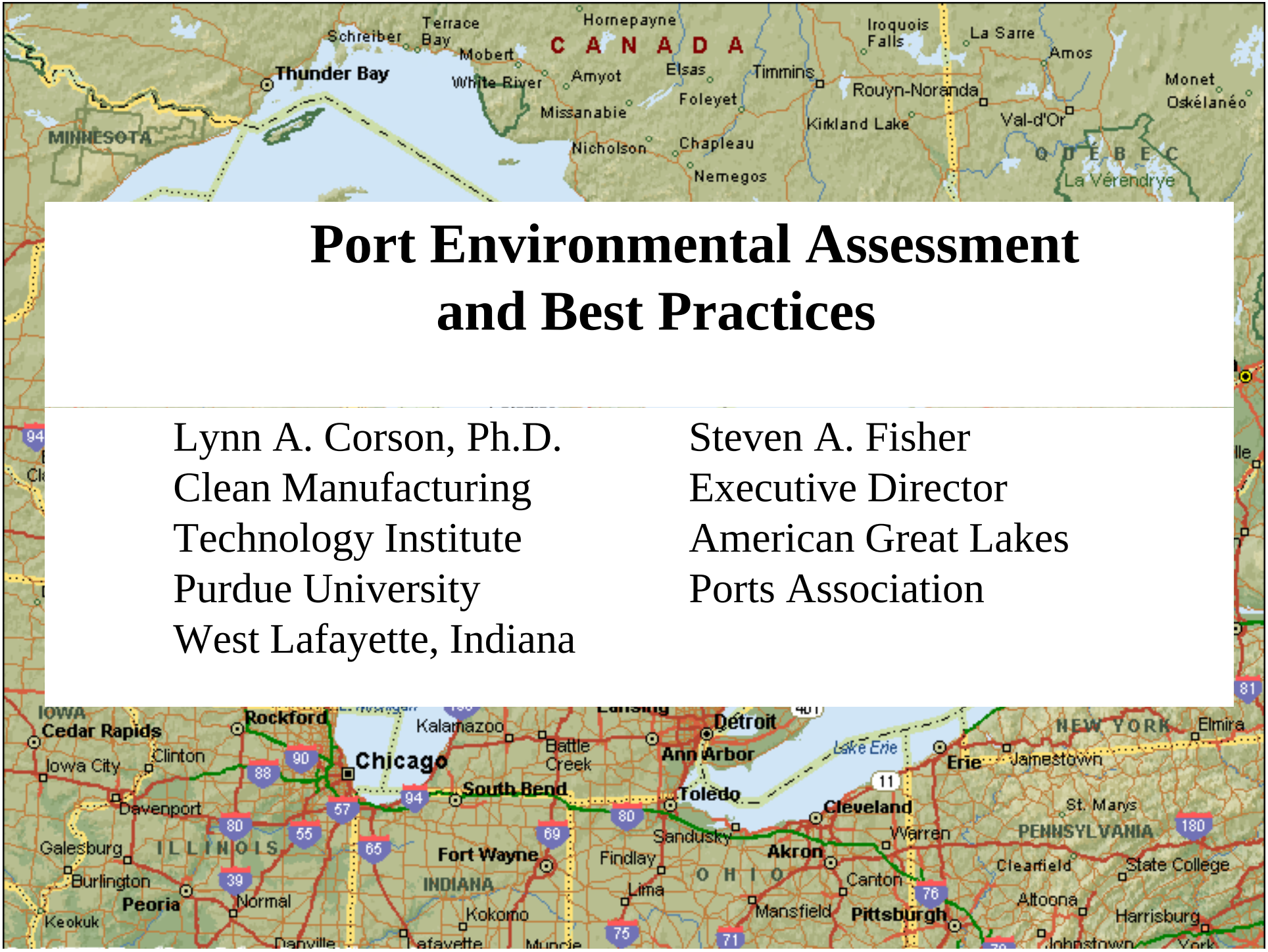

Port Environmental Assessment and Best Practices

Lynn A. Corson, Ph.D.
Clean Manufacturing Technology Institute
Purdue University
West Lafayette, Indiana

Steven A. Fisher
Executive Director
American Great Lakes Ports Association

Great Lakes Maritime Research Institute

A University of Wisconsin - Superior and University of Minnesota Duluth Consortium


CANADA
Schreiber
Terrace Bay
Mobert
Hornepayne
Elsas
Timmins
Iroquois Falls
La Sarre
Amos
Monet
Oskélanéo
Ottawa
Brockville
Kingston
Watertown
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Ithaca
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Buffalo
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Iroquois Falls
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Foleyet
Missanabie
Kirkland Lake
Val-d'Or
MINNESOTA
Nicholson
Chapleau
Nemegos
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La Vérendrye
Duluth
Houghton
Lake Superior
Ontonagon
Sault Ste.
O N T A R I O
Phase I Objective: to develop an environmental management system "model" for use by small, public Great Lakes port authorities to examine port and tenant operations and their impact on the surrounding environment.
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Milwaukee
Grand Rapids
Flint
Sarnia
London
St. Catharines
Buffalo
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Janesville
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Muncie
Johnstown
York


