

NEW YORK STATE THE IMPROVED CANAL SYSTEM

ISSUED OCTOBER 1st, 1921

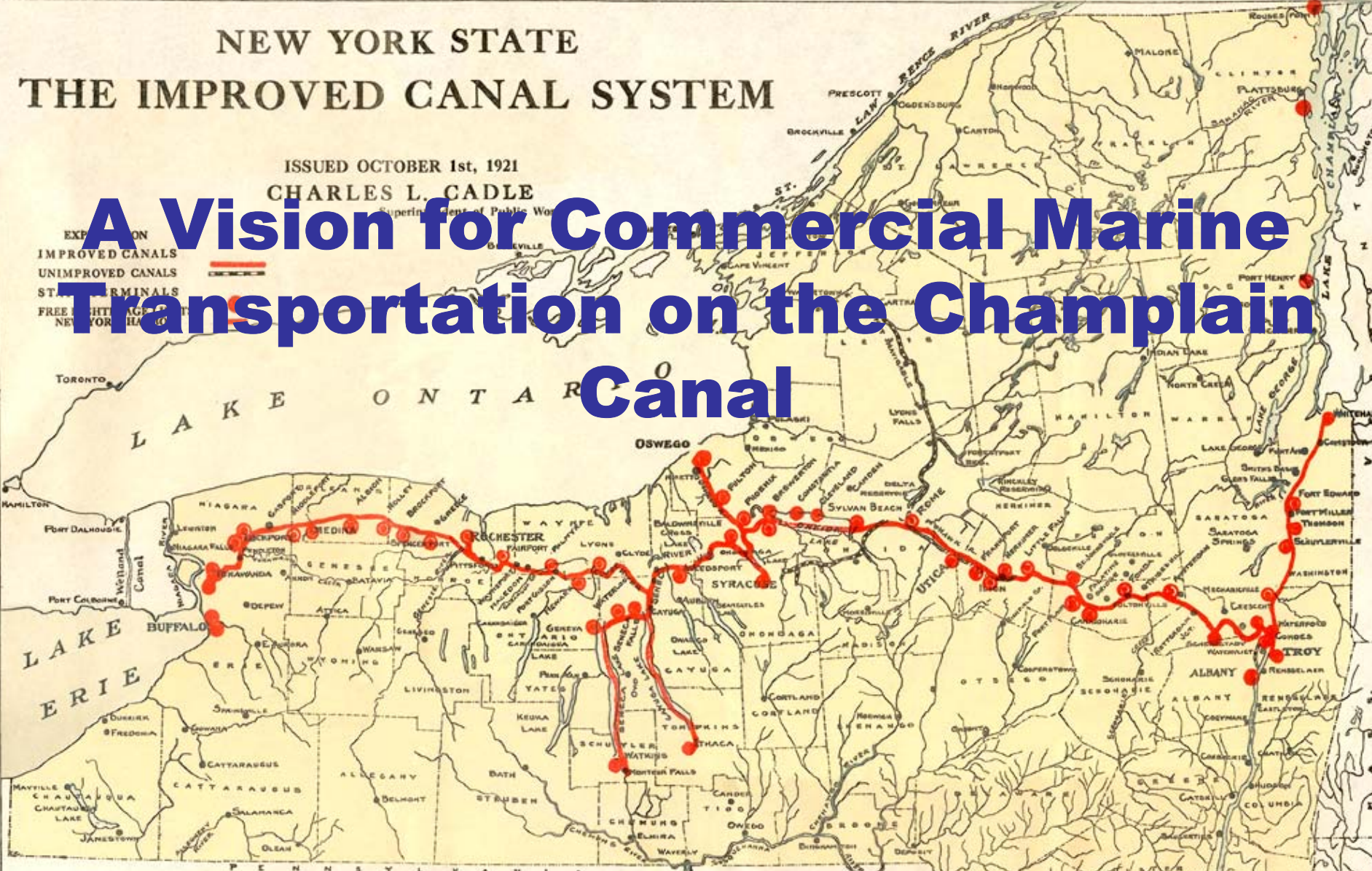
CHARLES L. CADLE

Superintendent of Public Works

EXPLANATION
IMPROVED CANALS
UNIMPROVED CANALS
ST. TERMINALS
FREE LIGHTAGE
NEW YORK STATE



A Vision for Commercial Marine Transportation on the Champlain Canal



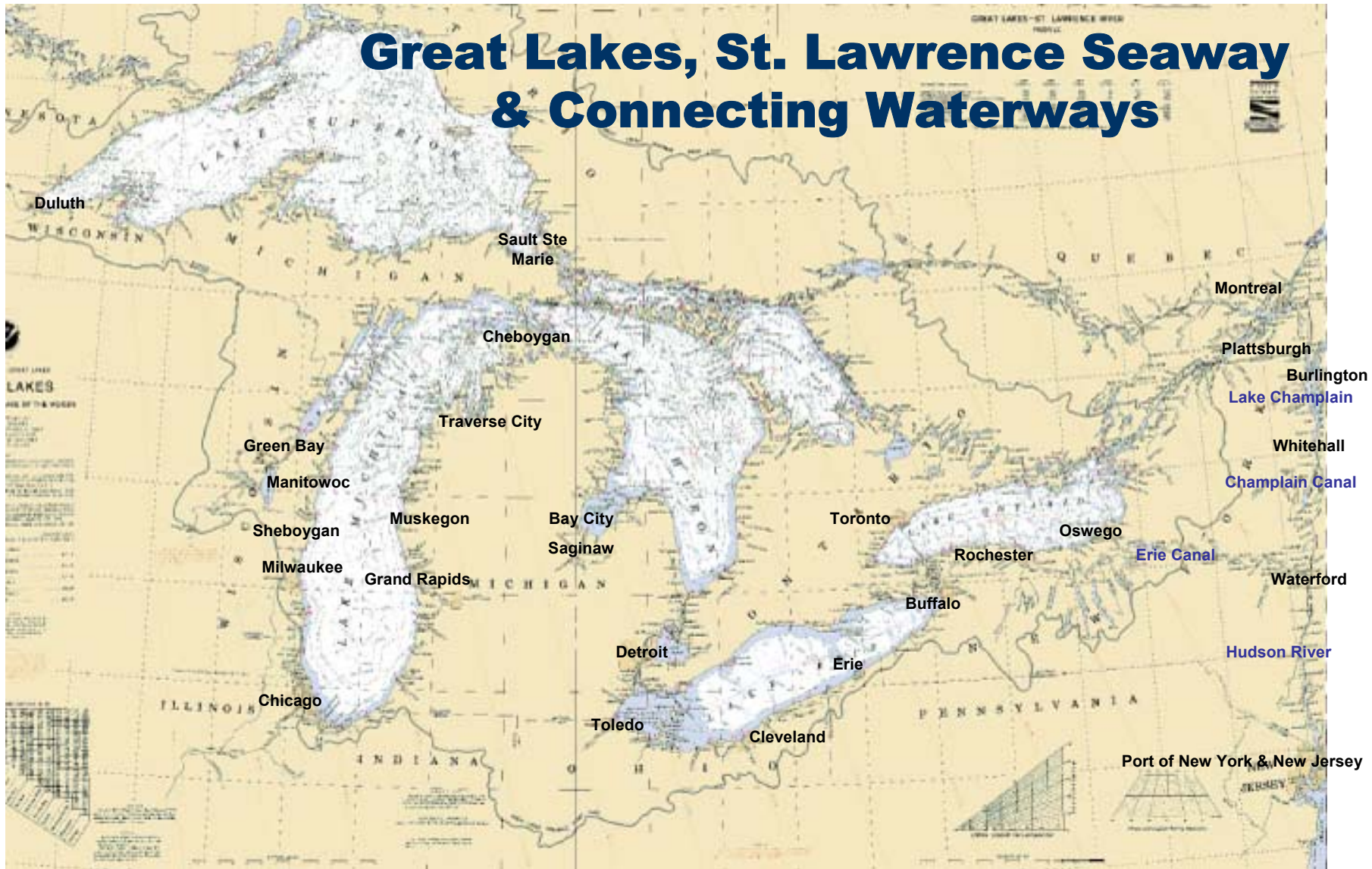
NEW YORK CITY AND VICINITY



