CN

		CARS PER WEEK			METRIC TONNES PER WEEK		
MONTH	GRAIN WEEKS	BULK GRAIN	PROCESSED GRAIN	TOTAL	BULK GRAIN	PROCESSED GRAIN	TOTAL
August	1–4	6,900	900	**7,800**	660,000	84,000	**744,000**
September	5–9	6,900	900	**7,800**	660,000	84,000	**744,000**
October	10–13	6,900	900	**7,800**	660,000	84,000	**744,000**
November	14–17	6,900	900	**7,800**	660,000	84,000	**744,000**
December	18–22	5,350	900	**6,250**	511,000	84,000	**595,000**
January	23–26	5,350	900	**6,250**	511,000	84,000	**595,000**
February	27–30	5,350	900	**6,250**	511,000	84,000	**595,000**
March	31–35	5,350	900	**6,250**	511,000	84,000	**595,000**
April	36–39	6,900	900	**7,800**	660,000	84,000	**744,000**
May	40–43	6,900	900	**7,800**	660,000	84,000	**744,000**
June	44–48	6,900	900	**7,800**	660,000	84,000	**744,000**
July	49–52	6,900	900	**7,800**	660,000	84,000	**744,000**

Note: the numbers of cars per week include both system and private cars

When compared to the anticipated shipments capacity indicated in last crop year's Grain Plan, the numbers in the table on the previous page represent an increase of 150 carloads per week for winter months and 200 carloads per week for non-winter months. On an annualized basis, the end-to-end maximum sustainable supply chain capacity on CN represents grain supply chain shipment capacity of 36 MMT, which is significantly higher than anticipated grain shipment volumes for the 2021–2022 crop year.

The ability to achieve these numbers[6] depends on a number of conditions all being met in the end-to-end supply chain in a given week, including having sufficient demand to meet these levels. In addition to these conditions, the Ministerial Order issued by Transport Canada on July 11, 2021 concerning the precautionary measures to be effected by railways in response to the risk of wildfires in Western Canada is another factor that will affect the capacity of end-to-end grain supply chain. The Order is in effect for the first three months of the 2021–2022 crop year across Canada and imposes certain train speed restrictions on all rail traffic where/when there is extreme fire risk or when the ambient temperature reaches 30 degrees Celsius. Safety being a core value at CN, a range of measures are proactively implemented to ensure the safety of CN's infrastructure and of the communities it operates in. This is why CN is supportive of this Order.

However, customers must note that should these temperature and fire risk conditions be present in Western Canada during August–October 2021 (recognizing that this Order may also be modified or extended), it is clear that the Order would have a significant negative impact on the amount of grain that could be moved during the applicable period and even beyond (due to necessary catch-up operations). The severity of this impact will depend on the area affected by the specific conditions referenced in the Order and their duration and by the volume of traffic that normally moves along the mainline in the Prairies.

In the end, more cars supplied on a weekly basis means more grain shipped. Compound annual growth in CN's car shipment capability during the post-harvest peak has been proportionately higher than the compound annual growth in crop production over the past decade, enabling a more efficient and productive end-to-end supply chain. Not only does CN expect to be able to deliver a stronger car shipment program this crop year on a sustainable basis due to its enhanced network capacity, but each new hopper, acquired as part of CN's capital investments, will also carry more grain, as explained in the previous section.


North Battleford, SK

[6] These numbers are reflective of key assumptions: grain supply chain fluidity across corridors; sufficient demand to meet these levels; seven-day terminal and rail unload operations at all major grain export facilities; a full resumption of loading during inclement weather at West Coast terminals; normal winter rail operating conditions (issues related to winter operating conditions and measures CN has taken to address them will be addressed in our Winter Contingency Report); no significant labour, mainline or other major supply chain disruptions; a stable global trade environment; and no additional important material effect on demand for grain or the capacity of the supply chain due to COVID-19.

Since the 2015–2016 crop year, the average tonnage shipped per hopper car for bulk grain movement has increased from roughly 90 metric tonnes per car to roughly 95 metric tonnes per car. Further gains are expected during the 2021–2022 crop year as part of CN's ongoing hopper car fleet renewal program. The change in increased hopper car average payload alone represents 1.1% compound annual growth since 2017–2018. This is a very important improvement in grain supply chain efficiency, representing the equivalent of roughly four 100+ car trains per week of increased grain shipments.

