Crude Oil and Biofuels Rail Transportation Study

Appendices

April 2016

Contents

1.0 Appendix A – Rules and Regulations for the Rail Haulage of Crude Oil and Ethanol

1.1 Rules and Regulations for Rail Haulage of Crude Oil and Ethanol

Table A-1. Rules and Regulations for Rail Haulage of Crude Oil and Ethanol

Rules and Regulations	Description
PHMSA	
PHMSA-2012-0082 – Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains[1]	This new federal rule[2] intends to reduce the frequency and impacts of rail accidents involving large volumes of flammable liquids. The changes address NTSB recommendations on the accurate classification and characterization of such commodities, enhanced tank car construction, and rail routing. The final rule is effective July 7, 2015. Under this rule, tank cars constructed after October 1, 2015, that are used to transport flammable liquids as part of a High Hazard Flammable Train (HHFT) would be required to meet specific design requirements or performance criteria (e.g., thermal, top fittings, and bottom-outlet protection; tank-head and shell puncture resistance). A HHFT is a train that includes 20 or more loaded tank cars of a Class 3 flammable liquid in a continuous series, or 35 or more loaded tank cars of a Class 3 flammable liquid total in the train.[3] PHMSA received comments through September 30, 2014, on the redesign of railcar DOT Specification 117 to replace DOT 111 series railcars. The rule requires existing rail tank cars that are used to transport flammable liquids as part of a HHFT to be retrofitted to meet the adopted performance requirements, except for top fittings protection. Railroads operating cars that are not retrofitted may choose to retire, repurpose, or operate them under the new speed restrictions for up to five years, based on packing group assignment of the lading.[4] The rule also requires one of these options for new tank cars constructed after October 1, 2015, if those tank cars are used as part of HHFT. In addition, for all three options, PHMSA provides the following timelines for tank cars used as part of HHFT: • For Packing Group I, DOT Specification 111 tank cars are not authorized after October 1, 2017; • For Packing Group II, DOT Specification 111 tank cars are not authorized after October 1, 2018; and • For Packing Group III, DOT Specification 111 tank cars are not authorized after October 1, 2020.
PHMSA-2015-0099, Notice 15-7 – Hazardous Materials: Emergency Response Information Requirements[5]	On April 17, 2015, PHMSA issued this notice to remind hazardous materials shippers and carriers of their responsibly to ensure that current, accurate, and timely emergency response information must be

[1] U.S. Department of Transportation, DOT Announces Final Rule to Strengthen Safe Transportation of Flammable Liquids by Rail, http://www.dot.gov/briefing-room/final-rule-on-safe-rail-transport-of-flammable-liquids (accessed June 22, 2015).

[2] U.S. Department of Transportation, Pipeline Hazardous Materials Safety Administration, Hazardous Materials: Rail Petitions and Recommendations to Improve the Safety of Railroad Tank Car Transportation, Federal Register 80, No.89, (May 8, 2015), 26644, http://www.regulations.gov/#!docketDetail;D=PipelineHazardousMaterialsSafetyAdministration-2012-0082 (accessed June 22, 2015).

[3] Ibid.

[4] Sixty-fourth Legislative Assembly of North Dakota, North Dakota Senate Bill No. 2008, January 6, 2015, http://www.legis.nd.gov/assembly/64-2015/documents/15-8141-06000.pdf?20150622211124 (accessed June 22, 2015).

[5] U.S. Department of Transportation, Federal Railroad Administration. Safety Advisory 2014-01/Pipeline Hazardous Materials Safety Administration-2014-0049; Notice 14-07 – Recommendations for Tanks Cars Used for the