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SHIP BY CANAL

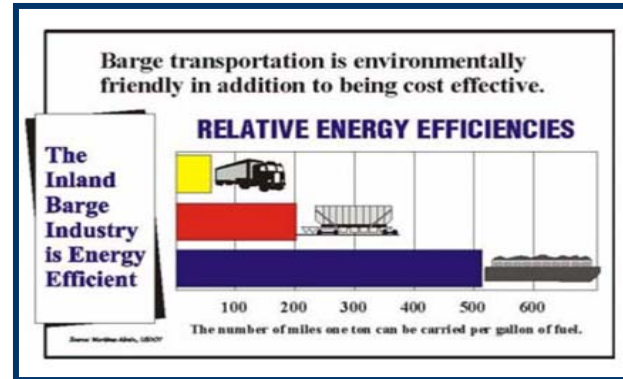
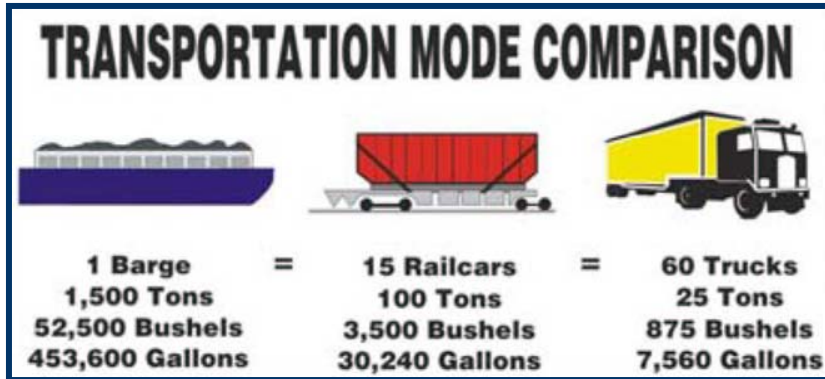
Great Lakes, St. Lawrence Seaway & Connecting Waterways



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SHIP BY CANAL

Comparison of Tug-Barge vs. Truck vs. Rail



Emissions produced in moving one ton of cargo 1,000 miles equal (pollutants in pounds):