Phase I Approach : (1) develop an environmental survey tool; (2) conduct assessment surveys at five U.S. and Canadian Great Lakes Ports to refine the tool.
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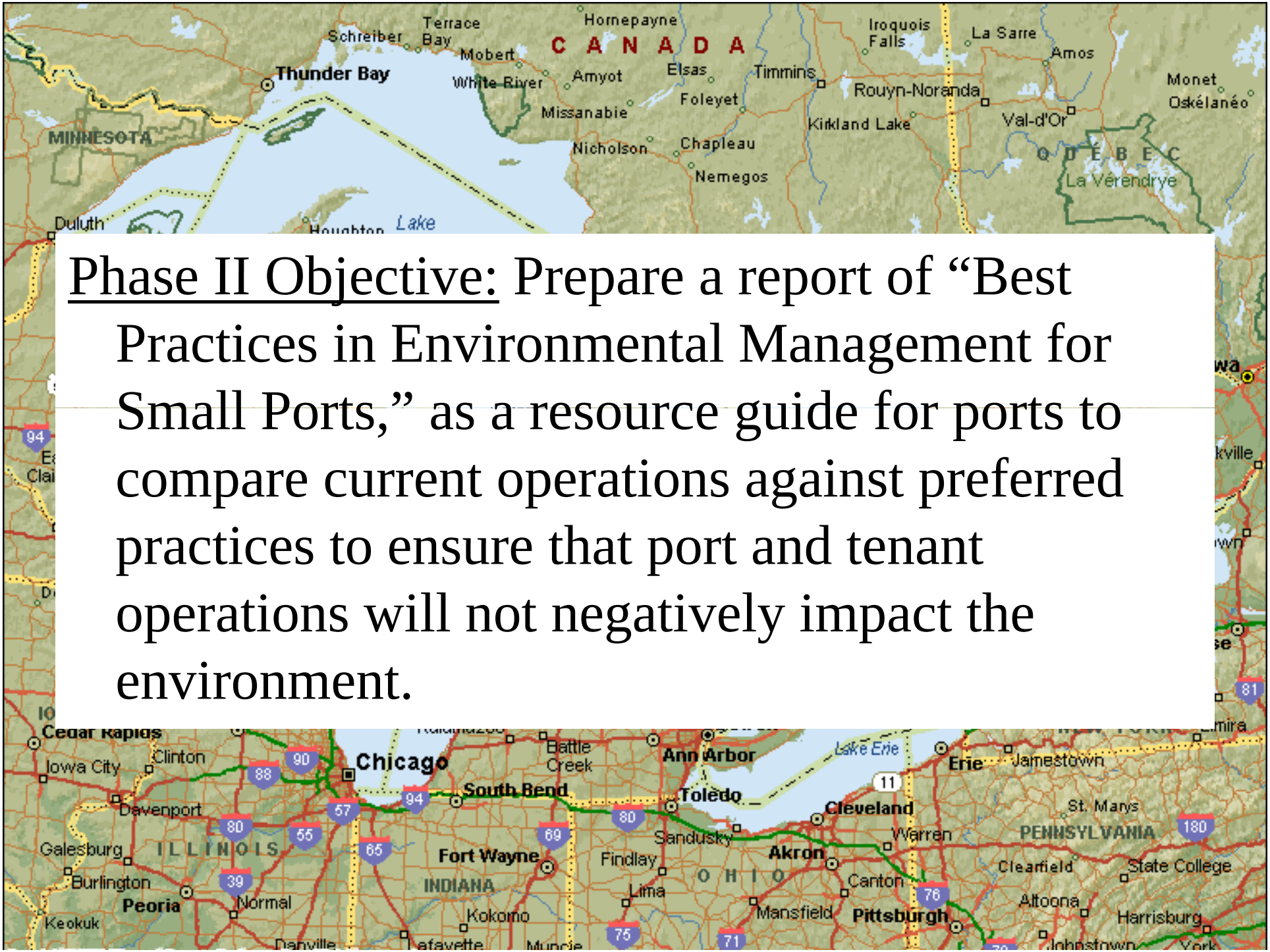
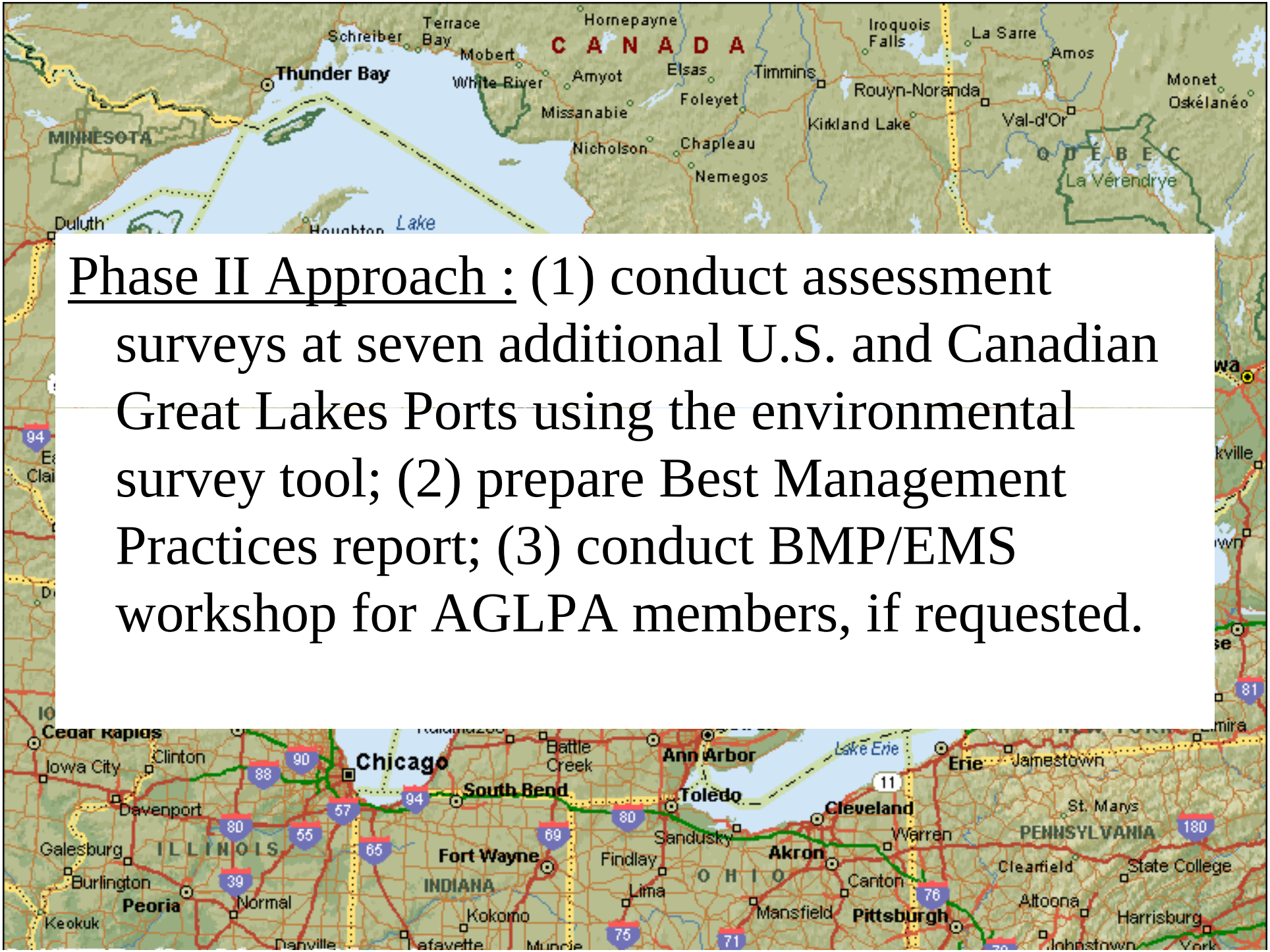
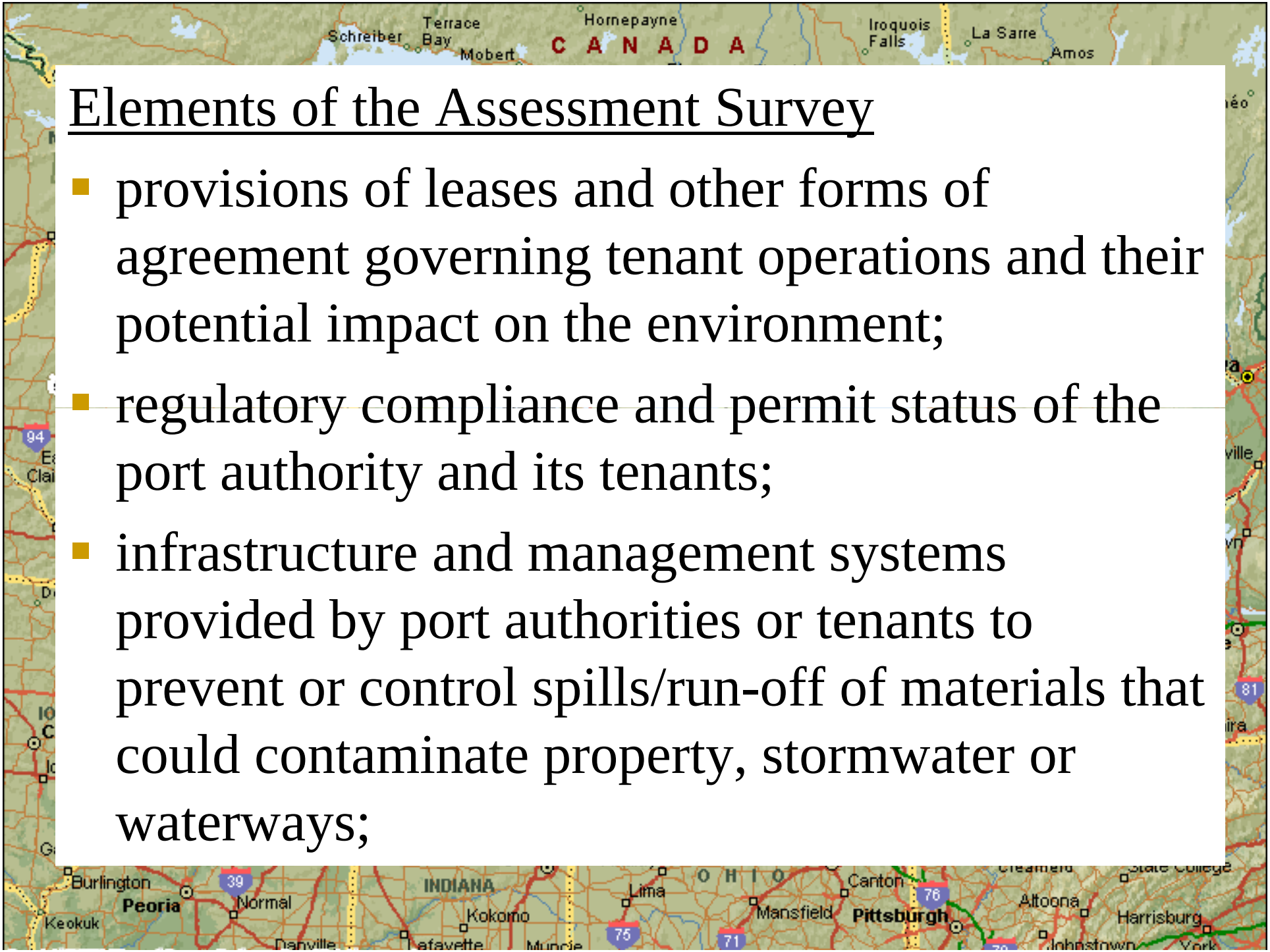


Phase II Objective: Prepare a report of "Best Practices in Environmental Management for Small Ports," as a resource guide for ports to compare current operations against preferred practices to ensure that port and tenant operations will not negatively impact the environment.

