

15.0 Action Plan and Improvement Implementation Strategy

15.1 Introduction

In July 2015, Iowa DOT commissioned a study of crude oil and ethanol railroad transportation incident response preparedness within the state and by an independent party. The study was developed to serve as a tool to assist Iowa's state, local, and tribal government departments in determining the status of current prevention, preparedness, response, and recovery for crude oil and ethanol railroad transportation incidents across the state. The geographic, administrative, and operational areas identified in the report were qualitatively and quantitatively assessed for risks, vulnerabilities, and capabilities. Results of the assessments then provided challenges and recommendations to reduce risk and vulnerability through policy change, planning, training and education, communication, and additional resources. Note that the principal biofuel transported by railroads in and through Iowa is ethanol, but risks, vulnerabilities, and recommendations are in most cases general to all flammable liquids transported by rail.

This Improvement Strategy for Iowa's work toward improving safety in crude oil and ethanol railroad transportation is designed to provide a strategic roadmap to address potential areas of improvement. It provides the list of challenges and recommendations and incorporates program enhancements to align the relevant aspects of emergency management and response programs with nationally recognized standards and exemplary practices. Improvements will involve participation and input from agencies, departments, and staff from across Iowa's state departments, local governments, and railroad operators

The Improvement Strategy is organized by the following recognized emergency management pillars: prevention, preparedness, response, and recovery in concert with the organization of the findings and recommendations in the report.

15.2 Objective

The vision of the Iowa DOT and Iowa HSEMD [and request from the participants of the Study Stakeholder Committee meetings] was to ensure that this study does not become a static document, but rather something that can be integrated to augment Iowa's readiness to serve its communities and people. Therefore, the objective of this Implementation Strategy is to provide a roadmap that addresses areas where modifications or enhancements in Iowa's emergency management and response program activities are desired, in order to reduce risk and vulnerability, while improving life and property protection when a crude oil or ethanol railroad transportation incident occurs. These improvement initiatives are anticipated as part of an overall effort to continue to build strong emergency management and disaster response capabilities to serve the residents of Iowa.

15.3 Improvement Implementation Strategy Overview

The Improvement Implementation Strategy is based on the assessment, findings, and recommendations that were uncovered as part of the Study. State and local-level agencies and departments, ethanol producers/shippers, and railroads all provided interviews and documentation to aid in determining Iowa's capability to respond and manage crude oil and ethanol transportation incidents.

This Improvement Implementation Strategy builds on the findings and recommendations provided in the Study and identifies actions that Iowa state and local departments can take to work toward improved crude oil and ethanol transportation safety, preparedness, and response. The Improvement Implementation Strategy, found in Table 6 through Table 9 below, outlines the 35 recommendations of the report and identifies actions to address each recommendation.

To supplement the Improvement Implementation Strategy, Iowa DOT and Iowa HSEMD will be utilizing an Improvement Implementation Worksheet to identify agency responsibilities and the steps or actions needed to complete each Improvement Action. The worksheet also serves as a planning aid in identifying resources, while also helping to track the progress of each of the improvement actions. Ultimately, the document will help to establish realistic benchmarks to help accomplish tasks by their appropriate due dates. Iowa DOT and Iowa HSEMD will receive regular updates on program improvement progress from the assigned staff that are responsible for the Improvement Actions.