Rules and Regulations	Description
	immediately available to emergency response officials regarding shipments of hazardous materials, and that such information must be maintained on an ongoing basis.
FRA	
Docket No. FRA-2014-0032, Notice No. 2, Securement of Unattended Equipment	On July 29, 2015, the FRA issued the Final Rule for Securement of Unattended Equipment. This amends the brake system safety standards for freight and other non-passenger trains and equipment to strengthen the requirements relating to the securement of unattended equipment.
FRA Emergency Order No. 30, Notice No. 1 – Operating Speed in High-Threat Urban Areas for Trains Transporting Certain Flammable Liquids[6]	On April 17, 2015, the FRA issued an Emergency Order to require that trains transporting large amounts of Class 3 flammable liquid through designated highly populated areas adhere to a maximum authorized operating speed limit. Affected trains must not exceed 40 miles per hour in high threat urban areas, as defined in 49 CFR 1580.3.
FRA Safety Advisory 2015-02/PHMSA 2015-0118, Notice 15-11, Hazardous Materials – Information Requirements Related to Certain Trains Carrying Flammable Liquids[7]	On April 17, 2015, FRA and PHMSA issued this notice to remind railroads operating HHFTs, trains comprised of 20 or more loaded tank cars with a Class 3 flammable liquid in a continuous block, or any train with 35 or more loaded tank cars of a Class 3 flammable liquid across the entire train (as well as the offerors of the materials being transported), that specific requested information may be required by PHMSA and/or FRA personnel during the course of an investigation immediately following an accident.
FRA Safety Advisory 2015-01 – Inspections and Standards for Certain Trains Transporting Flammable Liquids	On April 17, 2015, the FRA issued this advisory recommending enhancements to the mechanical safety of the cars in trains transporting large quantities of Class 3 flammable liquids. This advisory recommends that railroads use highly qualified individuals to conduct the brake and mechanical inspections, and recommends a reduction to the impact threshold levels the industry currently uses for wayside detectors. These threshold levels measure wheel impacts to ensure the tank cars' wheel integrity.
Docket No. DOT-OST-2014-0067 – Petroleum Crude Oil Railroad Carriers[8]	This notice, issued May 7, 2014, is an Emergency Restriction/Prohibition Order from USDOT pursuant to 49 United States Code (USC) 5121(d). The order went to all railroad carriers that transport, in a single train in commerce within the US, at least 1 million gallons or more of Class 3 light sweet crude oil. USDOT now requires the railroads to provide notification to State Emergency Response Commissions (SERCs) when trains meeting this criteria move through that SERC's state. Notification must identify each county through which the trains will operate.
FRA Safety Advisory 2014-	This safety advisory provides notice to companies that ship bulk

Transportation of Petroleum Crude Oil by Rail, http://www.fra.dot.gov/eLib/details/L05222 (accessed June 22, 2015).

[6] U.S. Department of Transportation, Emergency Order: Emergency Restriction/Prohibition, 2014, http://www.transportation.gov/sites/dot.gov/files/docs/Emergency%20Restriction%20-%20Prohibition%20Order%20(Docket%20DOT-OST-2014-0025).pdf (accessed June 22, 2015).

[7] U.S. Department of Transportation, Pipeline Hazardous Materials Safety Administration, Notice 15-7 – Hazardous Materials: Emergency Response Information Requirements, 2015-0099, April 17, 2015, http://www.phmsa.dot.gov/staticfiles/PipelineHazardousMaterialsSafetyAdministration/DownloadableFiles/Files/PipelineHazardousMaterialsSafetyAdministration_Notice_15_7_Emergency_Response_Info_Requirements.pdf (accessed June 22, 2015).

[8] U.S. Department of Transportation, Federal Railroad Administration, Notice of Safety Advisory 2015-02/Pipeline Hazardous Materials Safety Administration 2015-0118, Hazardous Materials: Information Requirements Related to the Transportation of Trains Carrying Specified Volumes of Flammable Liquids, http://phmsa.dot.gov/staticfiles/PipelineHazardousMaterialsSafetyAdministration/DownloadableFiles/Files/fra_phmsa_info_sa_4_17_15_2015_04_16_181411.pdf (accessed June 22, 2015).