*Hydrocarbon: towboat .09, rail .46, truck .63

*Carbon monoxide: towboat .20, rail .64, truck 1.90

*Nitrous oxide: towboat .53 rail 1.83, truck 10.17

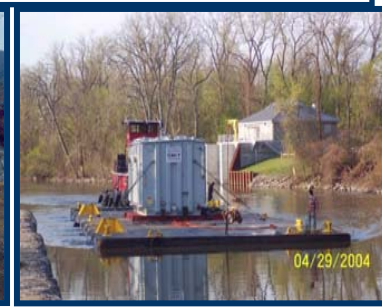
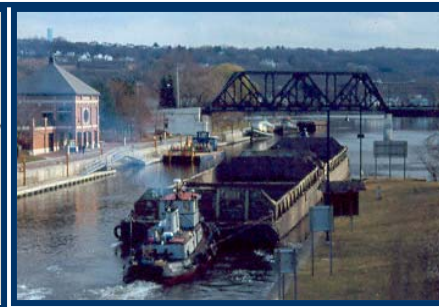
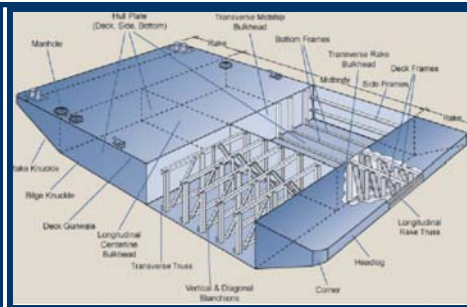
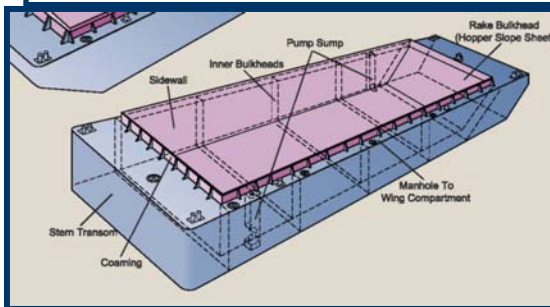
*Environmental Protection Agency, Emission Control Lab