15.3.1 Improvement Implementation Strategy – Prevention

Table 6. Improvement Implementation Strategy – Prevention

Findings/Challenges	Recommendations	Improvement Actions
<p>Prevention</p> <p>1. At-grade crossing collisions, which can lead to derailments and incidents, are a single type of risk that requires coordination among state and local government entities to reduce and eliminate. At-grade grade-crossing signal improvements, separations, or closures can be costly and/or difficult to accomplish.</p> <p>2. The state has limited knowledge of shipper mechanical and safety inspection practices and execution for ethanol tank cars loaded at ethanol producers in Iowa.</p>	<p>1.A: The state should consider ranking at-grade crossings based on their risk relative to their exposure to crude oil, ethanol, and other high-risk hazardous commodities such as toxic inhalation gases, and the crossing’s proximity to the public, and develop an investment program in conjunction with railroads and local and county governments that targets public funds onto higher-risk crossings.</p> <p>1.B: The state should consider increasing its funding level for at-grade crossing improvement projects, focusing on high safety benefit-cost ratio improvements such as closure, signage, and signaling.</p> <p>2.A: The Iowa DOT should consider hiring an FRA-certified motive power and equipment (MP&E) inspector to visit each Iowa ethanol facility on an annual basis to observe inspection practices and report on training, qualifications, and hand-off of tank cars from the ethanol refinery to the handling railroad. The state should consider coordinating with the FRA to obtain its ethanol refinery inspection reports.</p> <p>2.B: The state should evaluate and refine an ethanol refinery tank car mechanical inspection program based on its findings from its first year of inspections and coordination.</p>	<p>1.A-1: Reassess the current at-grade crossing benefit-cost process related to hazardous commodities risk.</p> <p>1.A-2: Include hazardous materials as a variable in the crossing consolidation formula.</p> <p>1.A-3: Build awareness through education and enforcement via the law enforcement and judiciary communities.</p> <p>1.B-1: Advocate for state and federal funding for railroad-highway grade crossings.</p> <p>2.A-1: Work with the Regional FRA to determine whether a state MP&E inspector is necessary and beneficial.</p> <p>2.A-2: If determined necessary, advocate for a new position.</p> <p>2.A-3: Discuss with ethanol producers and railroads on how a program could be implemented.</p> <p>2.A-4: Increase communication with regional FRA MP&E and hazmat inspectors.</p> <p>2.B-1: Collect related information from the FRA and refineries for program evaluation. Include Iowa railroads during implementation process.</p>

Findings/Challenges	Recommendations	Improvement Actions
<p>3. Railroad infrastructure investment programs help reduce risk of derailments. Potential impacts of derailments, from the state’s perspective, are different in each area based on the built and physical environment adjacent to the rail line, and the capabilities of the local response system. Railroad infrastructure investment programs would help the state to reduce risk of derailments. Public investments could include track, bridges, signaling and grade crossings improvements, or installation of asset-protection devices such as Wheel Impact Load Detectors, Hot-Box Detectors, or Dragging-Equipment Detectors.</p>	<p>3.A: The state should consider an annual discussion with Iowa’s railroads regarding their infrastructure investment and improvement needs. This discussion would enable private /public partnerships for Iowa to target public investments in derailment prevention to the areas that the state perceives to have higher physical and natural environment risks and lower response capabilities.</p> <p>3.B: The state should consider developing a “public investment inventory” to share with the railroads that identifies improvements supported with public funds including past and anticipated decision criteria.</p> <p>3.C: The state should consider increasing state funding and seeking federal grants to focus on high safety benefit-cost ratio improvements such as removal of rail joints in bridges, bridge approaches, and crossings; and installation of asset-protection devices.</p>	<p>3.A-1: Set up a regular channel to discuss infrastructure investment and improvement needs.</p> <p>3.B-1: Annually track infrastructure improvements that have been made through public investment.</p> <p>3.C-1: Advocate for additional funding and seek grant opportunities.</p>

15.3.2 Improvement Implementation Strategy – Preparedness

Table 7. Improvement Implementation Strategy – Preparedness

Findings/Challenges	Recommendations	Improvement Actions
Preparedness		
<p>1. Local emergency preparedness activities, including that for rail incidents involving crude oil or ethanol, is the responsibility of local emergency managers/coordinators. Many local emergency coordinators are not full-time employees and/or have multiple responsibilities/assignments often not related to emergency management.</p>	<p>1.A: County officials should consider prioritizing the identification and maintenance of revenue to fund a full-time emergency manager in each county, or consider resource sharing among neighboring counties to create a full-time emergency manager position that serves a larger community or region. This increase in emergency management capacity would better serve the local planning, preparedness, and response needs of the local communities.</p>	<p>1.A-1: Conduct outreach to the Iowa Emergency Managers Association, League of Cities, and Iowa State Association of Counties to fully inform them of the importance of the roles the Emergency Manager undertakes, and form a study group to identify areas where regional emergency management coverage would be of benefit.</p>