Rules and Regulations	Description
01/PHMSA-2014-0049; Notice 14-07 – Recommendations for Tanks Cars Used for the Transportation of Petroleum Crude Oil by Rail[9]	quantities of Class 3 light sweet crude oil within the US. It encourages offerors and rail carriers to take additional precautionary measures to enhance the safe shipment of light sweet crude oil by rail. The advisory urges offerors and carriers to select and use the railroad tank car designed with the highest level of integrity that is reasonably available within their fleet.
One Time Movement Authorization Revision	FRA has the authority to issue one-time approvals for the movement of compromised or damaged railcars that no longer conform to Hazardous Materials Regulations (49 CFR 171-180). FRA publishes the Hazardous Materials Guidance 127 (HMG-127), which provides the procedures to be followed by the regulated community to obtain approvals to move such cars (known as "noncompliant bulk packages"). HMG-127 establishes a "standing approval" for certain minor flaws. That means, in most cases, shippers can move tank cars with defective safety valves, dented metal, leaky heating coils (for heavy crude), or bad bottom outlet valves without formal FRA approval. Revision to this authority (Revision 4) issued October 7, 2014, include: Development of a flowchart to assist in determining the appropriate one-time movement approval (OTMA) category for a specific defect Clarification that OTMA approval is also required to move an empty non-conforming USDOT specification railcar Expansion of the use of a standing approval, provided that an accurate and complete notification is submitted, and that the defect is specifically allowed
Private Industry	
BNSF-Specific Crude Oil Safety Measures	A BNSF press release issued in March 2015 provided a list of BNSF-specific actions aimed to reduce risk of rail accidents. Actions that became effective in March and April 2015, include lower train speeds of 35 mph for all shale oil trains operating through municipalities with populations of 100,000 or more; formal community outreach initiative; development of a real-time geographic information system (GIS) tracking application for state emergency responders; increased track inspections along critical waterways; and increased trackside safety technology with Hot Bearing Detectors spaced every 10 miles along critical waterways.[10]

[9] Bakken Crude Stabilization Act of 2015, HR1679, 114th Congress, Congressional Record, https://www.congress.gov/bill/114th-congress/house-bill/1679?q=%7B%22search%22%3A%5B%22HR+1679%22%5D%7D (accessed June 22, 2015).

[10] BNSF. Specific Crude Oil Safety Measures Implemented by Railroads (2014 and 2015). Print.

1.2 Chronology of PHMSA and FRA Safe Transportation of Energy Products Regulations

Table A-2. Chronology of PHMSA and FRA Safe Transportation of Energy Products Regulations

PHMSA and FRA Safe Transportation of Energy Products Chronology September 2012 – October 2015	
October 14, 2015	PHMSA invited comments on the topic of Flammable Hazardous Materials by Rail Transportation. This information collection pertains to requirements for the creation of a sampling and testing program for unrefined petroleum-based products and rail routing for High Hazard Flammable Trains (HHFTs), routing requirements for rail operators, and the reporting of incidents that may occur from HFFTs. This reporting requirement would require owners of non-jacketed DOT-111 tank cars in Packing Group I service in an HHFT to report to DOT the following information regarding the retrofitting progress: The total number of tank cars retrofitted to meet the DOT-117R specification; The total number of tank cars built or retrofitted to meet the DOT-117P specification; The total number of DOT-111 tank cars (including those built to CPC-1232 industry standard) that have not been modified; The total number of tank cars built to meet the DOT-117 specification; and The total number of tank cars built or retrofitted to a DOT-117, 117R, or 117P specification that are Electronically Controlled Pneumatic (ECP) brake ready or ECP brake equipped.
August 20, 2015	FRA issued a Safety Advisory to emphasize the importance of timely repairing ballast defects and conditions on main tracks. FRA notes that ballast defects and ballast conditions that are not repaired in a timely manner can lead to future defects.
August 18, 2015	PHMSA invited comments on the topic of Hazardous Materials Shipping Papers and Emergency Response Information. This information collection is for the requirement to provide a shipping paper and emergency response information with shipments of hazardous materials.
July 29, 2015	The FRA issued the Final Rule for Securement of Unattended Equipment. This amends the brake system safety standards for freight and other non-passenger trains and equipment to strengthen the requirements relating to the securement of unattended equipment.
May 28, 2015	DOT announced that the May 2014 Emergency Order regarding emergency response notifications for shipments of petroleum crude oil by rail will remain in full force and effect until further notice while the agency considers options for codifying the May 2014 disclosure requirement on a permanent basis.
May 14, 2015	PHMSA invited comments on the topic of Flammable Hazardous Materials by Rail Transportation. In the final rule entitled "Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains" PHMSA and FRA adopted a risk-based timeline for the retrofit of existing tank cars to meet an enhanced CPC-1232 standard when used as part of an HHFT. The retrofit timeline focuses on two risk factors, the packing group and differing types of DOT-111 and CPC-1232 tank cars. The timeline provides an accelerated risk reduction that more appropriately addresses the overall risk. The timeline is provided in the §§ 173.241, 173.242, and 173.243 tables of the final rulemaking (80 FR 26643) and includes a January 1, 2017 deadline for of non-jacketed DOT-111 tank cars in PG I service in an HHFT. Not adhering to the January 1, 2017 deadline would trigger a reporting requirement. This reporting requirement would require owners of non-jacketed DOT-111 tank cars in Packing Group I service in an HHFT to report to DOT the following information regarding the retrofitting progress: The total number of tank cars retrofitted to meet the DOT-117R specification; The total number of tank cars built or retrofitted to meet the DOT-117P specification;