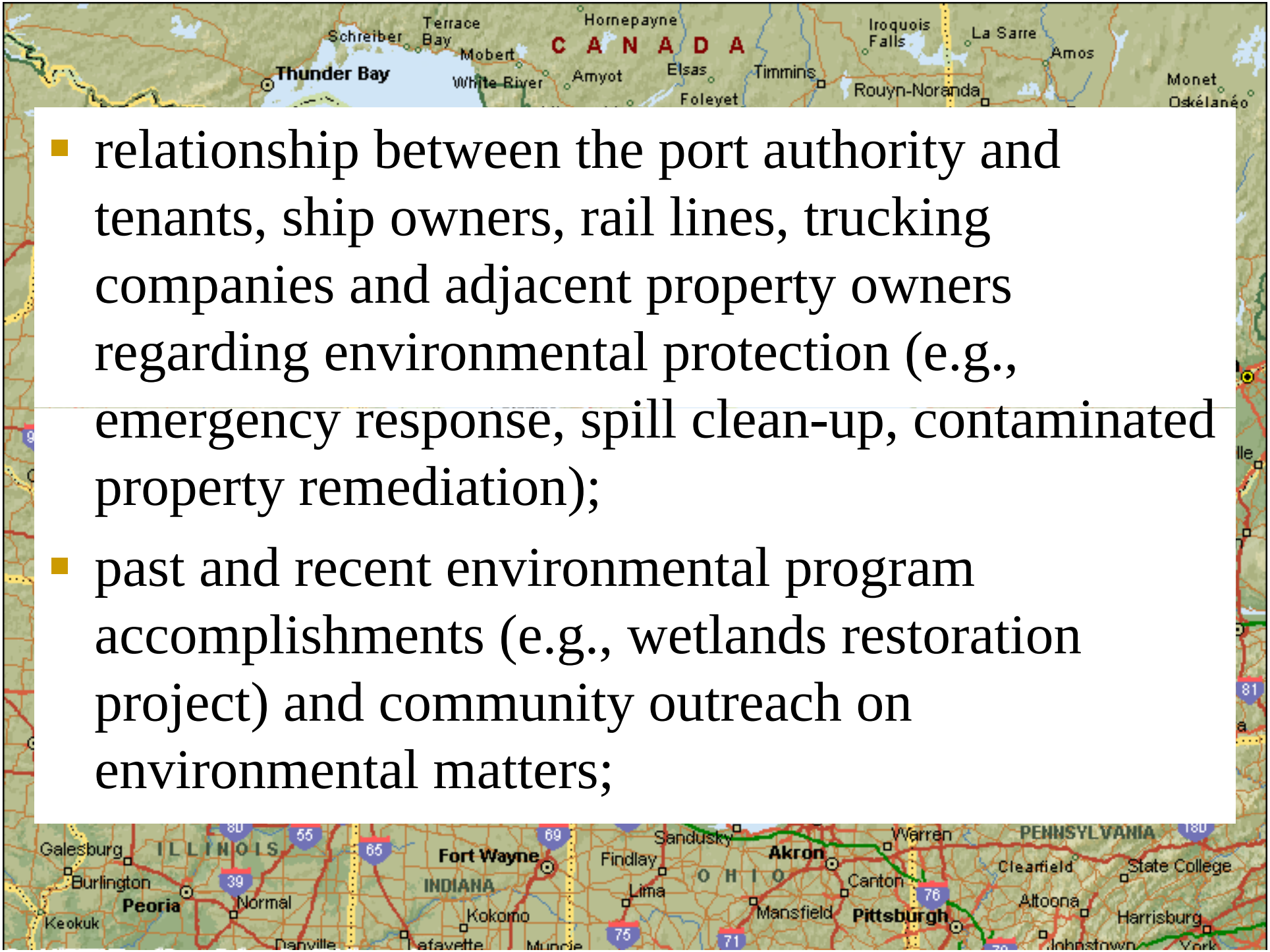


Phase II Approach : (1) conduct assessment surveys at seven additional U.S. and Canadian Great Lakes Ports using the environmental survey tool; (2) prepare Best Management Practices report; (3) conduct BMP/EMS workshop for AGLPA members, if requested.

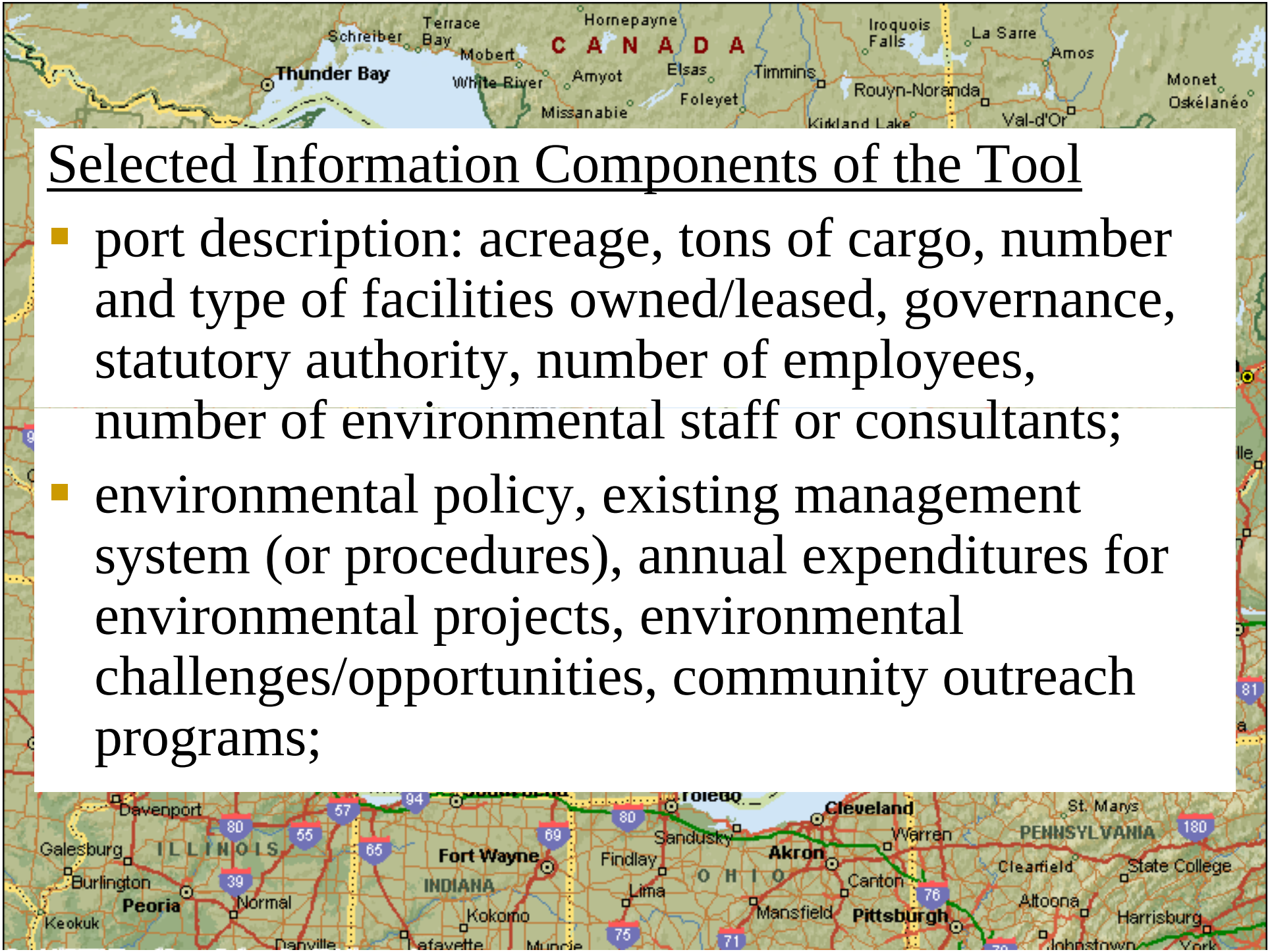


Elements of the Assessment Survey

- provisions of leases and other forms of agreement governing tenant operations and their potential impact on the environment;
- regulatory compliance and permit status of the port authority and its tenants;
- infrastructure and management systems provided by port authorities or tenants to prevent or control spills/run-off of materials that could contaminate property, stormwater or waterways;

