

DAY 2:

St. Lawrence Seaway: Potential Opportunities for the Application of Information and Communication Technologies

Discussion Paper

www.its.dot.gov/index.htm

June 7, 2016

ITS-JPO-XXX-XXXX-XXX



U.S. Department of Transportation

Input & Assistance provided by:

- John A. Volpe National Transportation Systems Center.
- Department of Transportation's Intelligent Transportation Systems Joint Program Office.
- SLSDC & SLSMC
- Marine Industry
 - US Lake Carriers Association, ACC, CSL, Desgagnes, Canfornav, Duluth Port Authority

Project Context

In September 2015, the U.S. DOT Volpe National Transportation Systems Center (Volpe Center) initiated a project with the ITS Joint Program Office (ITS JPO), in coordination with the St. Lawrence Seaway Development Corporation (SLSDC), to evaluate opportunities to apply ITS technology to the St. Lawrence Seaway. The project will ultimately culminate in the development of a Concept of Operations (ConOps) documenting one or more high-potential applications to be considered for implementation on the St. Lawrence Seaway.

Report Purpose

- First of two foundational resources for the project and is focused on:
 - summarizing current conditions,
 - documenting operational challenges, and
 - identifying preliminary opportunities to apply ITS concepts or technology to improve efficiency on the St. Lawrence Seaway.
- The second framing paper explores applications of ITS and other technologies in marine transportation generally, and outline a series of new or existing candidate applications for consideration by Seaway stakeholders in mid-2016.

Report Purpose (cont'd)

- The information contained in these (2) papers is primarily drawn from a review of available literature, supplemented by interviews with key Seaway officials in both the U.S. and Canada. It is also supported by insights gained through a focus group meeting held in January 2015 with a group of Seaway stakeholders representing shipping and port operations interests in the region.

Findings: Operational Challenges

**Multiple
Jurisdictions**

**Lack of
Redundancy**

Seasonality

**Lock Physical
Constraints**

**Ship Dynamics
Within Lock**

**System Delays due to
Traffic levels, Pilotage
shortage**

Findings: Opportunities for Applications of ITS

Maximizing use of Available Water Column

Optimizing Lock Entry Speeds

Minimizing Delays Due to Pilotage Requirements

Overall System Optimization

Summary of Candidate ITS Application Concepts

1. Enhanced Traffic Management
2. Enhanced Lock Operations
3. Enhanced DIS/Dynamic Under-Keel Clearance
4. Analysis of Market Potential and Associated Environmental, Economic, and Mobility benefits

Feedback Solicited Aug-Sept 2016

Papers 1 & 2 - Next Steps

- Engage groups to discuss merits of the proposed applications
- Ultimately select a single application to investigate in detail.

Conclusion

- Micro (Environmental) Information is readily available but dispersed
- Macro (System) Information is not well orchestrated nor coordinated
- Overall System Optimization and coordination issues, such as Voyage Planning and Enhanced Traffic Management, need to be improved