Inland Jumbo Barge 195' x 35' – Drafts 1'6" empty – 200 tons per ft. of Immersion in Fresh Water

To Carry 1500 tons Barge needs 9 ft. of Draft

Inland Deck Barge 200' x 43' – Drafts 2' empty – 250 tons per ft. of Immersion in Fresh Water

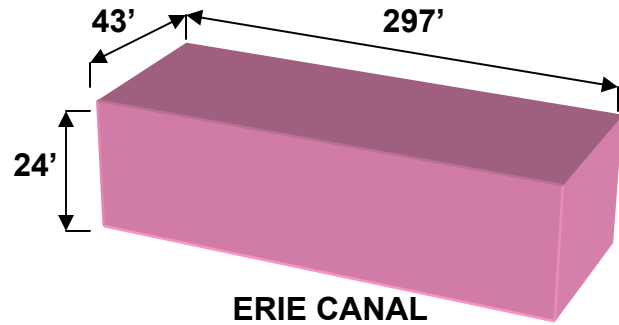
To Carry 1900 tons Barge needs 9 ft. of Draft



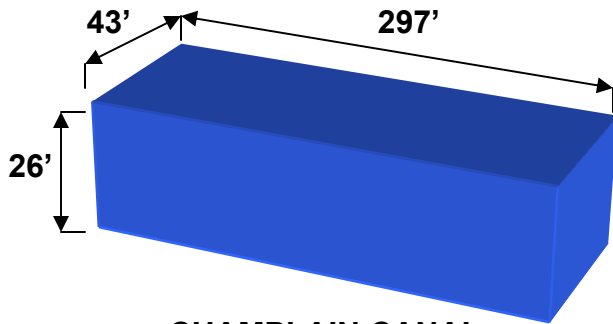
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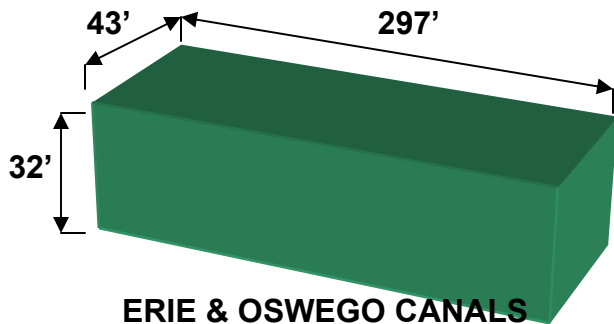
NEW YORK STATE CANALS – MAXIMUM AVAILABLE CARGO VOLUMES