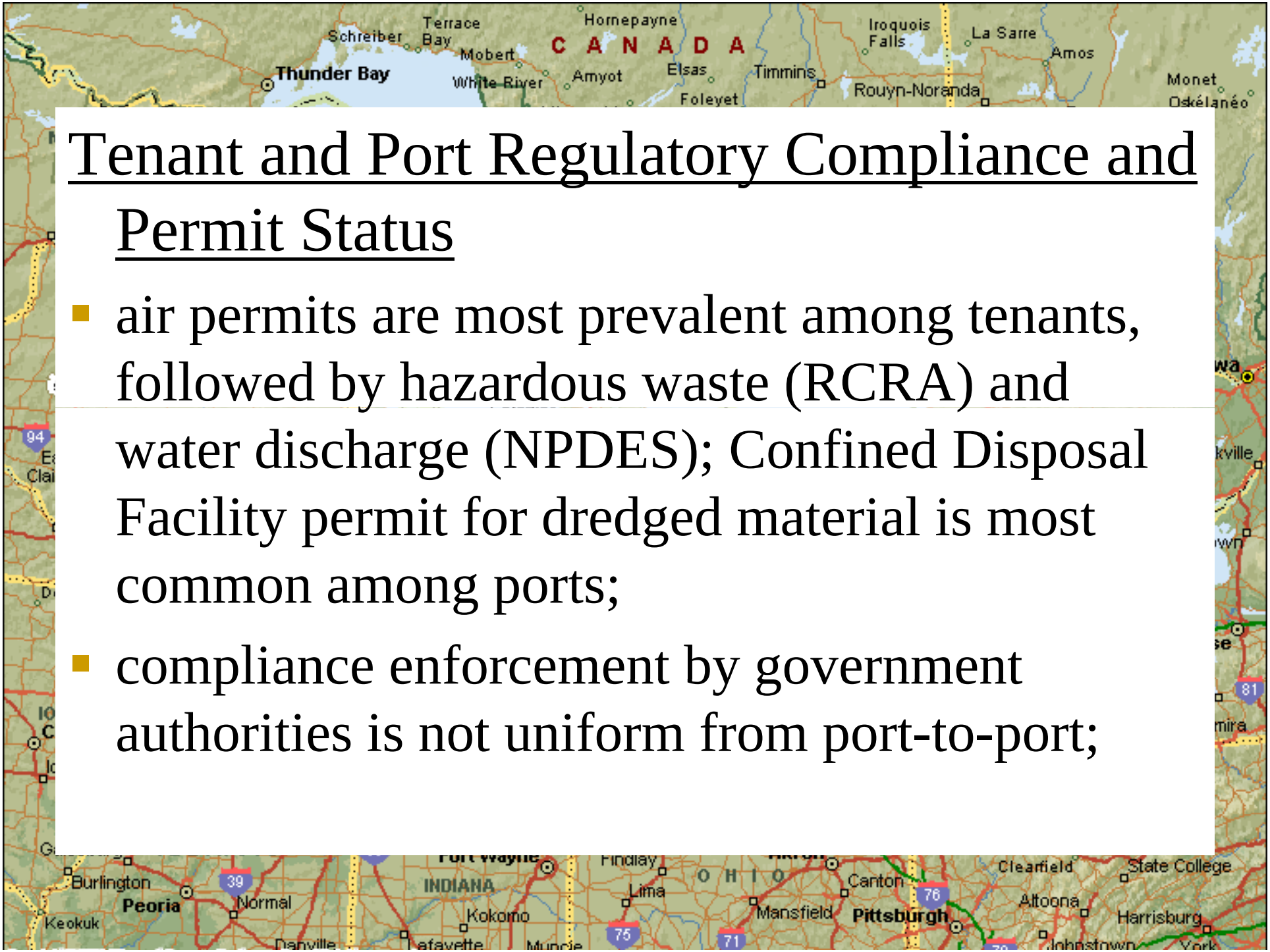


- relationship between the port authority and tenants, ship owners, rail lines, trucking companies and adjacent property owners regarding environmental protection (e.g., emergency response, spill clean-up, contaminated property remediation);
- past and recent environmental program accomplishments (e.g., wetlands restoration project) and community outreach on environmental matters;



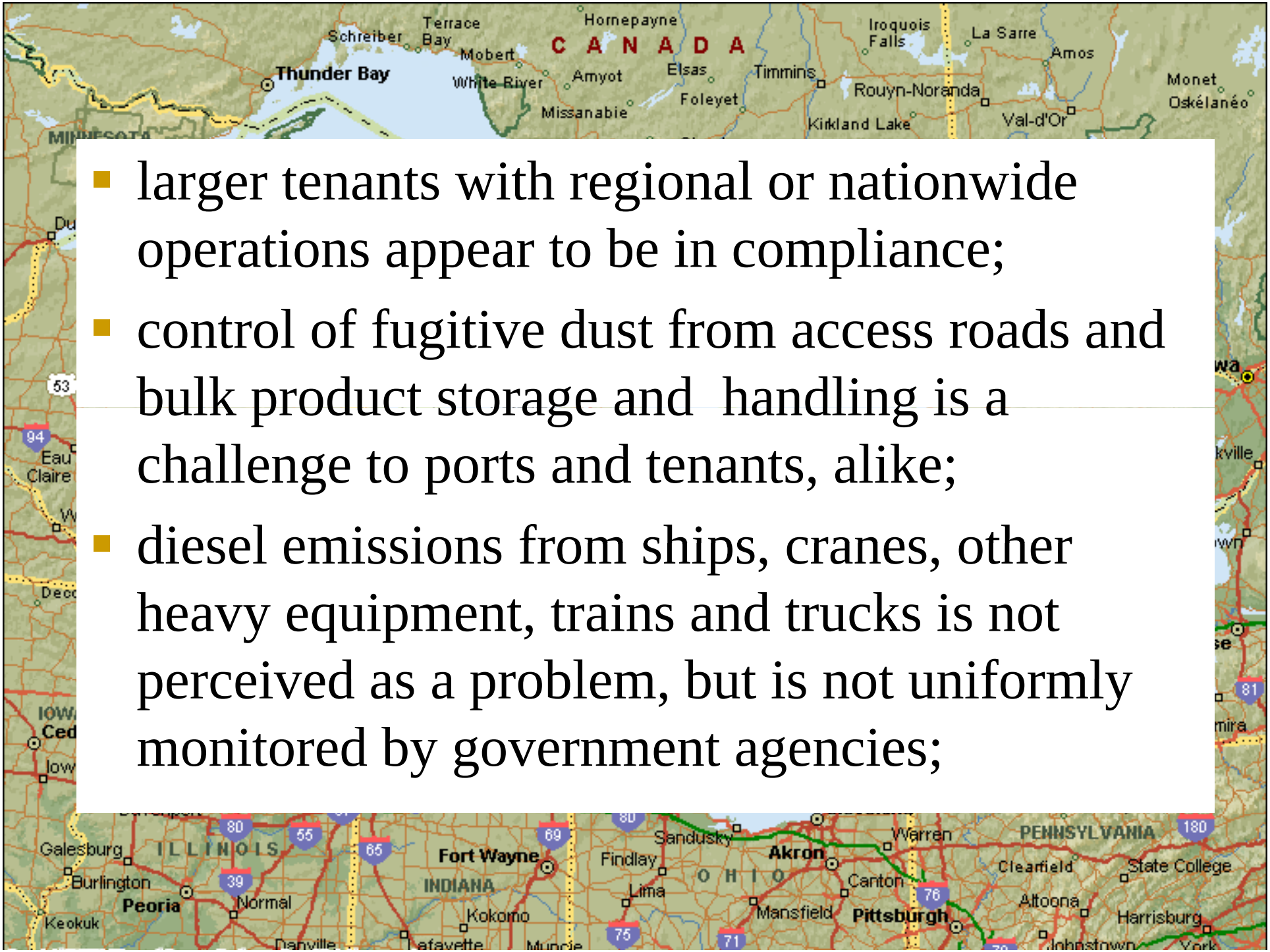
Selected Information Components of the Tool

- port description: acreage, tons of cargo, number and type of facilities owned/leased, governance, statutory authority, number of employees, number of environmental staff or consultants;
- environmental policy, existing management system (or procedures), annual expenditures for environmental projects, environmental challenges/opportunities, community outreach programs;



Tenant and Port Regulatory Compliance and Permit Status

- air permits are most prevalent among tenants, followed by hazardous waste (RCRA) and water discharge (NPDES); Confined Disposal Facility permit for dredged material is most common among ports;
- compliance enforcement by government authorities is not uniform from port-to-port;



- larger tenants with regional or nationwide operations appear to be in compliance;
- control of fugitive dust from access roads and bulk product storage and handling is a challenge to ports and tenants, alike;
- diesel emissions from ships, cranes, other heavy equipment, trains and trucks is not perceived as a problem, but is not uniformly monitored by government agencies;

