

Crude Oil and Biofuels Rail Transportation Study

Final Study



April 2016

About the Study

In July 2015, Iowa DOT commissioned a study of crude oil and biofuels railroad transportation incident response preparedness within Iowa, conducted by HDR, Inc. and Witt O' Brien's, LLC. The study was developed to serve as a tool to assist Iowa's state, local, and tribal governments to determine the status of risks and vulnerabilities, prevention methods and programs, and preparedness, response, and recovery capabilities for crude oil and biofuels railroad transportation incidents in Iowa. The geographic, administrative, and operational areas identified in the report were assessed for risks, vulnerabilities, programs and capabilities. Results of the assessments were used to identify challenges and to form recommendations to reduce risk and vulnerability through policy change, planning, training and education, communication, and other actions.

How to Get Copies of the Study

www.iowadot.gov/iowarail

Prepared by:



WITT|O'BRIEN'S

Executive Summary

Purpose

The Iowa Crude Oil and Biofuels Rail Transportation Study (the Study) was created through an initiative of the Iowa Department of Transportation's (Iowa DOT) Office of Rail Transportation in cooperation with the Iowa Homeland Security and Emergency Management Department (Iowa HSEMD). These agencies sought to define the characteristics, risks, prevention, and emergency response system status and capabilities for crude oil and biofuels rail transportation in the state, and to measure Iowa's preparedness, prevention, response, and recovery capabilities in the event that a crude oil or biofuel rail transportation incident were to occur.

Key items that the Study sought to accomplish were as follows:

- Inform the state about the likely current and near-term future frequency, routes, volumes, and transportation characteristics of crude oil and biofuels by rail within and through Iowa
- Assess the potential risks to public health and safety, and the potential environmental impacts, created by rail transportation of crude oil and biofuels by rail
- Document current private- and public-sector programs and plans related to rail incident prevention and management, including access to emergency equipment and services
- Identify actions to address potential gaps in prevention, preparedness, response, and recovery methods and make public health and safety and environmental protection recommendations for appropriate federal, state, and local agencies, or the private sector
- Establish internal assignments and timelines to quantify successful implementation of findings and recommendations provided in the Study
- Formulate recommendations to close potential gaps in the following areas that would cause a shortfall in Iowa's capabilities for prevention, preparedness, response, and recovery: rail transportation infrastructure, rail transportation practices, rail transportation regulations and regulatory oversight, emergency response resources, organization, training, and response capabilities, communication systems and methods, and other concerns identified through the Study

Crude Oil and Biofuels in Iowa

This Study examined both crude oil and biofuels rail transportation. Both commodities are at present transported by railroads in large volumes in and through Iowa.

Crude Oil

No crude oil shipments originate and terminate in Iowa at present, nor are likely to in the future; however, substantial quantities of crude oil shipments originating in other states pass through Iowa en route to their destination. Current principal sources of crude oil passing through Iowa

include the Williston Basin (Bakken) Field of North Dakota, synthetic and blended oil extracted from oil sands in Alberta and Saskatchewan, Canada. This crude oil is typically sold for markets in the southern and eastern U.S. Other origins of crude oil moving through Iowa include the Niobrara Field of northeast Colorado and the Uinta Basin of northeast Utah. The crude oil consists of various specific gravities and volatility ranging from heavy bitumen to light crude oil.

