



## 2020 – 2021 Winter Planning

CP remains committed to working proactively and collaboratively with our customers to improve communication and responsiveness across the supply chain.

We continue to train employees and invest in assets to meet the needs of our customers across Canada and U.S.



CP IS INVESTING APPROXIMATELY

# \$1.6 BILLION

IN CAPITAL IMPROVEMENTS IN 2020



FOR THE 2020-2021 WINTER SEASON,  
CP IS TARGETING TO MAKE AVAILABLE

# 3,600 TO 3,800

TRAIN AND ENGINE EMPLOYEES



FROM 2018 TO 2020, CP ADDED

# 201 MODERNIZED LOCOMOTIVES

THROUGH ITS LOCOMOTIVE MODERNIZATION PROGRAM

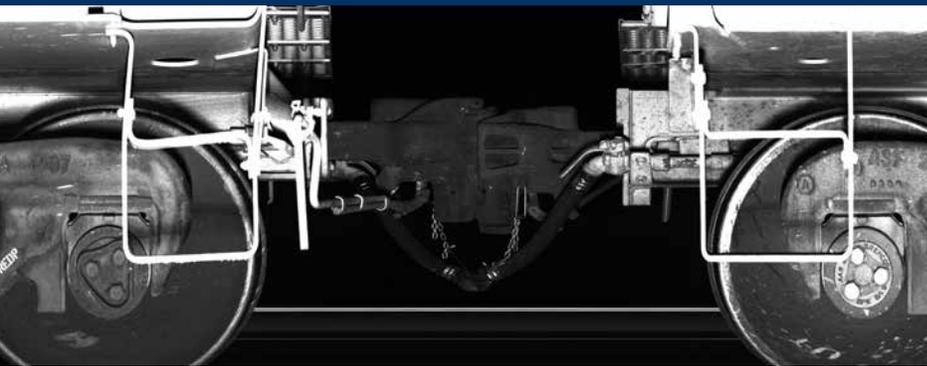


## Rail safety is everyone's business

Our customers play an important role in ensuring safety practices and procedures are followed to meet the requirements of operating on or near CP railway property. CP is available to assist customers with basic rail safety, including procedure reviews and developmental education. Contact your local CP Operations office for more information or download our [Customer Safety Handbook](#).

# Technology and Innovation

CP uses predictive analytics to improve safety and performance during the winter season. Using above and below the rail technologies, we capture a holistic view of our operations to make rapid adjustments and enhance our service in real-time. This results in improved safety performance, fewer service interruptions, lower dwell at terminals and reduced cycle times for our customers.



*Infrared camera footage from CP's train inspection station in Maple Creek, Sask.*

## Brake Pipe Airflow Monitoring

CP has implemented a program to monitor brake pipe airflow performance. The data gathered will be used to predict potential air brake problems. Our mechanical technicians will also use this information to assess trains heading into extreme cold temperatures, so that our operations team can take appropriate actions. These actions may include diverting the train on a warmer route, parking the train to better utilize operating crews or positioning mechanical personnel to repair the train at crew change location. These actions help mitigate the need to reduce train lengths, especially for trains already in main track service.

## High-Speed Camera Train Inspection

Located on our Maple Creek Subdivision in Saskatchewan, this system inspects the train while it is in motion. Using high-resolution cameras and multiple algorithms to assist in identifying defective car components, we are able to identify and address mechanical problems more efficiently, significantly reducing terminal dwell and train cycle times.

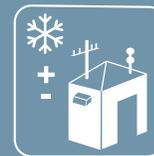
## New Valve Gasket Designs and Materials

CP uses valve gaskets to reduce air leakage when joining air brake hoses throughout the train. CP is testing new valve gasket designs and materials that have the potential to reduce air brake leakage significantly, further improving safety performance and service reliability.

## Ground-Level Air Temperature Forecast System

The system model correlates general area temperature forecasts with local track level historic temperatures to provide a 24-hour forecast of track level ambient temperatures across CP corridors. This data helps further improve CP's operational decision-making, safety and performance, as we implement our winter contingency plan.

## Winter Prepared



CP uses advanced weather monitoring systems and sophisticated predictive modelling to forecast upcoming winter conditions.

CP uses distributed power to improve train handling and air brake performance.

CP strategically places assets and resources across the network to ensure accessibility in extreme weather conditions. This includes precautionary measures to mitigate the risk of avalanches through CP's busiest corridor in the Alberta and British Columbia mountain ranges to recover quickly if needed.