PHMSA and FRA Safe Transportation of Energy Products Chronology September 2012 – October 2015	
	The total number of DOT-111 tank cars (including those built to CPC-1232 industry standard) that have not been modified; The total number of tank cars built to meet the DOT-117 specification; and The total number of tank cars built or retrofitted to a DOT-117, 117R, or 117P specification that are Electronically Controlled Pneumatic (ECP) brake ready or ECP brake equipped. Although this reporting requirement applies to individual owners of non-jacketed DOT-111 tank cars in PG I service in an HHFT, DOT would accept a consolidated report from a group representing the affected industries. Furthermore, while not adhering to the January 1, 2017 retrofit deadline triggers an initial reporting requirement, it would also trigger a requirement that would authorize the Secretary of Transportation to request additional reports of the above information with reasonable notice.
May 1, 2015	USDOT announced Final Rule to strengthen the safe transportation of flammable liquids by rail. The Final Rule applies to trains transporting large volumes of flammable liquids and will make significant and extensive changes to improve accident prevention, mitigation, and emergency response.
April 17, 2015	PHMSA issued a Safety Advisory to remind hazardous materials shippers and carriers of their responsibility to ensure that current, accurate and timely emergency response information is immediately available to first responders. PHMSA and FRA issued a Safety Advisory to remind railroads operating a high-hazard flammable train that certain information may be required by PHMSA and/or FRA personnel during the course of an investigation immediately following an accident. FRA issued an Emergency Order to require that trains transporting large amounts of Class 3 flammable liquid through certain highly populated areas adhere to a maximum authorized operating speed of 40 mph. FRA issued a Safety Advisory recommending that railroads use highly qualified individuals to conduct the brake and mechanical inspections and recommends a reduction to the impact threshold levels the industry currently uses for wayside detectors that measure wheel impacts to ensure the wheel integrity of tank cars in those trains. FRA issued a notice and comment request seeking to gather additional data concerning rail cars carrying petroleum crude oil in any train involved in an FRA reportable accident. FRA Acting Administrator sent a letter to the Honorable Edward Hamberger, president of the Association of American Railroads, asking continued commitment of its member railroads to address the safety issues presented.
February 5, 2015	USDOT submitted a draft Final Rule on the safe transportation of flammable liquids (including crude oil) by rail to the Office of Management and Budget for formal review.
December 11, 2014	PHMSA hosted a follow-up meeting with emergency response officials to address gaps in preparedness and training since February 10, 2014 engagement.
July 23, 2014	USDOT released comprehensive rulemaking proposal to improve the safe transportation of large quantities of flammable materials by rail, including a Notice of Proposed Rulemaking for enhanced tank car standards, an Advanced Notice of Proposed Rulemaking seeking to expand oil spill response planning requirements for shipments of flammable materials, and a report summarizing the analysis of Bakken crude oil data gathered by PHMSA and FRA.
May 13, 2014	Secretary Foxx dispatched a letter to 48 state governors and select city mayor's alerting them about the issuance of Emergency Order OST-2014-0067 and urging them to facilitate coordination between the rail industry, State Emergency Response Commissions and local first responders.
May 7, 2014	USDOT issued Emergency Order requiring railroad carriers to inform first responders about crude oil being transported through their towns and communities.
May 7, 2014	PHMSA and FRA issued a Safety Advisory requesting companies to take all possible