For planning purposes, shippers can anticipate CN's aggregate weekly shipping program will, on average, be reflective of the above carload volumes. However, it can be reasonably expected there will come a point in the crop year when demand for CN-supplied equipment will exceed the maximum sustainable capacity of the end-to-end supply chain in some weeks, especially during peak grain handling and grain companies' trading margin profitability periods (fall and winter). These limitations are taken into account in CN's planning efforts, as are its obligations to service other segments of the Canadian economy, and will require CN to use an allocation process for its fleet.

As part of CN's railcar allocation process, all hopper car orders are reviewed to ensure they are valid orders, including being subject to shipment authorization from the receiving facility at the waterfront. CN first allocates railcar supply against valid orders tied to commercial car supply agreements, and any remaining car supply is allocated evenly across the remaining orders.

CN plans $3 billion of new capital investments in 2021, maintaining its North American leading position among Class I railways.

New Investments and Best Practices

As part of this year's plan, CN is adjusting its **resourcing/hiring**. Last year held significant uncertainty in the market about what the future might hold with respect to the pandemic. As a result, customer demand forecasts collectively carried a greater degree of uncertainty as well, making it difficult for CN to plan crew resources and make assumptions about the timing and extent of the pandemic recovery. This year, with a considerably more reliable overall demand forecast at hand, CN is actively recruiting and hiring to address attrition and resource requirements against projected demand, as it has done since the beginning of the recovery. In particular, CN continues to hire and train in areas where the demand forecast is most certain, such as the Kamloops, Jasper, Edmonton and Vancouver hubs.

In addition to the investments and projects presented earlier, CN plans **$3 billion of new capital investments in 2021**, maintaining its North American leading position among Class I railways in terms of capital investment as a percentage of annual revenues, hovering at around 20%. The investments include many major, multi-year, maintenance and capacity-enhancing projects, aligned to market demand. As a result, they will be concentrated in Western Canada, and are therefore of interest to the Canadian grain industry:

- Over $1.5 billion on **track maintenance** to support safe and efficient operations, including the replacement of rail and ties, bridge improvements, as well as other general track maintenance.
- More than $250 million on **track capacity**, which include double tracks, sidings and yard track expansion projects.

Spruce Grove, AB

- More than $100 million on **strategic projects** in technology to enable the next competitive level of modern railroading operation — rail automation, dispatching system, mobility, inspection systems, etc.
- **1,000 new-generation, high-capacity grain hopper cars[7] during the 2021–2022 crop year.** These cars will expand capacity and help meet the growing needs of North American grain farmers and grain customers.
- The acquisition during the first half of the 2021–2022 crop year of **75** high-horsepower and fuel-efficient **locomotives**, in addition to the 260 already received previously.
- While it does not impact the 2021–2022 Grain Plan, the proposed CN and **Kansas City Southern** combination would, should it go through, allow Canadian farmers and grain customers, in the wake of the new USCMA, to seamlessly reach Mexico, an important destination market. The single-owner, single-operator network represented by the CN-KCS combination means a more competitive single-line haul option from Western Canada that will save customers time and offer more routing options among other benefits.

Regarding **best practices**, CN will maintain all those that have proven to boost capacity and efficiency (as described in the previous section) in addition to continuing to encourage and assist customers and partners to adopt and apply the following:

- **Weather-ready infrastructure** by releasing loaded freight cars with air hoses already connected and having the train line already charged with air from a mobile or fixed trackside air system. This allows trains to depart more quickly from origin and reduces cycle times, increasing the availability of empty railcars back to origin.
- **Hook-and-haul operations** at grain elevators and other facilities to improve supply chain efficiency and network fluidity.

These initiatives (except for those involving speed restrictions) and investments have enabled CN to increase its maximum sustainable grain supply chain capacity, and will continue to do so. The result is a system that can overcome challenges, recover operating levels quickly, and safely move grain at, or near, record levels. CN is confident that, with the assets it currently has in place and the additional $3 billion in capital investments already underway this year, there will be sufficient capacity to meet the anticipated demand to move grain efficiently and safely over the course of the 2021–2022 crop year as well as to play its essential role in the timely delivery of critical inputs for crop production, such as fertilizer.

[7] These cars are in addition to the 2,500 cars CN received between 2019 and 2021.