Biofuels

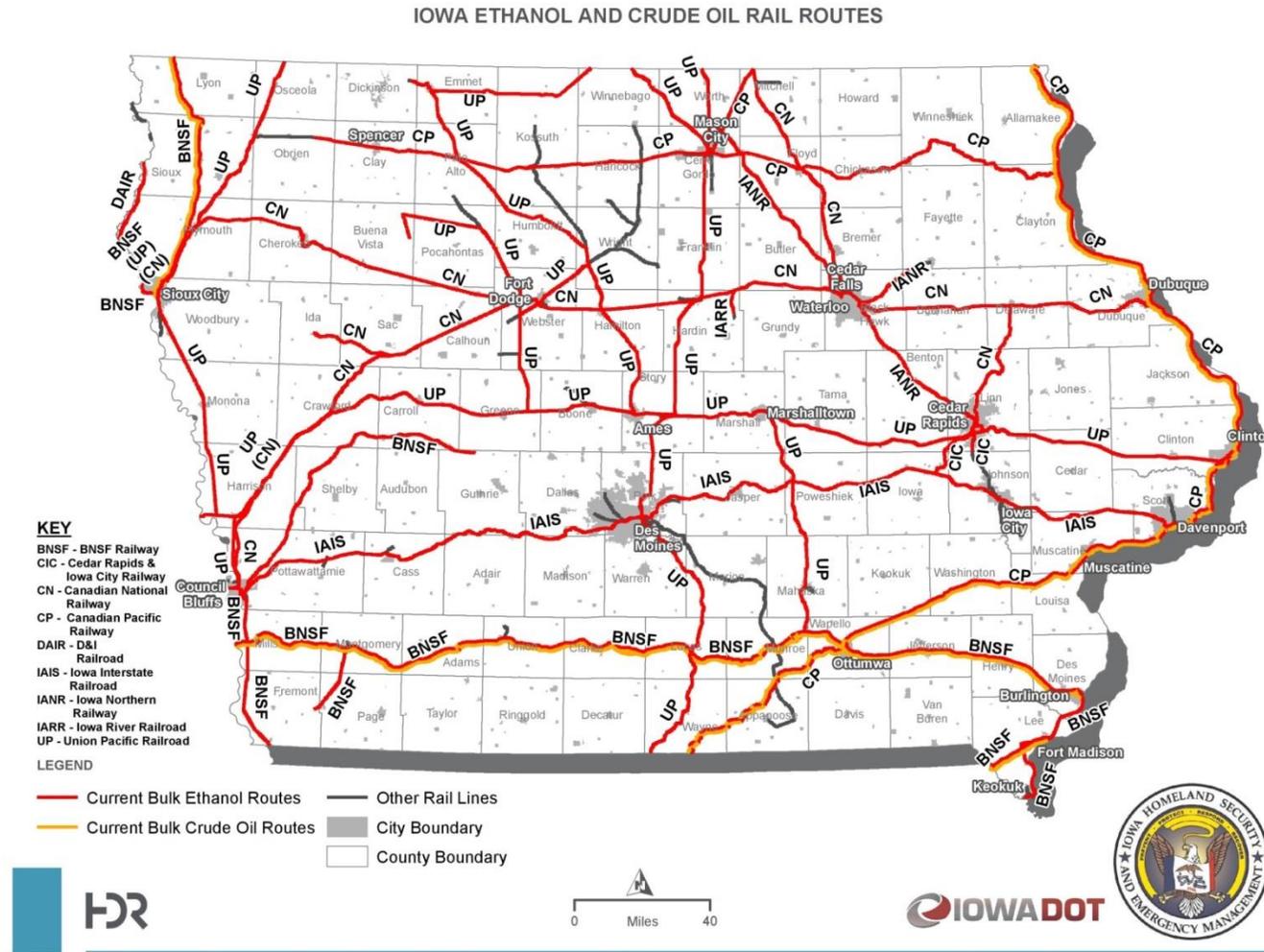
Biofuels transported by rail in and through Iowa consist principally of ethanol and biodiesel. Biodiesel is produced in small quantities relative to ethanol, and is almost exclusively consumed locally to its points of origin, and not moved in large quantities by rail. Ethanol is produced in relatively large quantities. Because ethanol is consumed universally throughout the U.S. but is principally produced only in states with high corn production levels, such as Iowa, and because ethanol is not commercially feasible to be moved by pipeline, ethanol is moved by rail between production and consumption points. The state of Iowa is one of the chief producers of ethanol in the United States. The Iowa Renewable Fuels Association estimated that Iowa produced approximately 26 percent of the nation's ethanol (3.92 billion gallons) in 2015; much of this ethanol moved by rail out of Iowa.¹

Since only small volumes of biodiesel moves by rail in Iowa, biodiesel transportation practices, risks, and vulnerabilities were not examined in detail in this Study.

Figure ES-A, below, depicts current primary railroad routes of crude oil and ethanol transportation by rail in Iowa.

¹ Renewable Fuels Association, *Where Ethanol is Made*, <http://www.ethanolrfa.org/consumers/where-is-ethanol-made/>

Figure ES-A. Current Iowa Railroad Routes for Bulk Crude Oil and Ethanol Transportation