PHMSA and FRA Safe Transportation of Energy Products Chronology September 2012 – October 2015	
	steps to avoid the use of DOT 111 tank cars when transporting Bakken crude oil.
May 1, 2014	USDOT sent a comprehensive PHMSA rulemaking package to the White House Office of Information and Regulatory Affairs (OIRA). The proposal includes options for enhancing tank car standards and retrofitting.
April 1, 2014	As an outgrowth of the Working Groups established at the August 2013 Emergency Meeting of FRA's RSAC, two of the working groups produced recommendations that were adopted by the full RSAC for consideration in future rulemakings. Based upon the efforts of the Securement Working Group and the approval of the full RSAC, the FRA plans to issue a Notice of Proposed Rulemaking (NPRM) later this year. The RSAC recommendations on train securement would prohibit certain unattended freight trains or standing freight cars on main track or sidings and require railroads to adopt and implement procedures to verify securement of trains and unattended equipment for emergency responders. It would also require locomotive cabs to be locked and reversers to be removed and secured. Railroads would also be required to obtain advance approval from FRA for locations or circumstances where unattended cars or equipment may be left. Additionally, the full RSAC approved four recommendations of the Hazardous Materials Issues Working Group relating to identification, classification, operational control and handling of certain shipments. The four recommendations, directed to the Pipeline and Hazardous Materials Safety Administration (PHMSA), include amending or revising the definitions of "residue" and "key train," and clarifying its regulatory jurisdiction over the loading, unloading and storage of hazmat before and during transportation. (See May 1, 2014 entry below.). The third Working Group, established to consider Appropriate Train Crew Size requirements was unable to reach a consensus. However, the valuable input received during their deliberations will allow FRA to move forward with developing a proposed rule on train crew size that will protect the public while recognizing the nuance of railroad operations. A Notice of Proposed Rulemaking requiring two-person train crews on crude oil trains and establishing minimum crew size standards for most main line freight and passenger rail operations is expected later this year.
March 6, 2014	To provide further clarity for shippers and to prevent attempts to circumvent the requirements in the recent Emergency Order concerning the safe transport of crude oil by rail, USDOT issued an amended version that specifies which tests are required, while also prohibiting shippers from switching to an alternate classification that involves less stringent packaging.
February 25, 2014	USDOT issued Emergency Order requiring stricter standards to transport crude oil by rail.
February 20, 2014	Transportation Secretary Foxx sent a letter to the Association of American Railroads (AAR) with a list of actions to be voluntarily taken immediately by industry to dramatically improve the safety of railroads transporting crude oil and the communities they move through. AAR President and CEO Edward Hamberger signed the agreement that same day, subsequently followed by individual member railroads. Other railroad signatories include: Genesee & Wyoming, Inc., the Iowa Interstate Railroad, Iowa Pacific Holdings, Wheeling and Lake Erie Railway Company.
February 12, 2014	In response to the Secretary's Call to Action, the American Short Line and Regional Railroad Association (ASLRRA) identified five actions that it believes small railroads can voluntarily take to contribute to a safer national rail network: Train Speed: Unit trains of crude oil will operate at a top speed of no more than 25 mph on all routes. Emergency Response: Railroads will develop a program of best practices to ensure a seamless system of timely and effective emergency response to crude oil spills. Recovery and Environmental Remediation: Railroads will sign master service