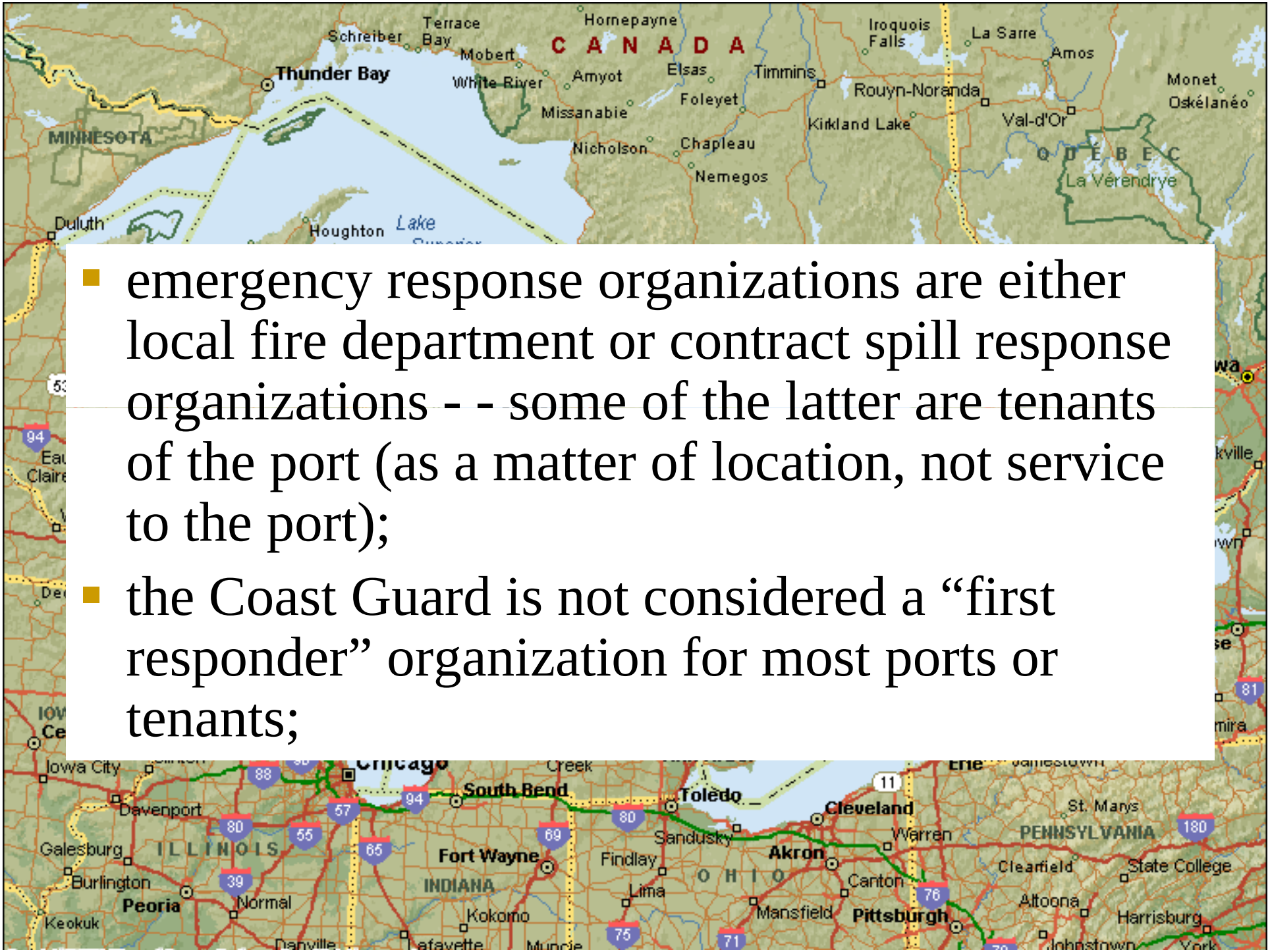
Preventing/Controlling Stormwater Run-off and Hazardous Materials Spills

- stormwater run-off from bulk storage piles, tank farm secondary containment structures, piers and dredge areas is being addressed by the installation of infrastructure modifications (e.g., detention ponds, stormwater drains, catch basins, low-profile berms at the edge of piers, pier slopes away from the water); not all ports or tenants have stormwater management plans;

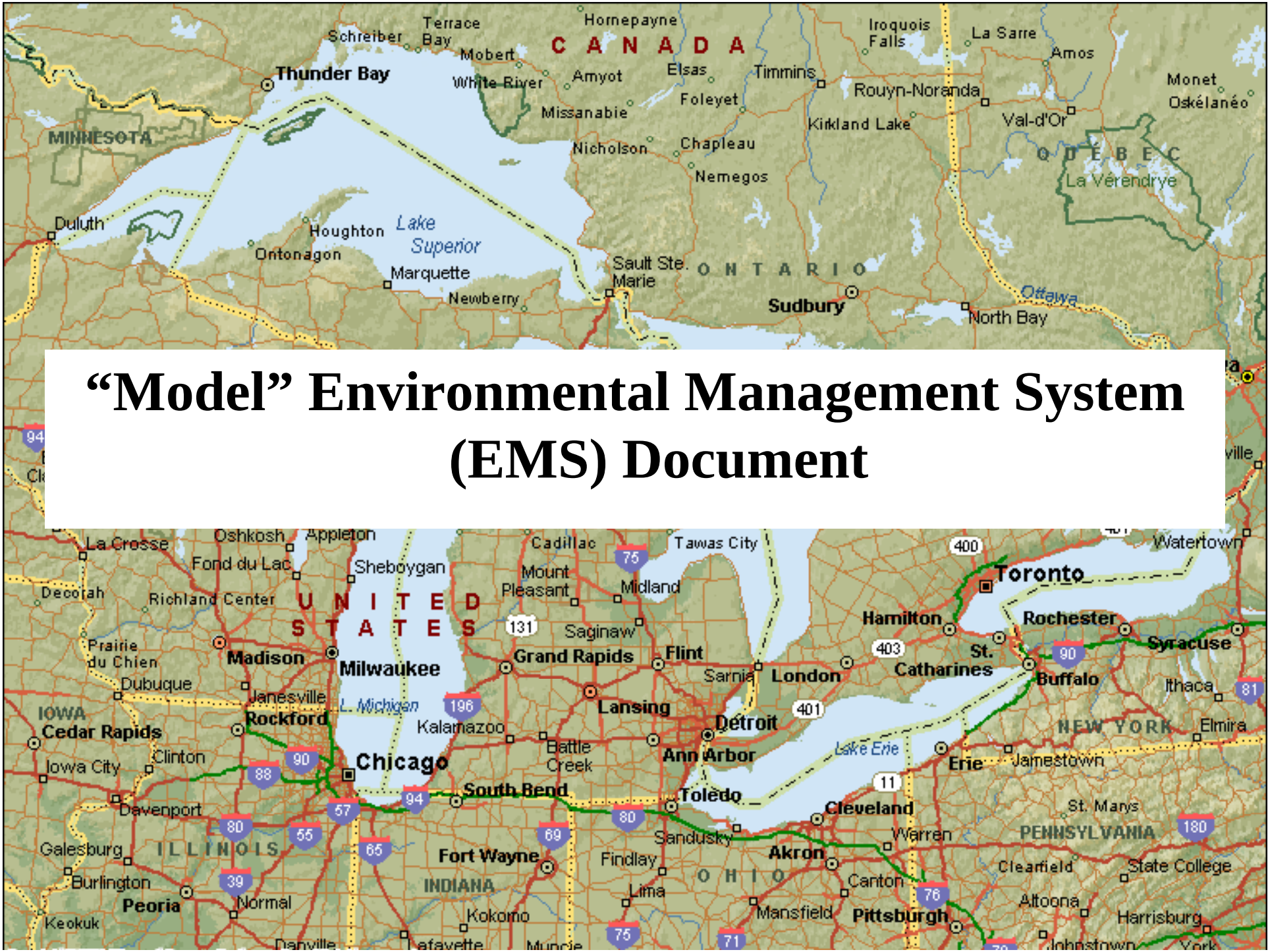
- liquid bulk tank farms and handling facilities and fueling facilities have federally-required Spill Prevention Control and Countermeasures (SPCC) Plans;

Relationship Between Ports and Others for Environmental Protection

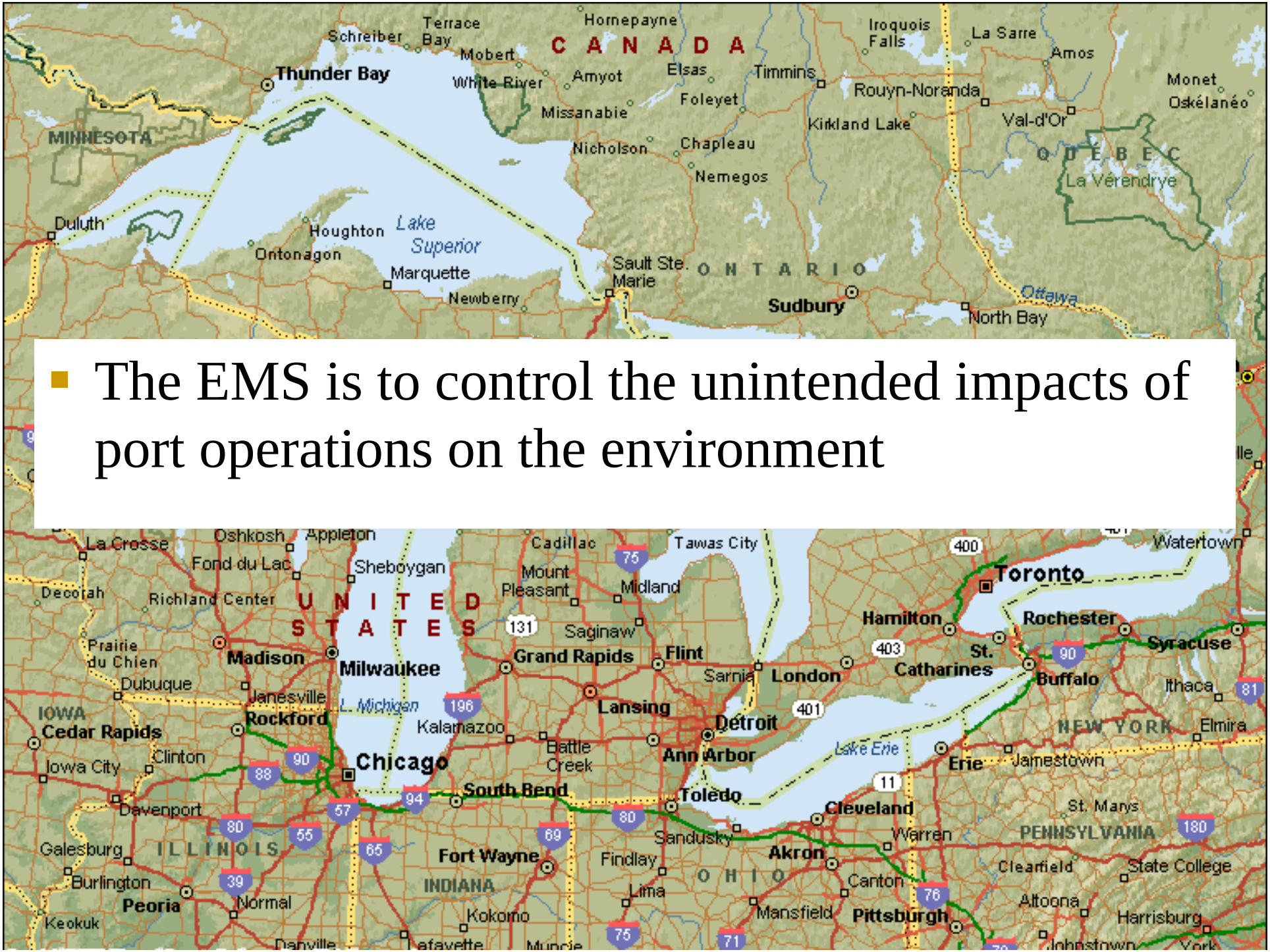
- ports, generally, have not prepared a “master” environmental response plan addressing releases from the transfer, movement and storage of materials at or by tenant facilities, ship owners, rail lines, truck lines and adjacent property owners;
- individual tenants or transporters may have a plan or procedures that exist independent of others;



