Study focus becomes clearer

U.S. and Canadian agencies forge ahead with first regional navigation study

Aerial views of the Great Lakes/Seaway system. Above: Port of Duluth. Top: St Lawrence Seaway.

Substantial progress was made in 2004 on the Great Lakes/St. Lawrence Seaway Study, a U.S. and Canadian effort now underway to develop a binational vision for future upkeep of the Great Lakes/St. Lawrence Seaway system.

A series of stakeholder consultation sessions held over the summer produced over 100 stakeholder briefs, and as study personnel fully comprehended the magnitude of work at hand, the project's completion deadline was extended by a year. Previously scheduled to deliver a final report to the U.S. Department of Transportation (DOT) and Transport Canada (TC) in October, 2005, study managers are now aiming for an October, 2006 delivery, if funding streams allow.

"One of the greatest challenges we faced initially was fully scoping out the study," said Marc Fortin of TC, the study's Canadian co-manager. "Now that we have a more complete understanding of the job to be done, we are proceeding at a very ambitious pace."

The study emerged from a May, 2003 Memorandum of Cooperation signed by the DOT and TC to evaluate the future needs of the Great Lakes/St. Lawrence Seaway system as it is currently configured. The project is being overseen by a binational steering committee involving seven Canadian and U.S. federal agencies. In addition to the DOT and TC, steering committee participants include the Saint Lawrence Seaway Development Corp., the St. Lawrence Seaway Management Corp., Environment Canada, the U.S. Fish and Wildlife Service and the U.S. Army Corps of Engineers.

The actual research and analysis for the study is being carried out by three binational, multidisciplinary teams assigned to assess, respectively, the environmental, engineering and economic factors associated with current and future needs of the system as it is now. Any analysis by the study of Seaway expansion has been ruled out by the U.S. and Canadian governments.

Current progress and future plans. On the engineering front, initial inspections have been conducted at the two U.S. Seaway locks in Massena, New York, the five Canadian Seaway locks on the Montreal-Lake Ontario section and the eight sets of Canadian locks on the Welland Canal. This is the first step in identifying the most critical infrastructure components to be analyzed in greater detail, and also serves as a basis for beginning to develop future maintenance needs.

Of particular interest to the Engineering Team is damage to the locks from alkali-aggregate reactivity, a reaction between mineral elements of some cement mixtures that results in the cement expanding, and literally reducing lock width.

On the team's agenda for 2005 is an infrastructure analysis of major Great Lakes/St. Lawrence Seaway ports to better understand their capability to meet future traffic characteristics as identified in the Economic Team's models.

The team's core objective is to project future operation and maintenance costs based on various maintenance practices. Three maintenance scenarios being evaluated by the team include fixing components as they fail, advanced maintenance with component repair and replacement (which is the current practice) and advanced maintenance with replacement-in-kind.

Economic analyses. On the team's agenda for 2005 is an infrastructure analysis of major Great Lakes/St. Lawrence Seaway ports to better understand their capability to meet future traffic characteristics as identified in the Economic Team's models.

Economic modeling represents only one of the Economic Team's deliverables, though it is arguably one of their most complex tasks. This process involves melding engineering findings, with both economic analyses and environmental factors impacting Great Lakes/St. Lawrence Seaway shipping, to develop a series of models.

These include a policy analysis model to identify policy-driven impact on the system, a lock risk model to estimate the probability of lock failure, a cost model for vessel operators to gauge shippers' responses to system costs and a model to identify an optimal maintenance strategy.

Among elements developed by the Economic Team to be fed into the models are analyses and forecasts of Great Lakes/St. Lawrence Seaway traffic, analysis of the vessel fleets that operate in the system and a transportation rates analysis.

Environmental perspective. The study's Environment Team has the challenging task of summarizing environmental conditions of the entire Great Lakes/St. Lawrence Seaway system, which involves gathering a voluminous amount of historical data on ecological aspects of the system, as well as taking focused looks at:

- Water level regimes, including future scenarios that could be expected from climate change.
- Environmental baseline conditions, with specific attention paid to resources most sensitive to commercial navigation activity.
- Navigation-related effects, including dredging and vessel passage impacts.

Reflecting the U.S. and Canadian governments' decision to allow optimal public input to the process, a series of five stakeholder consultation sessions were held in June and July of 2004 in Montreal; St. Catharines; Duluth; Clayton, NY and Chicago. Written briefs were also accepted on such issues as the scope, conduct and methodologies of the study, and stakeholders' priorities for the future of the Great Lakes/St. Lawrence Seaway system.

Stakeholder input is being facilitated by a partnership of the Great Lakes Commission in Ann Arbor, Michigan and the St. Lawrence Economic Development Council (SODES) of Quebec City. The two agencies are processing some 110 submitted briefs by identifying major points and directing them to the attention of one or more of the appropriate project teams.

David Wright, U.S. Army Corps of Engineers Detroit District staffperson and U.S. co-project manager, notes that, "One of the strongest messages we got from our respective governments was that the study process should be open and transparent. I think the structure we developed for stakeholder input has responded well to that requirement." ■