ERIE CANAL
Three Rivers to Tonawanda



CHAMPLAIN CANAL



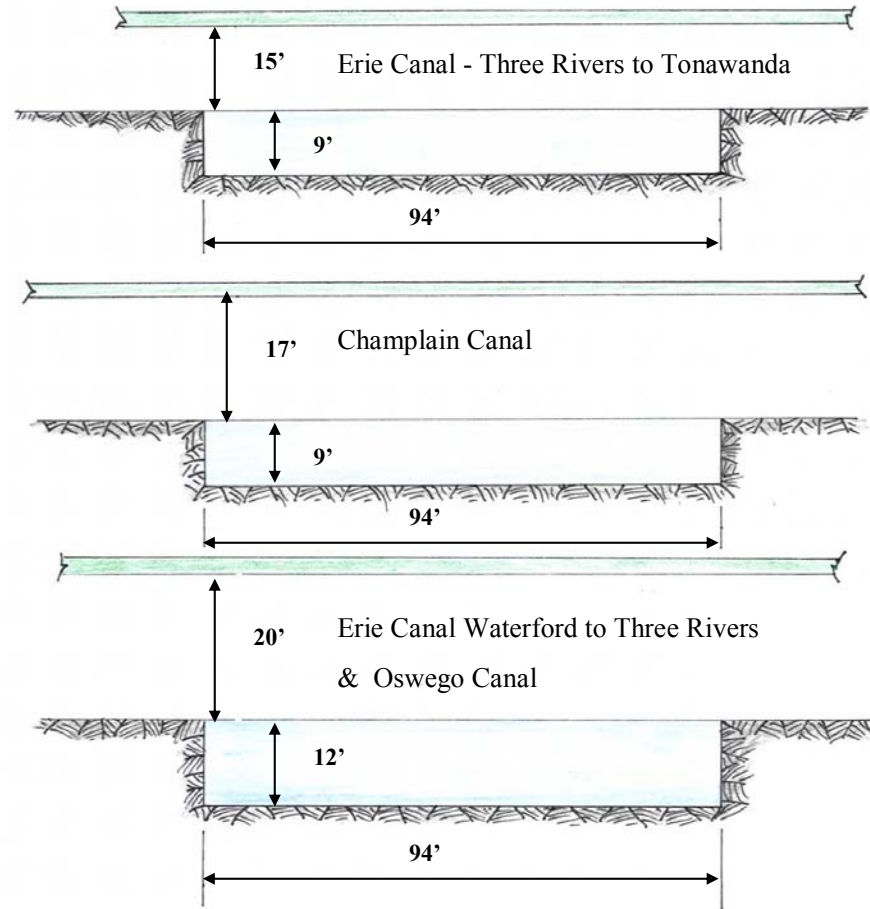
ERIE & OSWEGO CANALS
Waterford to Oswego

THEORETICAL MAXIMUM CARGO VOLUMES



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NYS CANAL LOCKS **TROY FEDERAL LOCK**
300 ft. Length – 43.5 ft. width 492.5 ft. Length – 44.4 ft. width



New York State Canal System
channel sections showing
minimum depth, width & air draft