Findings/Challenges	Recommendations	Improvement Actions
<p>2. Many counties and municipalities plan along “all-hazards lines” in Iowa and generally do not specifically separate out the risks and vulnerabilities related to crude oil and ethanol transportation by rail or related mitigation measures that can reduce risk.</p>	<p>2.A: In counties where crude oil and ethanol are transported by rail, local emergency management could profile and analyze rail incident risk and vulnerability to identify and prioritize mitigation measures through their local and regional Incident Management Standard Operating Guidelines/Procedures.</p>	<p>2.A-1: Continue to support activities through current and future funding streams. 2.A-2: Encourage coordination at a systems level for this particular hazard.</p>
<p>3. Many local jurisdictions do not have adequate mapping or information gathering capabilities to identify critical infrastructure or vulnerable populations within a 0.5-mile buffer area of railroad main tracks carrying crude oil or ethanol, or within 0.5 miles of major yards.</p>	<p>3.A: Counties and municipalities, with support from the state, should consider identifying, mapping, and assessing the vulnerability of the critical infrastructure and vulnerable populations located within 0.5 mile of all railroad main tracks and major yards to determine areas of highest risk, and then prioritize preparedness, response, or mitigation actions for those areas to reduce the risk and improve response.</p>	<p>3.A-1: Develop a better understanding of GIS capabilities at the state and local level. Update the status of GIS capabilities by exploring ways to enhance and support locals. 3.A-2: Iowa HSEMD could advocate for an additional GIS position to help support these activities. 3.A-3: Iowa DOT/HSEMD can provide critical infrastructure and vulnerable population data created for this study 3.A-4: Iowa DOT and HSEMD should determine and maintain an appropriate update cycle for this shareable GIS data. 3.A-5: Quadrennially update risk vulnerability assessment by county.</p>
<p>4. Not all local jurisdictions have written evacuation and shelter plans related to a rail incident involving crude oil or ethanol and other hazardous materials transported by rail.</p>	<p>4.A: Iowa HSEMD could assist local emergency managers with the development of local evacuation and sheltering plans tailored for rail incidents where public health and safety is at risk.</p>	<p>4.A-1: Iowa HSEMD can provide tailored technical assistance and guidance when evacuation and sheltering plans are updated. 4.A-2: Create public outreach for instructional media related to evacuation and sheltering activities for people in the hazard areas or buffer zones.</p>
<p>5. Emergency Managers noted that railroads do not typically attend Local Emergency Planning Committee (LEPC) meetings. Some ethanol plants attend, but not all.</p>	<p>5.A: LEPCs should consider actively seeking attendance by railroads and shippers, and providing them with a statewide schedule of LEPC meetings and agendas.</p>	<p>5.A-1: Disseminate LEPC meeting information and dates, with advanced notice, to all interested stakeholders. 5.A-2: Encourage Iowa DOT District involvement in LEPCs.</p>