- emergency response organizations are either local fire department or contract spill response organizations - - some of the latter are tenants of the port (as a matter of location, not service to the port);
- the Coast Guard is not considered a “first responder” organization for most ports or tenants;



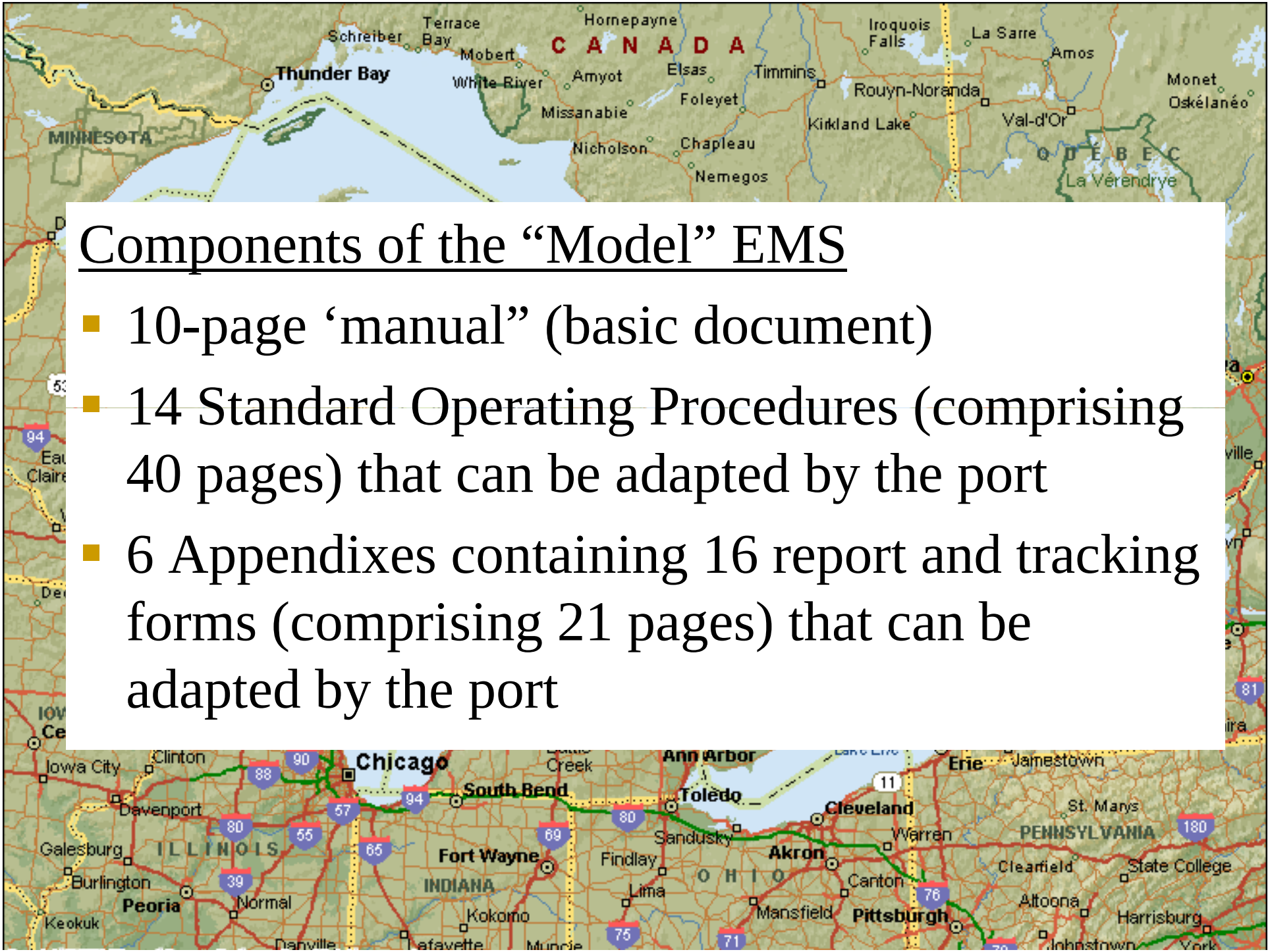
“Model” Environmental Management System (EMS) Document

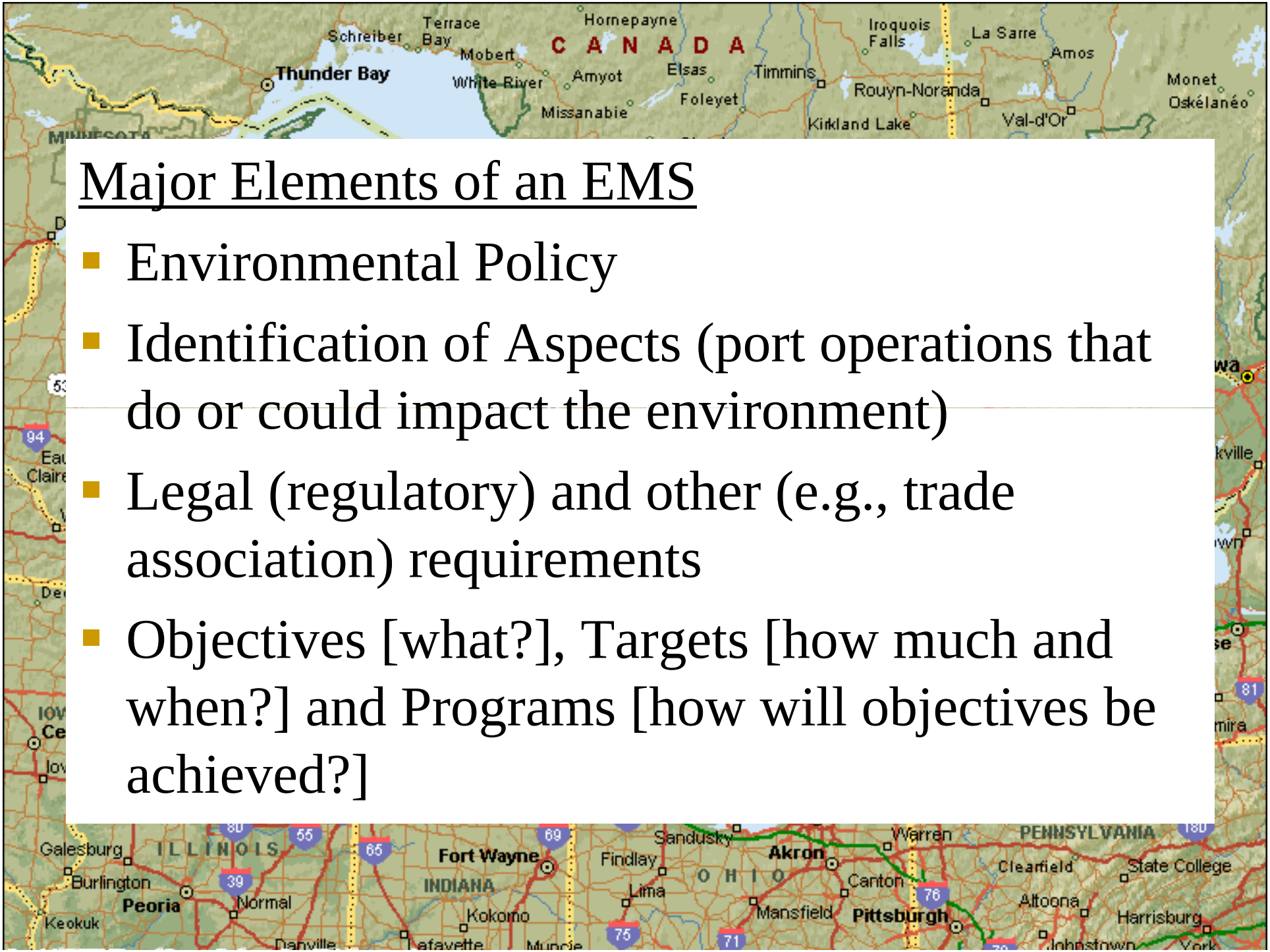


- The EMS is to control the unintended impacts of port operations on the environment

