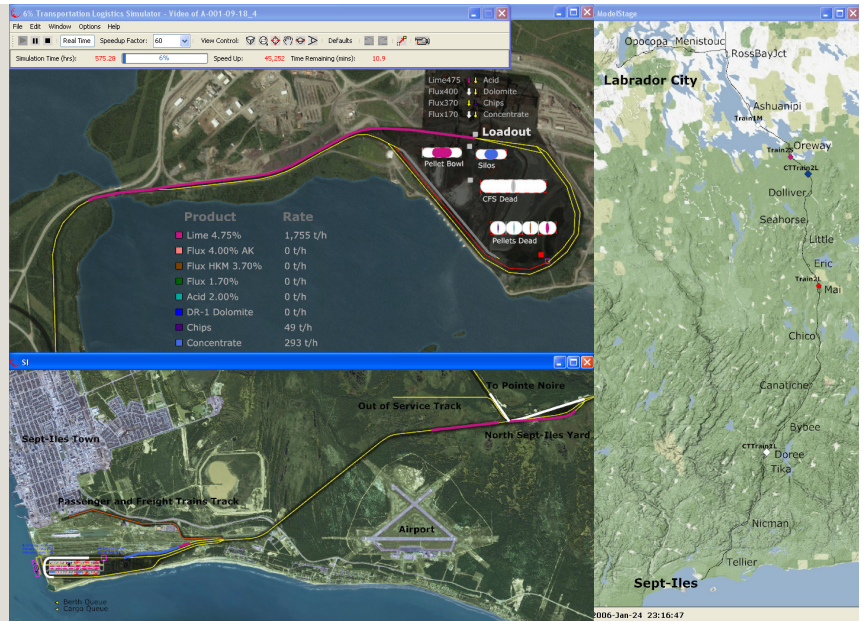


The QNS&L rail line



Simulation model of the QNS&L rail system

Achieving Rail Capacity Requirements

The Iron Ore Company of Canada (IOC) transports approximately 15 Mt/y of iron concentrate and pellets 414 km by rail from its Carol Lake mine in Labrador to its port on the St. Lawrence River.

To meet future expansion targets, investments in fleet and infrastructure will be required to increase the capacity of the system.

IOC commissioned Ausenco to create a simulation model of the system “from mine to port” in order to determine the current capacity and to identify the most cost-effective changes to achieve throughput increases.

We extensively analyzed past operating data to gain a clear understanding of the operational performance that IOC has achieved to date.

Since 2006, we have carried out numerous studies using this simulation model.

Our simulation model of the system included the following components:

- Production of concentrate and batches of five grades of iron ore pellets with hourly variation based on historical data
- Live and dead storage areas at the mine
- Loading of multi-grade trains
- Rail transits on the 414 km single-track line with 26 sidings, including interactions with freight and passenger trains
- Management of stockyard at Sept-Îles
- Seasonal arrivals of bulk carriers to load the product

In this system, there were clear trade-offs between investments in infrastructure or train fleet to meet operational goals. At various throughputs, a financial analysis was prepared to compare the present value of capital and operational costs for various alternatives to determine the optimal investments.

Project	Simulation Model of QNS&L Rail System
Location	Canada
Business line	Process Infrastructure Mining and Bulk Terminals
Client	Iron Ore Company of Canada
Timeframe	2006 - 2010
Scope	Analysis of QNS&L rail system ‘from mine to port’ to identify investment requirements
Services	Simulation modeling