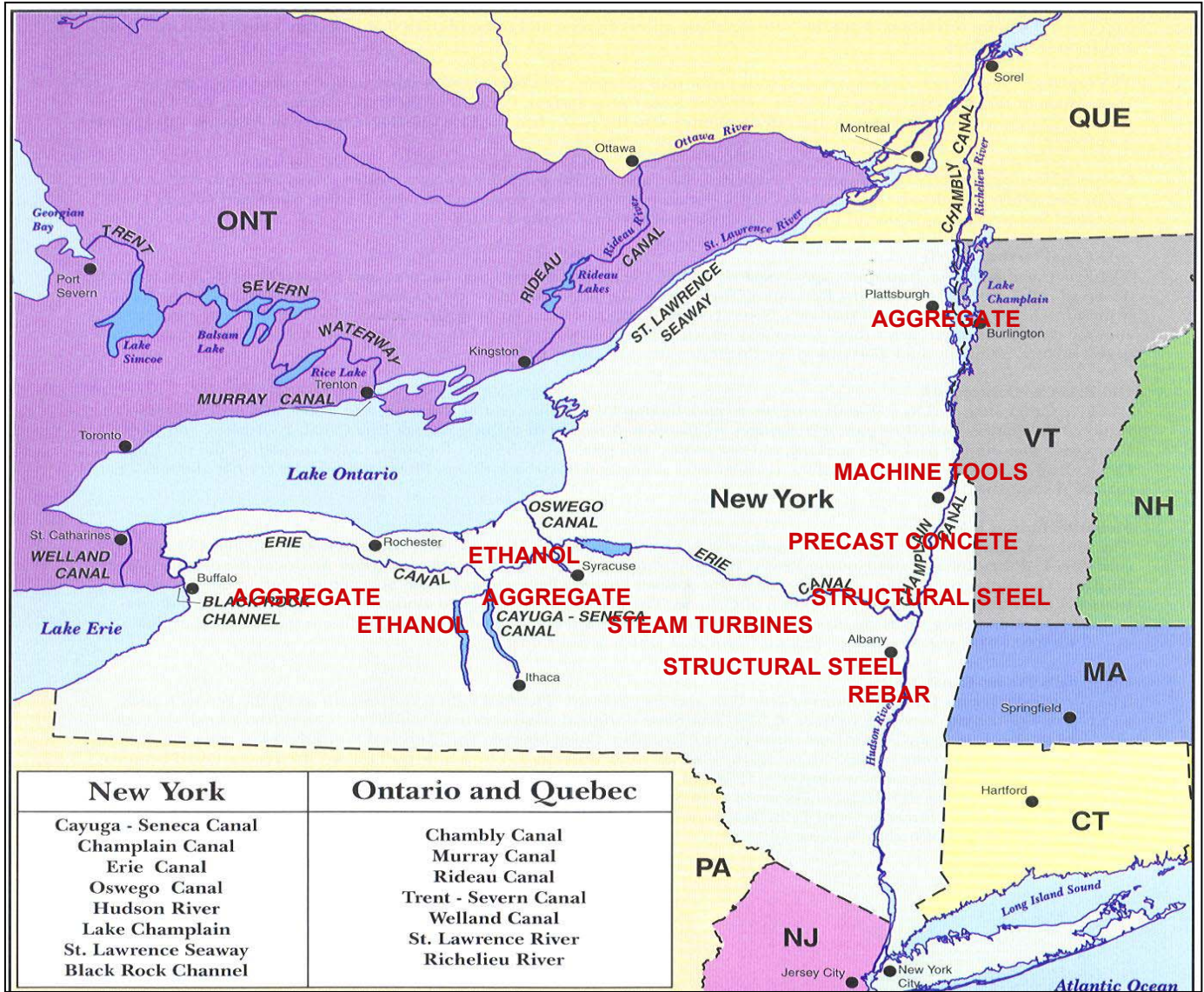
SHIP BY CANAL

POTENTIAL CANAL ORIGINATING CARGO

DISTANCES & TIME TUG & BARGE

- Troy to NYC 150sm – 20 hours
- Plattsburgh to Troy 144sm – 36hrs.
- Troy to Burlington, VT 133sm – 33hrs.
- Troy to Whitehall 63sm – 18hrs.
- Troy to Mechanicville 11sm – 3hrs
- Troy to Schuylerville – 29sm -9hrs
- Troy to Fort Edward 39sm – 12 hrs
- Schenectady to Troy 20sm – 8 hrs.
- Amsterdam to Troy 41sm – 14 hrs.
- Utica to Troy 102sm – 21hrs.
- Syracuse to Troy 178sm – 36hrs.
- Ithaca to Troy 246hrs – 49hrs
- Rochester to Troy 266sm – 53hrs.
- Buffalo to Troy 355sm – 71hrs.
- Oswego to Troy 187sm – 48hrs.
- Toronto to Troy 325sm – 4 days*
- Montreal to Troy 406sm – 5 days*
- Kingston to Troy, 60sm – 9hrs.
- Boston, MA to Troy 419sm – 4 days*
- Phila., PA to Troy 411sm – 3 days*
- Baltimore to Troy 409sm – 4 days*
- Norfolk, VA to Troy 471sm – 4 days*

*Average distance & time dependant
on location within Harbor



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SHIP BY CANAL

Project Cargo – Shipped Ro Ro – Intermodal



(3) Steam Turbines – Manufactured in Schenectady
Shipped by Rail to Albany for Barge Loading



“Ro-Ro” Roll-On-Roll-Off
Allows Off Loading of Cargo
without the Use of Land
Based Heavy Lift Equipment



Barge is Turned
Perpendicular to the Pier.
Tug Pushes Barge into the
Pier for the Duration of the
“Ro-Ro” Operation



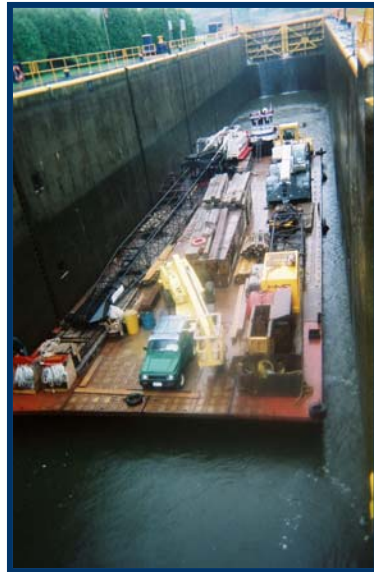
Barge Mounted Gantry is
Positioned Above Cargo.
Cargo is Lifted by Gantry
Cargo is Transferred to
Truck & Trailer for Roll-Off