Vegreville, AB

5 Post-Pandemic Recovery

From the very early days of the pandemic, CN moved quickly to establish a safe working environment for its approximately 24,000 employees. This was critical to CN playing its role as an essential service provider to its customers and to the North American economy.

In fact, approximately 19,000 operating employees have been in the field working every day of the pandemic, supported by another approximately 5,000 employees who have been running the railway from their homes. Their dedication and perseverance were instrumental to CN successfully overcoming the obstacles. This section covers how CN is adjusting to the new reality that the pandemic has brought.

Impacts on Grain Sector

All segments of the end-to-end grain supply chain made significant changes to operating protocols in 2020 and 2021 to mitigate the risks associated with COVID-19. But unlike many other types of rail traffic, overall demand for Western Canadian grain increased during the pandemic, both within North America as well as overseas. Record demand allowed CN to establish — once more — a new record for grain movement. But high demand levels were not the sole driving factor. Strong CN operational performance, combined with the collaboration and performance of other players in the end-to-end grain supply chain, such as grain companies and grain producers, helped deliver record bulk grain movement by CN for 14 consecutive months, from March 2020 to April 2021.

COVID-19 had multiple impacts on containerized grain movement. Grain shippers load millions of tonnes of grain annually into containers. The containers may be loaded inland in Western Canada or loaded at port. The major disruption of the manufacturing industry due to the pandemic, particularly in China, combined with the curtailment of retail and commercial business in North America, caused severe challenges to the supply chain for containerized traffic. Specifically for the grain supply chain, reduced empty export container availability was the first problem to develop, followed by a reduced number of vessel sailings that prevented loaded product from leaving port, causing congestion on docks and at waterfront terminals. As a result, grain shippers were not always able to send as much product by hopper car as they wanted to port for reloading into containers, and the reduced supply of containers in the Prairies impacted the overall volume of direct-to-port container shipments from Western Canada.

Impacts of Other Commodities on Grain

Contrary to what some may have suggested, it is important to understand that the record grain results occurred at the same time that overall traffic levels on CN, from September 2021 forward, were higher than at the same time the previous year, with CN also recording monthly record volumes of intermodal, lumber, propane, and fertilizer shipments. Simultaneously, demand for grain movement was very strong given exceptional crop production, and international demand for grain was very high, driven in part by the pandemic. After their dramatic plunge in the early months of the pandemic, overall CN traffic volumes recovered and are now back to normal or heightened levels. Throughout this period of fluctuation, CN and its supply chain partners moved more grain than ever in 2020–2021 crop year. The records also result from CN's determination to respond to the needs of its customers.

CN's 2021–2022 Grain Plan is built on what the supply chain can handle efficiently, even during times of peak volumes. The return of normal volumes in other commodities has not negatively affected the movement of grain, other than the usual ramp-up to recovery when the equipment is removed from storage and reinspected, and crews must complete their compulsory safety refreshers. CN is committed to moving grain in accordance with its Grain Plan, no matter how other commodities perform.

North Battleford, SK

6 Conclusion

Again, this year, in developing its Grain Plan, CN consulted widely with a large number of interested parties and stakeholders. This collaborative approach is very much part of CN's commitment to a broad focus on engagement with grain producers.

Generally, this consultation process includes participation at major agricultural events, seeking out opportunities to present and discuss grain supply chain issues with producer organizations and being proactive in providing updates on grain supply chain performance. CN thanks all stakeholders[8] who took the time to provide their views on CN's Grain Plan. CN wants to work collaboratively with the industry with respect to grain movements and believes this consultation was a success.

Based on the supply chain and market analysis outlined in this document, CN believes it has the resources in place to effectively, efficiently and safely meet the anticipated demand to move the grain crop over the course of the 2021–2022 crop year. The recent announcement of the acquisition of 1,000 additional new-generation, high-capacity grain hopper cars, with deliveries starting as early as during the upcoming crop year, will further contribute in achieving this.

During the 2020–2021 crop year, CN, together with producers and stakeholders, moved more grain than ever thanks to record domestic and global demand, the investments CN and its partners have consistently made over the years, and the operational excellence of CN railroaders. With its continued strategic capacity and safety-enhancing investments in its infrastructure, rolling stock and locomotives, coupled with the dedication of its team, CN is well positioned to ship, in crop year 2021–2022, up to 7,800 hopper and tank cars per week outside of winter, and up to 6,250 hopper and tank cars per week during winter (refer back to Table 1 on p. 20 for planned weekly car shipment.)