Components of the “Model” EMS

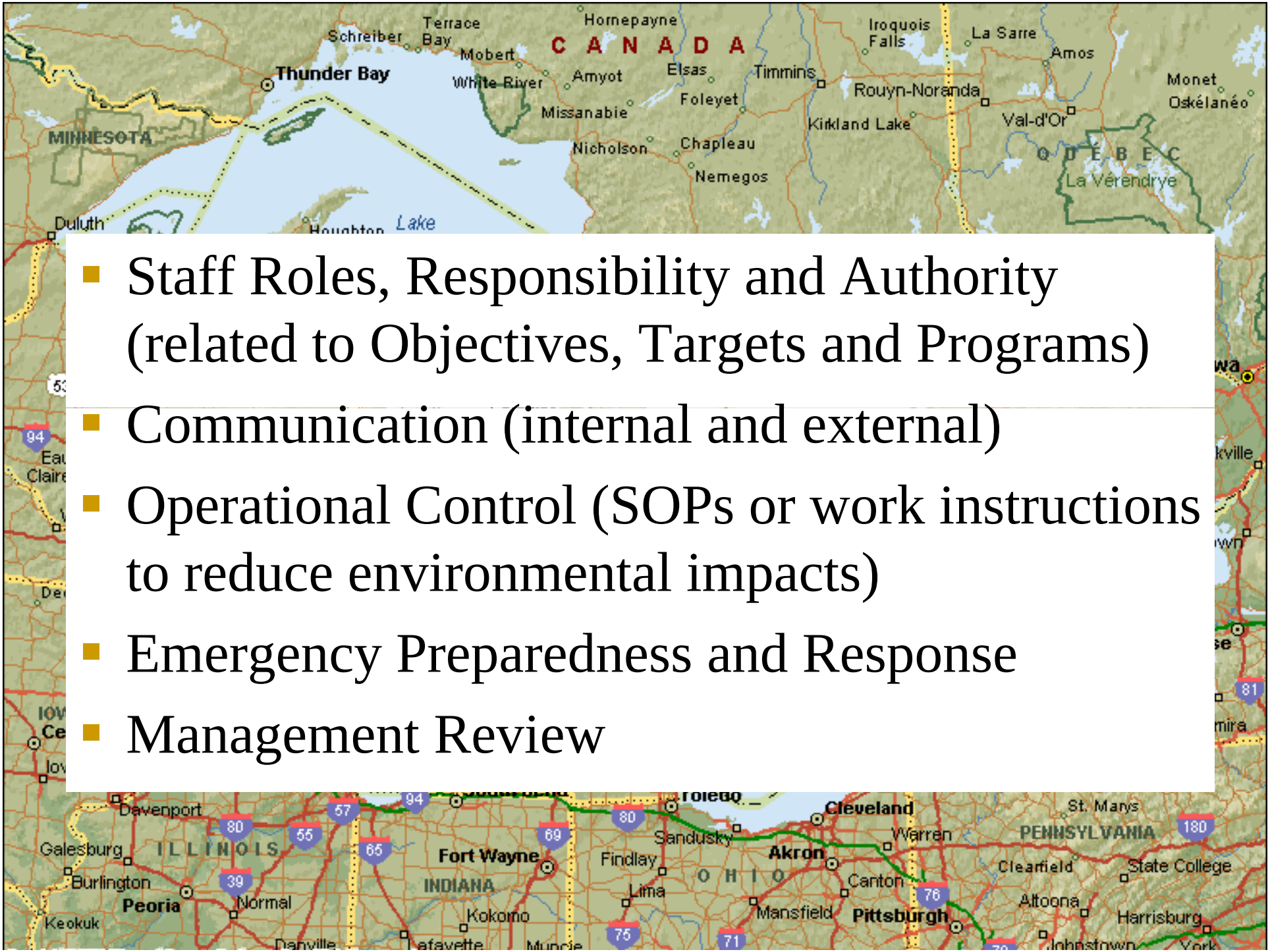
- 10-page ‘manual” (basic document)
- 14 Standard Operating Procedures (comprising 40 pages) that can be adapted by the port
- 6 Appendixes containing 16 report and tracking forms (comprising 21 pages) that can be adapted by the port



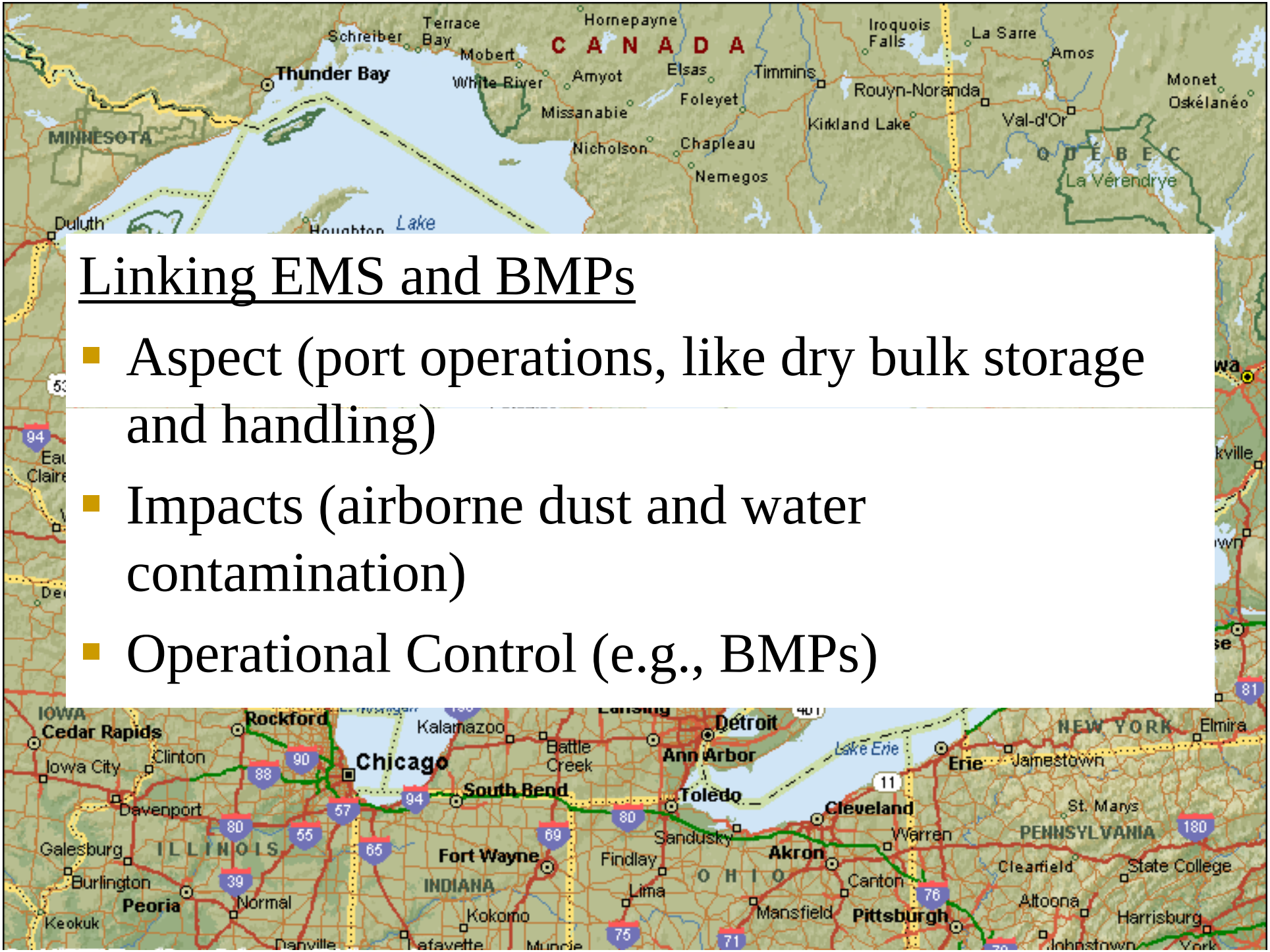


Major Elements of an EMS

- Environmental Policy
- Identification of Aspects (port operations that do or could impact the environment)
- Legal (regulatory) and other (e.g., trade association) requirements
- Objectives [what?], Targets [how much and when?] and Programs [how will objectives be achieved?]



