

PLANT OVERVIEW

Current Operations

- Michelin Granton plant produces all Michelin winter tires for North America.
- Produces 4000 tires per day.
- Annual demand of 1.4 million tires.
- Granton warehouse stores 100,000 tires.
- All tires ship from plant warehouse to Distribution Centers then to customers.
- Distribution Center Locations in Canada.



PROBLEM DEFINITION

- Over processing in tire handling, inefficiencies in distribution system, and excessive handling and labor contribute to high costs and long lead times.
- Tires need to be handled, moved and stored many tires before they are delivered to customer.

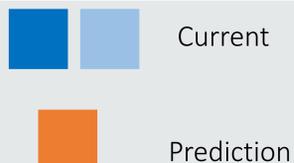
PROJECT SCOPE

- The process of delivering the tires from the Granton Plant to the distribution centers and onto the customer for the Canadian market.
- Four Scenarios have been proposed.
 - Remove and Relocate Temporary Storage.
 - Direct Shipping to Atlantic Canada.
 - Direct Ship to All Canadian Customers.
 - Direct Ship Popular Tires.

Key Performance Indicators



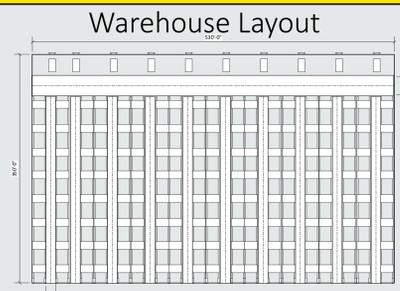
CHART KEY



SCENARIO 1

Remove and Relocate Temporary Storage at C50

- Up to 67 temporary trailers a month are used for tire storage at C50 Distribution Center.
- Relocate tires in temporary trailer storage to Michelin Granton site and build additional warehouse space.
- Removes temporary rental costs and extra product handling.
- Annual savings of \$370,000.



- Requires a warehouse size: 57, 134 ft²
- Warehouse unit cost: \$124/ft²
- Approximate cost of building a warehouse: 57, 134 ft² * \$124/ft² = \$7,084,616
- Payback period for new warehouse is 18 years.

SCENARIO 2

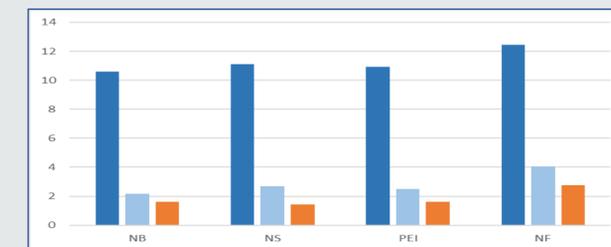
Direct Shipping to Atlantic provinces (NS, NB, PE, NF)

- Tires sent directly to customers in Atlantic Canada.
- Rent additional storage space.
- The additional warehouse will have a capacity of at least 5,437 ft².
- Removes wasted product handling within the system.
- Reduces lead time for nearby customers.



Cost

- Reduce Cost of Shipping and Handling by 77%.
- Total annual savings could be upwards of \$70,000.



Lead time

- Reduced by average 9.5 days if DC in shortage.
- Reduced by average 1 day if DC is sufficient.

SCENARIO 3

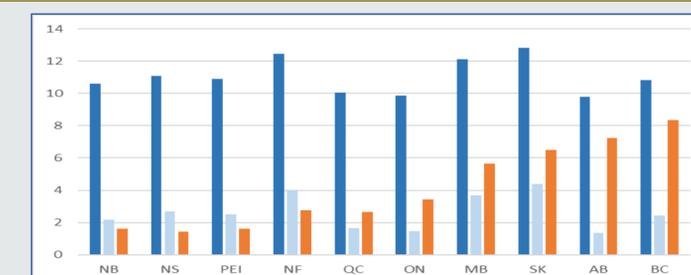
Direct Shipping to All Customers in Canada

- Avoids sending tires to Distribution Centers in Quebec (C50), Ontario (C57) and Alberta (C34).
- Build additional storage for CA1 to store approximately 503,718 tires.
- Required additional square footage is 209,088 ft².
- Cost to build a new warehouse: \$25,926,912
- Removes wasted movement within the system.
- Estimated payback period of 28 years.



Cost

- Reduce Cost of Shipping and Handling by 15%.
- Shipping and Handling costs are reduced to an annual savings of approximately \$1,195,000.



Lead Time

- Reduced by average 7.2 days if DC in shortage.
- Increased by average 1.2 day if DC is sufficient.

SCENARIO 4

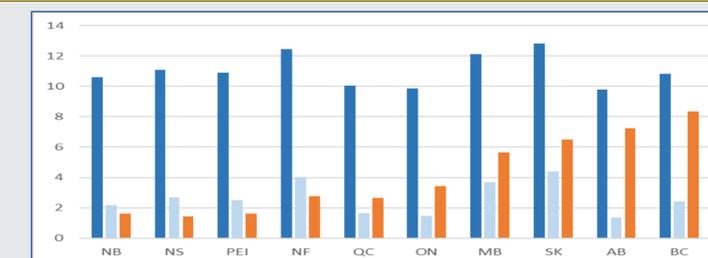
Direct Shipping Popular Tires to Canadian Customers

- Most popular 6 Tires are sent directly to customer.
- These Tires do not enter the DC.
- Reduction in overhandling and processing of high-volume products.
- High Volume Tires built weekly based on production schedule.
- No additional warehousing space is needed.



Cost

- Reduce Cost of Shipping and Handling by 26%.
- Shipping and Handling costs are reduced to an annual savings of approximately \$334,185.



Lead Time

- Reduced by average 7.2 days if DC in shortage.
- Increased by average 1.2 day if DC is sufficient.