The 2021–2022 Grain Plan will be updated monthly and shared with all stakeholders as estimates of crop production evolve. As was the case during the previous two crop years, CN will voluntarily publish monthly updates to the Grain Plan to reflect its performance over time and report on any significant events that may have affected it. CN also intends to keep up its consultations throughout the crop year and to prepare weekly reports in support of these continuous discussions.

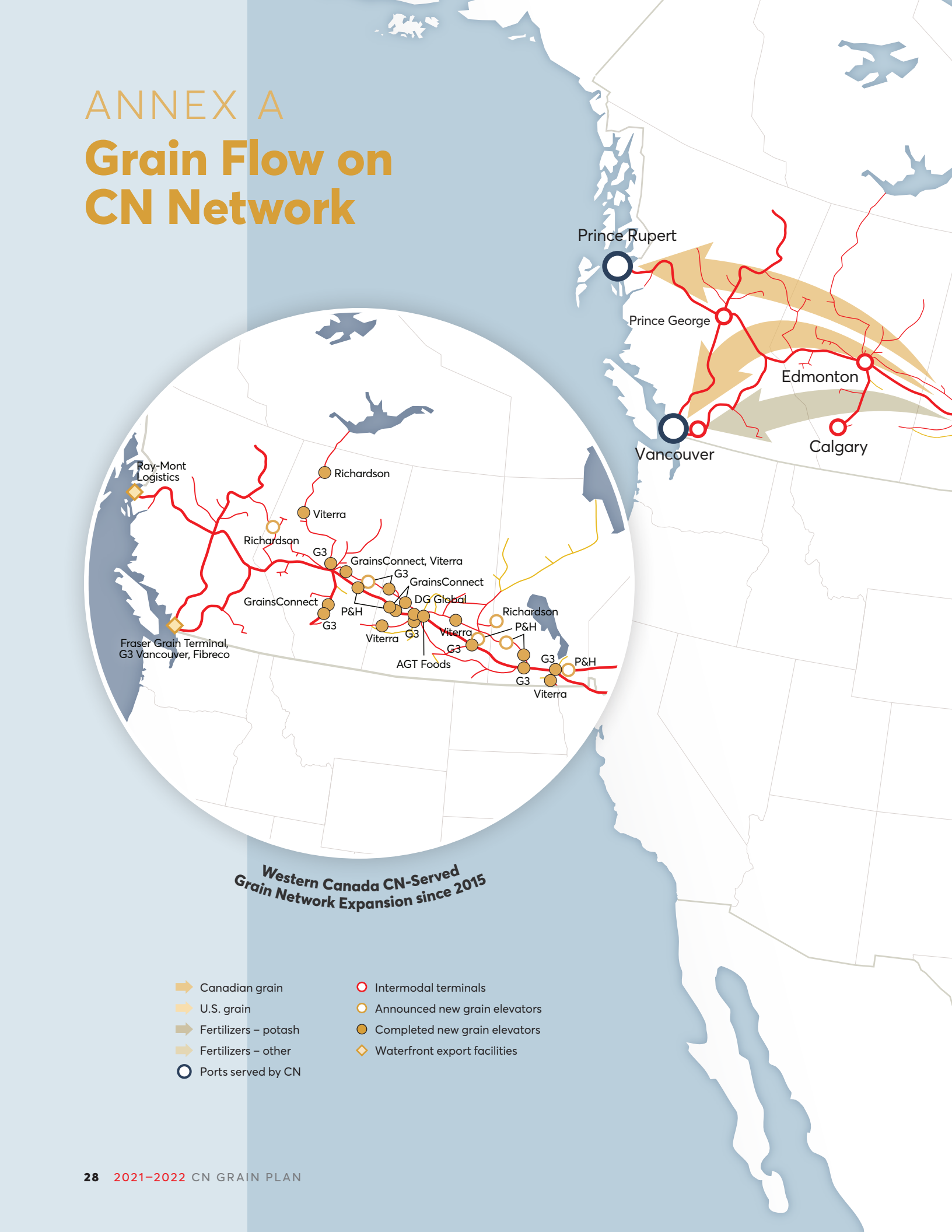
CN welcomes ongoing participation in its many engagements with the grain sector throughout the year. For that purpose, a short survey is available on CN's website and will remain so for the entire crop year. Input is always considered, and participants' feedback confirms there is mutual benefit in continuing this way. Additionally, those who would like to be added to the distribution list for the Grain Plan monthly updates can do so by sending an email to contact@cn.ca.