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SHIP BY CANAL

Contractors Equipment



280' Car Float Triple Locked

Contractor's Barge

Double Tow @ Whitehall



Hopper Barge @ Schuylerville



Double Tow Double Locked



Double Tows Single Locked



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SHIP BY CANAL

Project Cargo Shipped on the Canal



Prefabricated Rebar



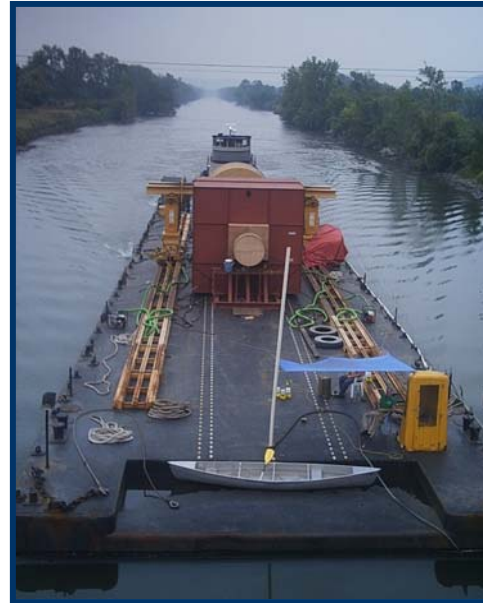
Transformer



Jet Plane



Structural Steel Assembly



Turbine Rotor



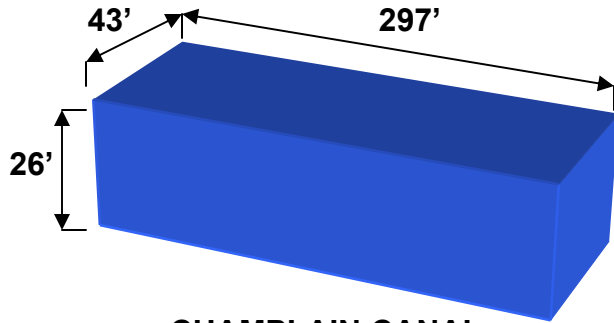
Boiler



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Summary



CHAMPLAIN CANAL

- Champlain Canal – Part of Inland Waterway – Great Lakes, St Lawrence Seaway, Hudson River & Coastal US.




- Marine Transportation is Efficient, Ecological & Mitigates Highway Congestion

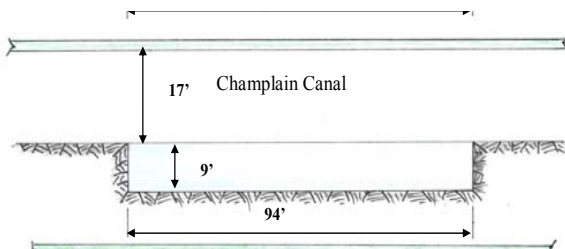
- Champlain Canal – Available Water Draft is 9' – Each Additional Foot allows 200-300 Tons of Cargo

- Navigational Dredging will Restore 12' Water Draft – Potentially enabling an additional 900 tons Cargo per Trip – Removes 36 Trucks from the Road

- Intermodal Transportation Possibilities – Barge/Truck/Rail Ro-Ro needs minimal Infrastructure

- Possible Originating Cargo – Precast Concrete, Structural Steel, Aggregates, Wood Chips, Machine Tooling.

TRANSPORTATION MODE COMPARISON		
		
1 Barge	= 15 Railcars	= 60 Trucks
1,500 Tons	100 Tons	25 Tons
52,500 Bushels	3,500 Bushels	875 Bushels
453,600 Gallons	30,240 Gallons	7,560 Gallons



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