- Staff Roles, Responsibility and Authority (related to Objectives, Targets and Programs)
- Communication (internal and external)
- Operational Control (SOPs or work instructions to reduce environmental impacts)
- Emergency Preparedness and Response
- Management Review



Linking EMS and BMPs

- Aspect (port operations, like dry bulk storage and handling)
- Impacts (airborne dust and water contamination)
- Operational Control (e.g., BMPs)


Best Management Practices
(example)
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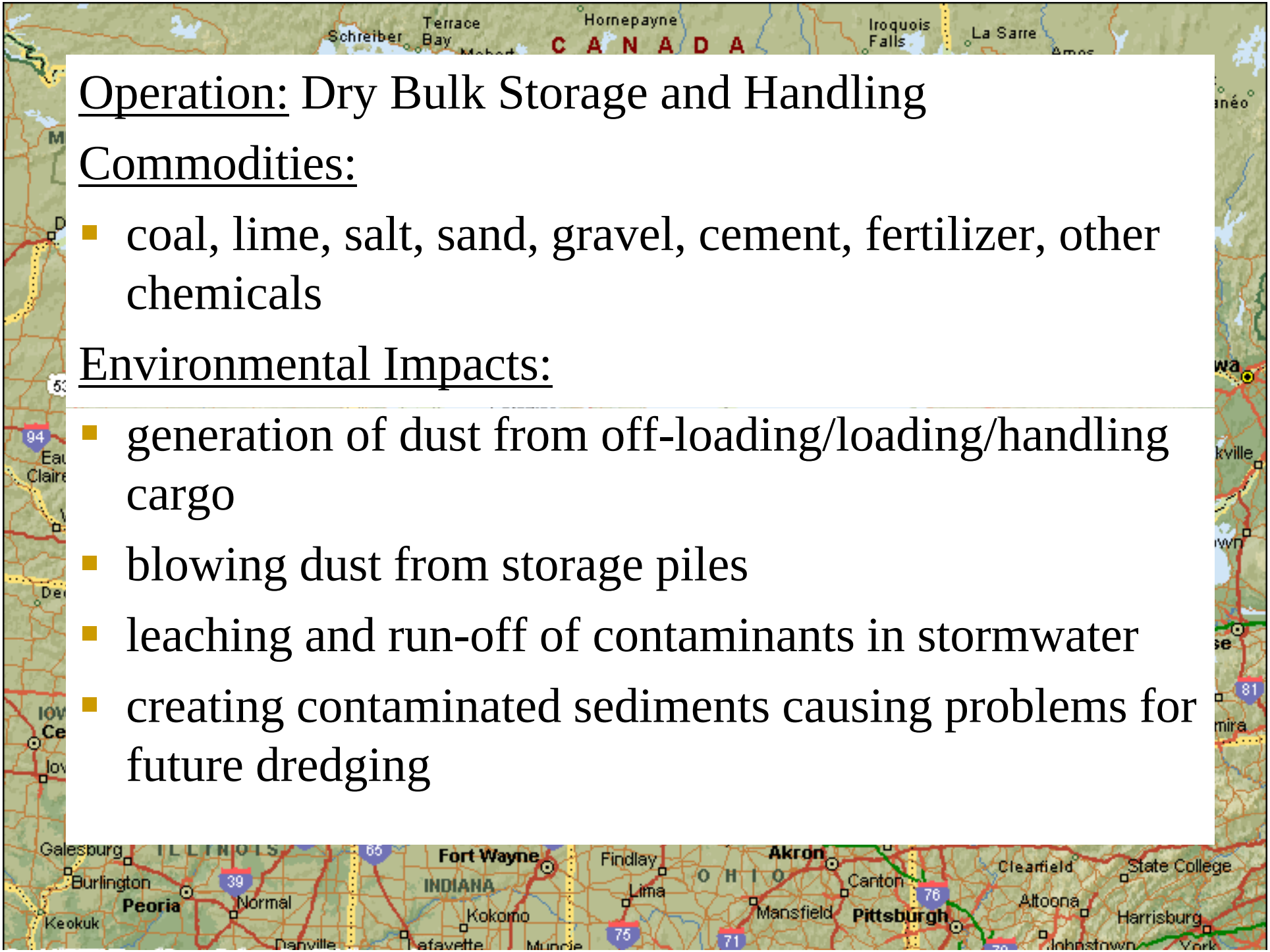


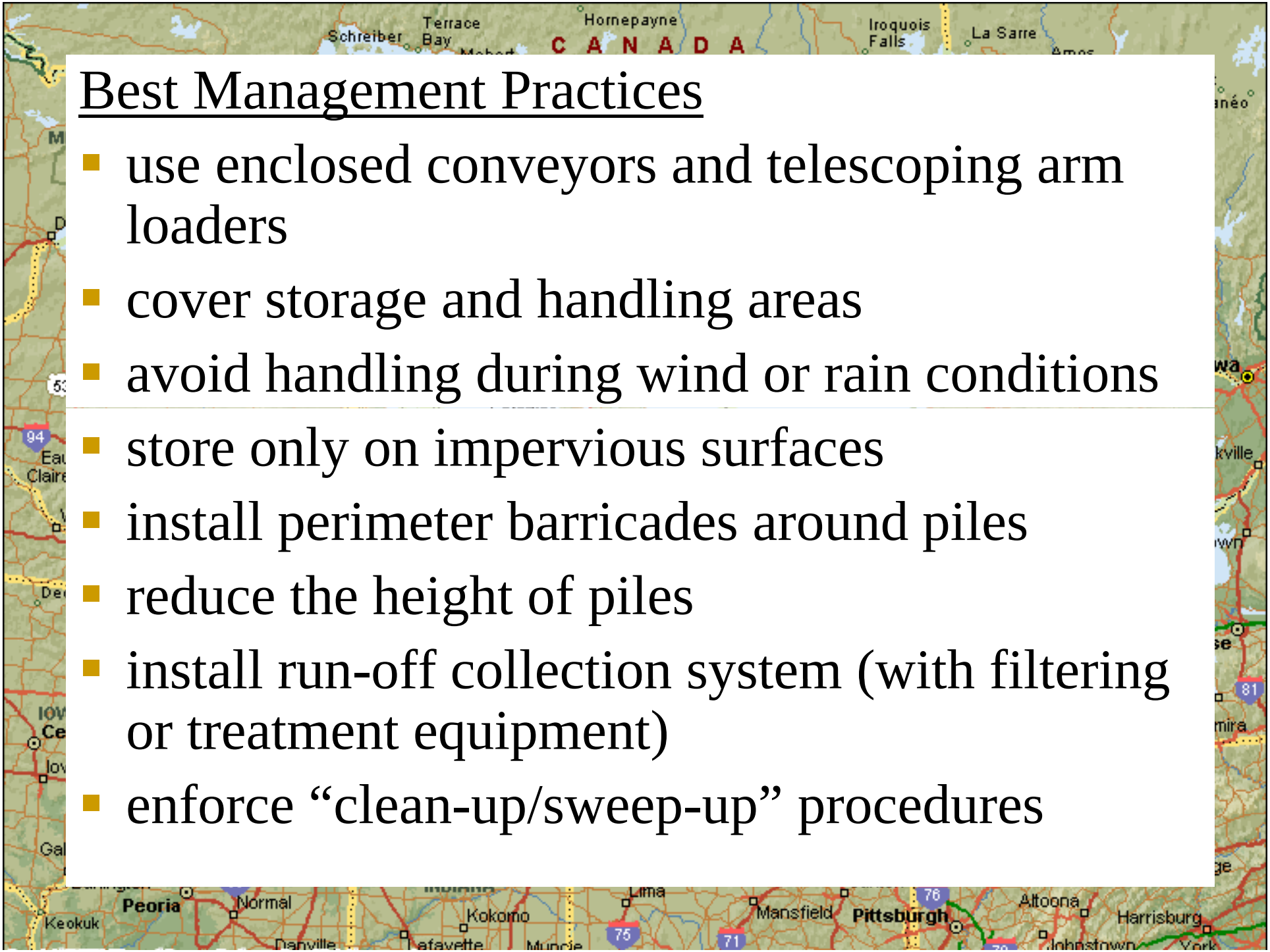
Operation: Dry Bulk Storage and Handling

Commodities:

- coal, lime, salt, sand, gravel, cement, fertilizer, other chemicals

Environmental Impacts:

- generation of dust from off-loading/loading/handling cargo
- blowing dust from storage piles
- leaching and run-off of contaminants in stormwater
- creating contaminated sediments causing problems for future dredging



Best Management Practices

- use enclosed conveyors and telescoping arm loaders
- cover storage and handling areas
- avoid handling during wind or rain conditions
- store only on impervious surfaces
- install perimeter barricades around piles
- reduce the height of piles
- install run-off collection system (with filtering or treatment equipment)
- enforce “clean-up/sweep-up” procedures

Regulatory Requirements

- Clean Air Act (U.S.) (link)
- Clean Water Act (U.S.) (link)
- Environmental Protection Act (Canada) (link)
- Conservation Authorities Act (Canada) (link)

Sources of BMP Information

- U.S. EPA, Ports Sector Strategies (link)
- Urban Harbors Institute (U Mass-Boston), "America's Green Ports" (link)
- Stormwater Pollution Prevention Handbook (Ontario) (link)
- Wisconsin DNR, "Storage Pile Best Management Practices" (link)

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