Findings/Challenges	Recommendations	Improvement Actions
	<p>5.B: Iowa DNR and Iowa HSEMD may consider polling local emergency managers and first responder groups to determine which counties need assistance enhancing LEPC membership, participation, and best practices.</p> <p>5.C: Iowa DOT, Iowa DNR, and Iowa HSEMD may consider developing a crude oil and ethanol transportation incident response planning committee to develop guidance and work with LEPCs and emergency management coordinators to develop local incident specific response plans and capabilities.</p>	<p>5.A-3: Advocate rail issues in general emergency management venues.</p> <p>5.B-1: Iowa HSEMD can provide an online survey tool to gauge the needs of LEPC management.</p> <p>5.B-2: Provide a LEPC best-practices workshop.</p> <p>5.B-3: Advocate rail issues in general emergency management venues.</p> <p>5.C-1: Develop a crude oil and ethanol transportation incident response planning working group from the IERC</p>
<p>6. Federal, state, and industry training and readiness information is often difficult to locate and access.</p>	<p>6.A: Iowa HSEMD, state agencies, and association partners should consider development of a comprehensive, one-stop web portal to provide access and guidance to training opportunities, grants, and other preparedness and response resources.</p>	<p>6.A-1: Iowa HSEMD will create a consolidated training calendar on their website.</p> <p>6.A-2: Iowa HSEMD can internally try to coordinate grant resources and rail training in a more consolidated form.</p>
<p>7. Federally required crude oil traffic notifications from the railroads to the state have too great a range of traffic volume for effective situational awareness and response planning purposes in some areas. The 25 percent range of change in volume is too broad for some local planners to be comfortable about knowing how much crude oil is being transported through their community.</p>	<p>7.A: The state should consider requesting of the FRA that it adjust railroad advance crude oil transportation reporting requirements to notify Iowa HSEMD on behalf of the State Emergency Response Commission (SERC) in advance of scheduled shipments, from a 25 percent change in volume to a smaller range of traffic volume (e.g. no more than a 10 train per week range variance or when a 10 percent or greater change in traffic volume is scheduled to occur).</p>	<p>7.A-1: Continue to work with the railroads to find satisfactory reporting regimens that work with both the local responders and the railroads.</p>
<p>8. Federally required Bakken oil train traffic notifications are provided by the railroads to the Iowa HSEMD, on behalf of the SERC, then passed on to the LEPC, local emergency management coordinator,</p>	<p>8.A: Iowa HSEMD, on behalf of the SERC, should continue to work with local LEPC coordinators and emergency management coordinators to ensure the oil train traffic notifications are shared with emergency response partners who would normally be a member of an active LEPC including the fire chief, police chief, and other response operational</p>	<p>8.A-1: Iowa HSEMD will continue to notify Iowa LEPCs and emergency managers on the affected routes.</p> <p>8.A-2: Iowa HSEMD will continue to notify relevant state partners.</p>

Findings/Challenges	Recommendations	Improvement Actions
<p>Iowa DOT, and other response entities with a need to know as allowed by state and federal law. Some counties do not have LEPCs that meet regularly to receive and act on new information.</p> <p>9. Under the standing USDOT Emergency Order, Class I railroads are required to share information on changes to Bakken oil train traffic volume with the SERC. They are not required to share the same information for ethanol trains or other trains that also operate as High-Hazard Flammable Trains (HHFT), and present a similar hazard to railroad communities across Iowa.</p> <p>10. Local and rail industry information sharing related to exemplary practices for preparedness, response capability, and mutual aid, as well as public sector outreach and rail-specific training opportunities are not equal for all communities across the state.</p>	<p>groups.</p> <p>9.A: The state should consider working with the USDOT to address the information-sharing gap between Bakken oil, and other oil, ethanol, and other commodities when carried in quantity and identified as high-hazard flammable trains by the FRA and PHMSA, and present similar risks to local communities.</p> <p>9.B: Local emergency managers and first responders should consider requesting hazardous commodity flow information from the railroads so that they have a better understanding of all potential hazardous materials that are transported along the tracks through their jurisdiction.</p> <p>10.A: The state should consider developing a web portal that allows for better information sharing, lessons learned, exemplary practices, and railroad incident training opportunities to be accessible to all local first responders and emergency managers in the state</p>	<p>8.A-3: Iowa HSEMD will assure all emergency managers understand what to expect from the reporting process.</p> <p>9.A-1: Local, state, and railroads should continue to work together to find common ground on these issues.</p> <p>9.B-1: Local, state, and railroads should continue to work together to find common ground on these issues.</p> <p>10.A-1: Iowa HSEMD can open discussion with the rail industry to determine ways to improve information sharing.</p>
<p>11. Iowa’s railroads do not have similar methods for measuring the effectiveness or accomplishments of their preparedness programs.</p>	<p>11.A: To maximize public-private coordination efforts, Iowa should recommend that the state, railroads, TRANSCAER, and other railroad-related organizations report annually on the results of their preparedness programs, using simple metrics such as number of local emergency managers and first responder organizations contacted and offered training and exercises; number of coordination meetings attended; and number of first responders trained and number of exercises held. Iowa could facilitate preparedness through tracking and providing the contact information of all local emergency managers and first responder organizations for each of the Iowa railroads, with respect to each railroad’s territory.</p>	<p>11.A-1: The state is willing to work with the railroads on tracking and reporting of all preparedness, response, and training efforts as part of the public outreach and education program.</p> <p>11.A-2: Iowa HSEMD can provide emergency manager and first responder contact information to the railroads.</p> <p>11.A-3: Iowa DOT can provide the railroad contact information to Iowa HSEMD for dissemination to appropriate local authorities.</p> <p>11.A-4: Iowa HSEMD and Iowa DOT will work with the railroads to encourage exercises when testing planning assumptions.</p>