PHMSA and FRA Safe Transportation of Energy Products Chronology September 2012 – October 2015	
	agreements with qualified environmental cleanup providers to ensure prompt and effective remediation in all areas subjected to unintentional discharge of crude oil. Tank Car Standards: ASLRRA will support and encourage the development of new tank car standards. Risk Reduction Program: Contingent upon securing a 6-12-month pilot project grant from FRA, ASLRRA plans to create the Short Line Safety Institute.
February 10, 2014	PHMSA met with emergency response stakeholders and industry groups to discuss training and awareness related to the transport of Bakken crude.
January 22, 2014	Secretary Foxx issued follow-up letter to Call to Action participants summarizing industry commitments.
January 16, 2014	Secretary Foxx met with rail company CEOs and rail and energy association leadership as part of the Department's Call to Action to discuss how to maintain safety record even as domestic crude oil production and movement has increased.
January 2, 2014	PHMSA issued a safety alert to notify the general public, emergency responders, shippers, and carriers that the type of crude oil being transported from the Bakken region may be more flammable than traditional heavy crude.
November 20, 2013	PHMSA and FRA issued a safety advisory reinforcing the importance of proper characterization, classification, and selection of a packing group for Class 3 materials.
October 1, 2013	FRA Administrator Szabo sends a letter to railroad industry organization asking they detail actions they have taken in response to the Safety Advisory issued August 2.
September 6, 2013	PHMSA published an Advance Notice of Proposed Rulemaking seeking public comment on a proposed rule requiring comprehensive improvements to rail safety of flammable liquids.
August 29, 2013	Administrator Quarterman and Administrator Szabo address the Railroad Safety Advisory Committee during an emergency session.
August 27-28, 2013	FRA and PHMSA host a joint public meeting to receive public input on improving the safe transport of hazardous materials by rail.
August 2, 2013	FRA issued Emergency Order No. 28, requiring railroads to properly secure rolling equipment. FRA also published a Safety Advisory recommending additional actions.
July 29, 2013	In a letter to the American Petroleum Institute, FRA informed industry that it will use PHMSA's test sampling program to ensure that crude oil is being properly tested and classified.
July 18, 2013	FRA and PHMSA announced a two-day public meeting on August 27 and 28 in Washington, DC, to receive public input on improving the safe transport of hazardous materials by rail, including a discussion on enhanced design specifications for the DOT-111 tank cars commonly used to transport petroleum crude oil and ethanol and operational issues related to the rail transportation of hazardous materials.
December 2012	FRA initiated several steps to address the risks related to increases in rail traffic in the Bakken Oil Region, the point of origin for most crude oil by rail shipments in the U.S. Under our Bakken Rail Accident Mitigation Project (RAMP), FRA conducted additional hazardous materials safety inspections in the area as well as facilitating hazardous materials safety training seminars with shippers, consignees, contractors, and sub-contractors. In addition, as a result of increased commercial motor vehicle traffic in the region associated with crude oil production, FRA worked with stakeholders, participating agencies, local officials and rail carriers on highway-rail grade crossing safety and trespass prevention, to increase law enforcement patrols at grade crossings and expanded educational outreach to professional drivers (including public service announcements and advertisements at major truck stops in the area).
October 2012	PHMSA Bakken Field Working Group established to increase inspection focus on hazmat shipments by truck and rail from the Bakken region and increase awareness within the emergency response community.
September 2012	PHMSA Administrator Quarterman visits North Dakota Bakken Region to observe operations at rail loading facilities and the application of USDOT regulations.

1.3 Bills of Relevance – 114th U.S. Congress

Table 4. Bills of Relevance – 114th U.S. Congress

Number	Name	Sponsor	Date Introduced	Date Referred to Committee	Summary
H.R. 2834	To enact certain laws relating to the environment as title 55, United States Code, "Environment"[11]	Rep. Tom Marino [R-PA]	6/18/2015	6/18/2015	The purpose of this Act is to codify certain existing laws relating to the environment as a positive law title of the United States Code.
S. 1462	Eliminating Dangerous Oil Cars and Ensuring Community Safety Act[12]	Sen. Charles Shumer [D-NY]	5/22/2015	5/22/2015	Bill to improve the safety of oil shipments by rail and for other purposes.
H.R. 2379	To prohibit the transportation of certain volatile crude oil by rail.[13]	Rep. Nita Lowey [D-NY]	5/15/2015	5/18/2015	To prohibit the transportation of certain volatile crude oil by rail
S. 1175	Hazardous Materials Rail Transportation Safety Improvement Act of 2015[14]	Ron Wyden [D-OR]	4/30/2015	4/30/2015	To improve the safety of hazardous materials rail transportation, and for other purposes
H.R. 2074	The Toxics by Rail Accountability and Community Knowledge (TRACK) Act[15]	Rep. Donald Norcross [D-NJ]	4/28/2015	4/29/2015	Bill to "improve hazmat-by-rail safety by implementing a series of recommendations made by the National Transportation Safety Board (NTSB) following the 2012 train derailment in Paulsboro, NJ.