Source: HDR, Inc. as of 01/27/2016

Methodology

The Study used desktop research, interviews and surveys, a Stakeholder Steering Committee, and workshops to gather and assess information, develop findings, form recommendations, and design an action plan. Desktop research used public sources to assess current practices, regulations, risks, and vulnerabilities. Interviews and surveys were used to focus on the capabilities, practices, and programs of railroads, ethanol shippers, first responders, and federal, state, and local agencies. The Stakeholder Steering Committee included all Iowa railroads currently engaged in large-scale transportation of crude oil and ethanol by rail, selected Iowa producer/shippers of ethanol, selected Iowa emergency responders, and Iowa DOT and Iowa HSEMD. Workshops were used to present findings, discuss gaps and develop strategies to close gaps, to refine recommendations, and to develop implementable action plans. The Study consultant, HDR, Inc., used mapping to relate rail routes used for crude oil and ethanol to various public and environmental risks and vulnerabilities. The mapping informed a Risk and Vulnerability Analysis (RVA) that quantified risks on a county-by-county basis. Stakeholders participating in interviews and workshops included all Iowa railroads currently engaged in large-scale transportation of crude oil and ethanol by rail, selected Iowa producer/shippers of ethanol, many of Iowa's emergency responders, and the principal federal and state agencies involved in the regulation of crude oil and ethanol transportation safety.

Interviews and surveys were designed to discover information related to railroad and ethanol producer/shipper stakeholders' organization, operating characteristics, transportation routes and volumes, prevention programs, response resources, and recovery plans, with respect to the transportation of crude oil and ethanol by rail. Regulating agencies were interviewed to gain insight into the efficacy of current and possible future regulations and regulatory compliance programs, and to obtain their ideas about how Iowa could improve its Study and reduce its risks and vulnerabilities to crude oil and ethanol rail transportation risks.

The Stakeholder Steering Committee (SSC) was created to guide and inform the Study, and provide opportunities for collaboration and improvement related to findings and recommendations. Two SSC meetings were conducted to review. The first discussed the Study's methodology and initial findings from interviews and research, and the second discussed proposed recommendations and actions.

Risk and Vulnerability Assessment

The Risk and Vulnerability Assessment (RVA) considered bulk crude oil and ethanol transportation routes and volumes, recorded previous incidents including main track derailments, spills, and fires, likelihood of future incidents, key public safety and environmental risk factors, and potential impacts from those incidents. These quantities were used to derive an aggregate value for risk.

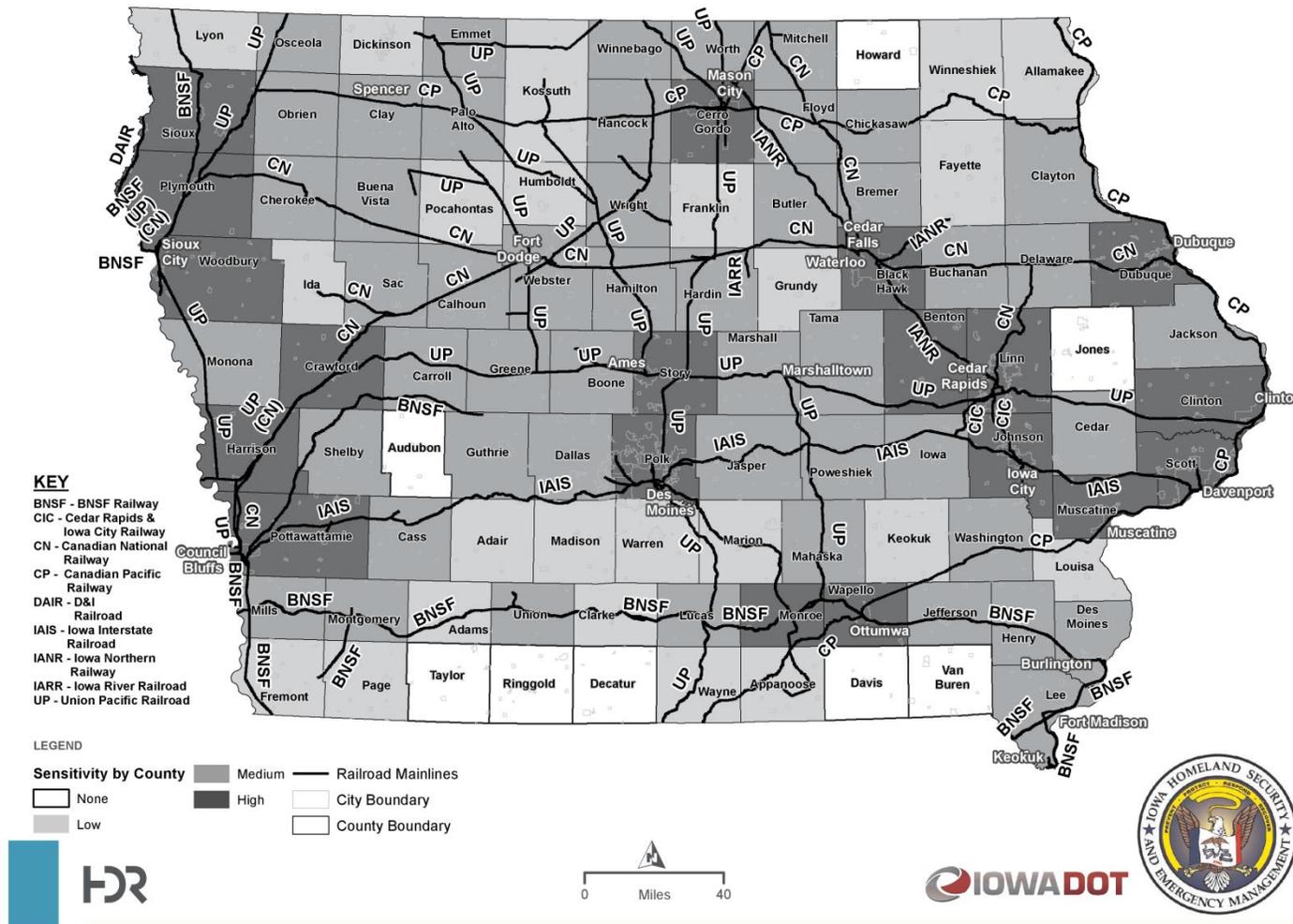
The RVA was constructed as a building block process on a county-by-county basis, using various factors, such as length of railroad segments carrying crude oil or ethanol within a county, volume of rail traffic, and populations, critical facilities, and environmentally important segments within an identified hazard area. The individual factors were analyzed to determine and overall risk for a given county. The data and information provided for this RVA were the best available data at the time of collection and should be regarded as a snapshot in time, as data changes over time. In addition, all risk assessment results are based on methodology designed specifically for the State of Iowa using Iowa-specific data, statistics, and conditions. Therefore,