15.3.3 Improvement Implementation Strategy – Response

Table 8. Improvement Implementation Strategy – Response

Findings/Challenges	Recommendations	Improvement Actions
<p>Response</p> <p>1. Many local emergency operations plans, annexes, incident response plans, and standard operating procedures/guidelines take an all-hazards approach and do not specifically address rail incidents involving crude oil or ethanol or other flammable liquids.</p> <p>2. Many local first responders are not trained or equipped to appropriately respond to a large rail incident involving crude oil or ethanol on their own. (It is not the goal, however, to have every responder capable of an active response where scene security and notification is the appropriate response).</p> <p>3. Local firefighting foam resources in rural areas are not sufficient to fight large-scale rail incidents involving crude oil, ethanol, or other flammable liquids.</p>	<p>1.A: State departments including Iowa DOT, Iowa HSEMD, and Iowa DNR should consider working with local emergency managers to develop local crude oil, ethanol, and other flammable liquids transportation incident response standard operating procedures or guidelines.</p> <p>2.A: The Iowa Fire Service Training Bureau, the Iowa Firefighter’s Association, Hazmat Task Force, and the crude oil transportation industry and ethanol transportation industry (including shippers and carriers) should work together to identify, fund, and offer specialized hazardous materials response training to all local, state, and tribal first responders. These partners should consider identifying and providing a mobile, local program of training and exercises that meets the appropriate response level criteria for the level of response anticipated by the local first responders. This response level capability should run from active firefighting response (when adequately trained staff are available) to appropriate geographical and situation stabilization activities in tandem with coordination with specialty response teams sent for support. Some responders may only need training on how to evacuate, shelter, and protect lives, while others may need training to support the regional hazardous materials responders (including foam application and hazardous materials decontamination).</p> <p>2.B: The state, along with the Hazmat Task Force, Iowa Firefighters Association, and railroads operating in Iowa, may consider assembling a focus group to identify ways to improve training, preparedness, and response capabilities for volunteer emergency responders.</p> <p>3.A: Iowa HSEMD, the Hazmat Task Force, and the Fire Service Training Bureau of the Department of Public Safety should consider conducting a study to determine how much firefighting foam should be accessible on a regional basis that can be deployed to a rail incident involving crude oil, ethanol, or other flammable liquids.</p>	<p>1.A-1: Iowa HSEMD will work with local emergency managers and LEPCS to provide technical assistance on their plans.</p> <p>2.A-1: Encourage the formation of an IERC crude oil transportation incident response planning working group to coordinate these issues.</p> <p>2.B-1: Encourage the formation of an IERC crude oil transportation incident response planning working group to coordinate these issues.</p> <p>3.A-1: Iowa HSEMD can take the lead in coordinating the group on this issue. 3.A-2: Coordinate with the railroads on this issue.</p>

