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16. Abstract <p>Previous investigation of alternative traffic management policies for the Upper Mississippi River (UMR) portion of the inland navigation system revealed that implementing an alternative traffic management policy to reduce periodic congestion was not warranted (see Volume I). However, in that study it was noted that implementing a vessel tracking system might incur benefits of increasing homeland security, improving navigation safety, and protecting environmentally sensitive river habitats. In response to this observation, a companion research project was initiated that examines the feasibility of vessel tracking systems with geographic positioning systems.</p> <p>Volume II describes and discusses the relevance to lockage efficiency of satellite-based vessel tracking systems, automatic identification systems (AIS), vessel tracking services, and vessel traffic management systems. Also, technologies necessary to implementing a vessel tracking system on the UMR, including methods for acquiring dynamic data for vessels and for communicating this data to a geographic information system (GIS) for visual display, are described. Technological issues of position reporting, communications, and data integration are addressed. Key organizational issues involving responsibility and authority associated with vessel tracking on the UMR are also addressed. Finally, a prototype vessel tracking GIS is presented that provides static displays and an example of dynamic vessel tracking to demonstrate the functionality possible from vessel tracking on the UMR.</p> <p>Results argue that the enhanced visibility and knowledge provided by vessel tracking with geographic positioning will improve management of limited waterway transportation resources on the UMR. Also, ready access to information on where individual tows and barges are located within the waterway system, their recent and past travels, ownership, cargo, and location relative to various structures within and along the waterway may prove useful to homeland security. However, vessel tracking on the UMR solely for managing lockages should not be implemented at this time.</p>					
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MANAGEMENT SYSTEMS FOR INLAND WATERWAY TRAFFIC CONTROL, VOLUME II: VESSEL TRACKING FOR MANAGING TRAFFIC ON THE UPPER MISSISSIPPI RIVER

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