[8] The following stakeholders were consulted as of June 17 2021: CN Agricultural Advisory Council; Agricultural Producers Association of Saskatchewan; Alberta Federation of Agriculture; Canadian Federation of Agriculture; Grain Growers of Canada's Transportation Committee; Keystone Agricultural Producers; Prairie Oat Growers Association; Pulse Canada; and all western provincial ministries of agriculture (ministers, chiefs of staff, deputy ministers and policy advisors).

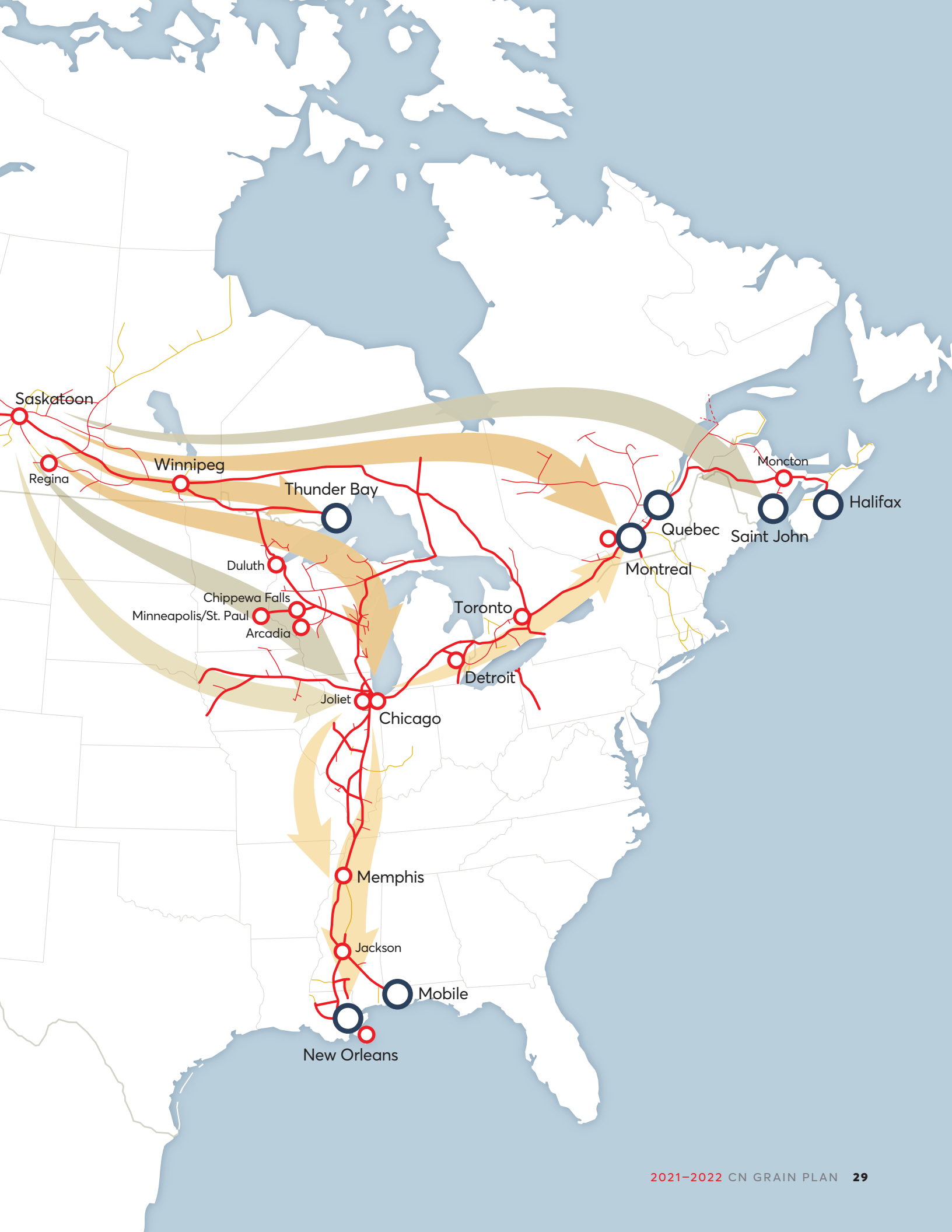
ANNEX A

Grain Flow on CN Network

Western Canada CN-Served Grain Network Expansion since 2015



- Canadian grain
- U.S. grain
- Fertilizers – potash
- Fertilizers – other
- Ports served by CN
- Intermodal terminals
- Announced new grain elevators
- Completed new grain elevators
- Waterfront export facilities