[11] U.S. Congress, H.R.2834 - To enact certain laws relating to the environment as title 55, United States Code, "Environment." https://www.congress.gov/bill/114th-congress/house-bill/2834/text (accessed June 29, 2015).

[12] U.S. Congress, S.1006 - Eliminating Dangerous Oil Cars and Ensuring Community Safety Act https://www.congress.gov/bill/114th-congress/senate-bill/1462/text?q=%7B%22search%22%3A%5B%22%5C%22s1462%5C%22%22%5D%7D (accessed June 29, 2015).

[13] U.S. Congress, H.R.2379 - To prohibit the transportation of certain volatile crude oil by rail. https://www.congress.gov/bill/114th-congress/house-bill/2379/text?q=%7B%22search%22%3A%5B%22%5C%22hr2379%5C%22%22%5D%7D (accessed June 29, 2015).

[14] U.S. Congress, S.1175 - Hazardous Materials Rail Transportation Safety Improvement Act of 2015, https://www.congress.gov/bill/114th-congress/senate-bill/1175/text?q=%7B%22search%22%3A%5B%22%5C%22s1175%5C%22%22%5D%7D (accessed June 29, 2015).

[15] U.S. Congress, All Bill Information for S. 546 – RESPONSE Act of 2015, https://www.congress.gov/bill/114th-congress/senate-bill/546/all-info#summary (accessed June 29, 2015).

Number	Name	Sponsor	Date Introduced	Date Referred to Committee	Summary
S. 1041 H.R. 1930	End Polluter Welfare Act of 2015[16]	Sen. Bernard Sanders [I-VT]/ Rep. Keith Ellison [D-MN]	4/22/2015	S. 1041: 4/22/2015 HR 1930: 08/18/15	Amends a variety of environmental acts, including, the Oil Pollution Act to eliminate the limitation on liability for offshore facilities and pipeline operators for oil spills
S. 1006	Positive Train Control Safety Act[17]	Sen. Dianne Feinstein [D-CA]	4/16/2015	4/16/2015	Bill to modify specific sections of Section 20157 (a) (1) of title 49, U.S. Code. Among the changes is incentivizing early adoption of positive train control.
H.R. 1804	Crude-By-Rail Safety Act[18]	Rep. Jim McDermott [D-WA]	4/15/2015	4/16/2015	Bill to protect the public, communities across America, and the environment by increasing the safety of crude oil transportation by railroad, and for other purposes.
H.R. 1789	Tank Car Safety and Security Act of 2015[19]	Donald Payne [D-NJ]	4/14/2015	4/27/2015	Directs the Secretary of Transportation (DOT) to revise federal regulations regarding DOT-111 tank cars used to move flammable liquids. Directs the Administrator of the Transportation Security Administration to issue regulations to require that all rail safety coordinators ensure that no tank car containing crude oil is left unattended during any period that it is being transferred between railroad carriers or between a railroad carrier and a shipper. Directs the Secretary to submit to Congress a plan to phase out older-model DOT-111 tank cars that are not retrofitted to meet the new federal requirements.
H.R. 1679	Bakken Crude	Rep. John	3/26/2015	3/27/2015	This bill authorizes Bakken crude

[16] U.S. Congress, S.1041 - End Polluter Welfare Act of 2015, https://www.congress.gov/bill/114th-congress/senate-bill/1041?q=%7B%22search%22%3A%5B%22%5C%22s1041%5C%22%22%5D%7D (accessed June 29, 2015).

[17] U.S. Congress, S.1006 - A bill to incentivize early adoption of positive train control, and for other purposes https://www.congress.gov/bill/114th-congress/senate-bill/1006?q=%7B%22search%22%3A%5B%22%5C%22s1006%5C%22%22%5D%7D (accessed June 29, 2015).

[18] U.S. Congress, H.R.1804 - Crude-By-Rail Safety Act, https://www.congress.gov/bill/114th-congress/house-bill/1804?q=%7B%22search%22%3A%5B%22%5C%22hr1804%5C%22%22%5D%7D (accessed June 29, 2015).