Findings/Challenges	Recommendations	Improvement Actions
	<p>3.B: Iowa HSEMD, the Hazmat Task Force, and the Fire Service Training Bureau of the Department of Public Safety should consider establishing a statewide standard for firefighting foam resources for municipal fire department operations at a crude oil, ethanol, or other flammable liquids spill and assist local fire departments and partner resources with designing a path that brings all responders to the same standard.</p> <p>3.C: Iowa HSEMD, the Hazmat Task Force, and the Fire Service Training Bureau of the Department of Public Safety should consider purchasing and strategically placing firefighting foam and application tools around the state for rapid deployment.</p>	<p>3.B-1: Iowa HSEMD can take the lead in coordinating the group on this issue.</p> <p>3.B-2: Coordinate with the railroads on this issue.</p> <p>3.C-1: Iowa HSEMD can take the lead in coordinating the group on this issue.</p> <p>3.C-2: Coordinate with the railroads on this issue.</p>
<p>4. Counties across the state rely on Hazmat teams to provide hazardous materials response capabilities, usually at a subscription fee, and with varied degrees of capability and availability to respond due to distance from the hazmat team’s home base.</p>	<p>4.A: Iowa HSEMD may consider developing and maintaining a capabilities list of all the regional hazmat teams as a database to maintain situational awareness of their varied response capabilities including: equipment caches, location, team training and certification levels, availability, and procedures for activation, deployment, and mobilization.</p>	<p>4.A-1: Iowa HSEMD can take the lead in coordinating the group on this issue.</p> <p>4.A-2: Coordinate with the railroads on this issue.</p>
<p>5. No individual state department maintains a centralized, comprehensive database of private crude oil, ethanol, or other flammable liquids incident response equipment, qualified spill response contractors, and related resources.</p>	<p>5.A: Iowa HSEMD may consider developing and maintaining a response capabilities list of all the railroads as a database to maintain situational awareness of their varied response capabilities including: equipment caches, location, team training and certification levels, and procedures for activation, deployment, and mobilization.</p> <p>5.B: Iowa HSEMD should consider working with Iowa DNR to update Iowa DNR’s list of private contractors operating in Iowa, and to ensure the list of capabilities, their location, certifications, training, and equipment can then be made available to local emergency managers, first responders, and incident responsible parties.</p>	<p>5.A-1: Iowa HSEMD and Iowa DNR will work with the railroads, AAR, and ASLRRA to devise an easy and well-maintained process.</p> <p>5.B-1: Iowa HSEMD and Iowa DNR will work with the railroads, AAR, and ASLRRA to devise an easy and well-maintained process.</p>
<p>6. Local first responders need real-time electronic access to cargo manifest data for rail shipments.</p>	<p>6.A: Railroads, state and local authorities should work together to promote and facilitate, statewide, the use of “AskRail” mobile application and work with first responders to obtain the required training and clearances to access the application.</p>	<p>6.A-1: Poll stakeholders to determine obstacles to the use of “AskRail,” if any.</p> <p>6.A-2: Ask the AAR for plain language summaries of appropriate and inappropriate use of the “AskRail” application.</p> <p>6.A-3: Promote the clarification of the legal concerns related to the access and use of the “AskRail” application.</p>

Findings/Challenges	Recommendations	Improvement Actions
<p>7. GIS databases that identify railroad ownership and operators are not completely accurate, particularly in urban areas where trackage is complex. First responders may be delayed in contacting the correct railroad in the event of an incident.</p>	<p>6.B: Iowa DOT and Iowa HSEMD should work with the short line railroad association and the AAR to include Class II and Class III railroads in the “AskRail” mobile application.</p> <p>7.A: The state should consider updating its railroad GIS databases with accurate information on the railroad responsible for dispatching each line segment, including contact information for that railroad. The state should consider annually furnishing this database to Iowa railroads and request verification of the information.</p>	<p>6.B-1: Iowa HSEMD and Iowa DOT should contact AAR and ASLRRRA.</p> <p>7.A-1: Promote the railroad crossing identifiers (Emergency Notification System signs) that provide the railroad contact information.</p> <p>7.A-2: Promote the availability to Iowa DOT’s current GIS data.</p> <p>7.A-3: Explore the feasibility of adding and improving GIS staffing, capabilities, and data.</p>
<p>8. Railroad notification in the event of an incident is unique to each railroad.</p>	<p>8.A: The state should consider meeting with Iowa railroads and discussing methods to simplify and standardize how railroads are contacted and coordinated with during an incident and share that information with local emergency managers.</p>	<p>8.A-1: Facilitate an open discussion with railroads on this issue.</p> <p>8.A-2: Iowa DOT will continue education and outreach to local responders and dispatch centers on the meaning and use of Emergency Notification System.</p>

15.3.4 Improvement Implementation Strategy – Recovery

Table 9. Improvement Implementation Strategy - Recovery

Findings/Challenges	Recommendations	Improvement Actions
Recovery		
<p>1. The railroads methods for recovering from incidents are unique to each railroad. Railroads may have different financial and organizational capability to respond to in incident. The state has low visibility into railroad capabilities.</p>	<p>1.A: The state should consider requesting Iowa railroads to report annually on their recovery program.</p>	<p>1.A-1: Work with the railroads to refine the challenge and recommendation, then determine a path forward.</p>