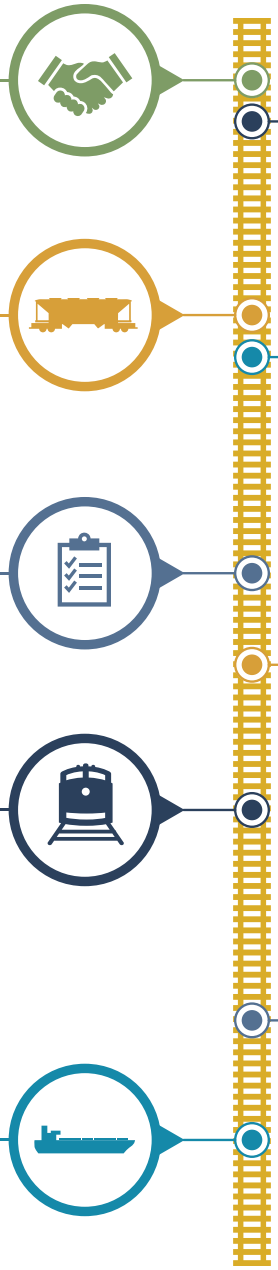

Saskatoon
Regina
Winnipeg
Thunder Bay
Duluth
Chippewa Falls
Minneapolis/St. Paul
Arcadia
Toronto
Detroit
Joliet
Chicago
Memphis
Jackson
Mobile
New Orleans
Montreal
Quebec
Moncton
Saint John
Halifax

Vegreville, AB

ANNEX B

Grain Handling and Transportation System

This annex features additional detail on the workings of the grain supply chain.



1 GRAIN MOVEMENTS BEGIN WITH A SALE

Grain companies enter into contracts to sell Western Canadian grain, at an agreed time in the future, to their customers in many countries around the world.

2 GRAIN IS DELIVERED TO A COUNTRY GRAIN ELEVATOR

Grain companies gather grain into prairie grain elevators from many producers who have the type and grade required to fulfill the sales contract — all grain starts in a truck from the farm-gate.

3 GRAIN COMPANIES ORDER RAIL CARS

As the sales contract date approaches, the grain companies order railcars from the railway and instruct the railway where to place the car (i.e. to which prairie grain elevators).

4 PIPELINE MANAGEMENT

CN works closely with grain companies and terminal operators to ensure the fluidity of each corridor. For instance, when a waterfront terminal is encountering weather challenges and cannot offload railcars, the grain companies will cancel some of their car orders into that pipeline to avoid worsening terminal congestion.

5 CAR SHIPMENT

The railway delivers the empty railcars to the particular prairie grain elevators for that week, as determined by the grain companies.

6 CAR LOADING

Prairie grain elevators load railcars with the type and grade of grain specified by the grain company to meet their sales contract. The more rapidly the railcar is loaded and released to the railroad, the quicker it can be delivered to port, emptied and sent back to the country. Prairie grain elevator infrastructure varies resulting in different levels of efficiency (i.e. single car loading; block loading; unit train loading; loop track).

7 LOADED CARS ONLINE

Once the loaded railcars are released from the prairie grain elevator, the railcars begin their journey to destination. In most cases, this is a four- to five-day journey to the West Coast. However, there can be occasional rail network disruptions, or staging of trains en route at shippers' request to manage inbound pipelines and terminal capacity.

8 UNLOADING CARS AT PORT TERMINAL

Railways place the railcars at an export terminal, and the terminal unloads the grain to the storage silos or directly loads a vessel. The more rapidly the railcar is unloaded and released empty back to the railroad, the quicker the empty car can be sent back to the country. Availability of labour, weekend and holiday downtime, and planned and unplanned maintenance shutdowns can all affect the speed with which railcars are unloaded.

9 LOADING OCEAN-GOING VESSELS

Port terminals load grain into ocean-going vessels, either from storage silos or directly from arriving grain hoppers. Poor weather can delay vessel loading, which will slow or stop railcar unloading.

07/2021