the results of the RVA are used to prioritize and develop prevention, protection, mitigation, response, and recovery strategies and resources for Iowa.

Figure ES-B, below, depicts the ranking by Iowa county of bulk crude oil and ethanol rail transportation sensitivity. It is crucial to note that this map does not indicate the likelihood of a rail transportation incident, but aids in reinforcing the intended actions of the RVA.

Figure ES-B. Ranking of Crude Oil and Ethanol Rail Transportation Sensitivity, by County (2015)

RANKING OF CRUDE OIL AND ETHANOL RAIL TRANSPORTATION SENSITIVITY, BY COUNTY (2015)



Source: HDR, Inc. as of 3/24/2016

Findings, Recommendations, and Improvement Actions

Findings, recommendations, and improvement actions are presented in the following tables: ES-A through ES-D. Recommendations were developed by the Study Team using feedback from stakeholders and Iowa DOT and Iowa HSEMD. Improvement actions were guided by several principles:

1. Cooperation and voluntary action by stakeholders would be the preferred methods, instead of new regulation requiring legislative action at the state or federal level.
2. Proposed improvements would be implementable within the near term, and would be practical and meaningful.
3. Proposed improvements would work within existing commercial, economic, regulatory, and technological parameters.
4. Proposed improvements would be amenable to tracking to enable measurement of improvement and the efficacy of actions.
5. Where feasible, improvements would extend to other hazardous commodities transported by rail in or through Iowa.

Table ES-A. 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>

Table ES-B. 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>
<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</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.</p> <p>2.A-2: Encourage coordination at a systems level for this particular hazard.</p>

Findings/Challenges	Recommendations	Improvement Actions
<p>or related mitigation measures that can reduce risk.</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.</p> <p>3.A-2: Iowa HSEMD could advocate for an additional GIS position to help support these activities.</p> <p>3.A-3: Iowa DOT/HSEMD can provide critical infrastructure and vulnerable population data created for this study</p> <p>3.A-4: Iowa DOT and HSEMD should determine and maintain an appropriate update cycle for this shareable GIS data.</p> <p>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.</p> <p>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.</p> <p>5.A-2: Encourage Iowa DOT District involvement in LEPCs.</p> <p>5.A-3: Advocate rail issues in general emergency management venues.</p>

Findings/Challenges	Recommendations	Improvement Actions
<p>6. Federal, state, and industry training and readiness information is often difficult to locate and access.</p>	<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>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>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.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, 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>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 groups.</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> <p>8.A-3: Iowa HSEMD will assure all emergency managers understand what to expect from the reporting process.</p>

Findings/Challenges	Recommendations	Improvement Actions
<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>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>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>

Table ES-C. 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>

Table ES-D. 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>