[19] U.S. Congress, H.R.1789 - Tank Car Safety and Security Act of 2015, https://www.congress.gov/bill/114th-congress/house-bill/1789?q=%7B%22search%22%3A%5B%22%5C%22hr1789%5C%22%22%5D%7D (accessed June 29, 2015).

Number	Name	Sponsor	Date Introduced	Date Referred to Committee	Summary
	Stabilization Act of 2015[20]	Garamendi [D-CA]			oil to be transported by rail only if it has a Reid vapor pressure of not more than 9.5 pounds per square inch (the maximum volatility set by the New York Mercantile Exchange for crude oil futures contracts).
S. 859	Crude-by-Rail Safety Act	Sen. Maria Cantwell [D-WA]	3/25/2015	3/25/2015	Bill calls for enhanced breaking mechanisms, raising the standards for tank car safety, increasing crude-by-rail inspections, increasing penalties for non-compliance, considerable changes for all rail oil spill response plans, and further research on tank car design and oil-volatility levels. The bill also includes many changes to emergency response resource inventories and would mandate reporting on "close-call" incidents.
H.R. 1290	To provide for a study by the Transportation Research Board of the National Academies on the impact of diverting certain freight rail traffic to avoid urban areas, and for other purposes.21	Rep. Keith Ellison [D-MN]	3/4/2015	3/5/2015	To provide for a study by the Transportation Research Board of the National Academies on the impact of diverting certain freight rail traffic to avoid urban areas, and for other purposes.

[20] U.S. Congress, H.R.1679 - Bakken Crude Stabilization Act of 2015, https://www.congress.gov/bill/114th-congress/house-bill/1679?q=%7B%22search%22%3A%5B%22Bakken+Crude+Stabilization+Act+2015%22%5D%7D (accessed June 29, 2015).

[21] U.S. Congress, H.R.1290 - To provide for a study by the Transportation Research Board of the National Academies on the impact of diverting certain freight rail traffic to avoid urban areas, and for other purposes. https://www.congress.gov/bill/114th-congress/house-bill/1290/titles?q=%7B%22search%22%3A%5B%22provide+for+study+the+Transportation+Research+Board+National+Academies+impact+diverting+certain+freight+rail+traffic+avoid+urban+areas%22%5D%7D (accessed June 29, 2015).

2.0 Appendix B - Past State Studies of Crude Oil and Ethanol Transportation Risks, Prevention, and Response

2.1 Summary of State and Federal Studies

2.1.1 California

State of California Interagency Rail Safety Working Group. "Oil by Rail Safety in California: Preliminary Findings and Recommendations." June 10, 2014. 20 pages.

Report Initiatives and Purpose

This preliminary study was the first document released by the state's Rail Safety Working Group, an interagency committee comprised of representatives from six state agencies that was convened by the California Governor's Office in January 2014 to examine safety concerns associated with crude-by-rail transportation and recommend actions the state and local agencies should take in response to those risks. The Rail Safety Working Group consists of representatives from the California Public Utilities Commission; California Office of Emergency Services; California Environmental Protection Agency, Department of Toxic Substances Control; California Energy Commission; California Natural Resources Agency; California Office of the State Fire Marshal, Department of Oil, Gas and Geothermal Resources, and Office of Spill Prevention and Response.

This report is a summary of the initial recommendations put forth by the working group.

Report Summary and Scope

Within the span of one year, between 2012 and 2013, the way in which oil is transported within California changed dramatically. In 2012, about 70 percent of the oil imported by California refineries came through marine terminals and only 0.3 percent (about 1 million barrels) came by rail. One year later, crude by rail shipments in California increased six-fold, to 6.3 million barrels, and projections indicate the volume of oil entering the state by rail could jump to 25 percent of all refinery imports, up to 150 million barrels, by 2016. Most of the crude oil that has arrived in California by rail has come from North Dakota and Canada.

The study indicated that while the incidents involving crude by rail transportation have been minimal, the potential for highly dangerous or deadly incidents will increase because of the shear increase in the volume of crude oil transported by rail.

The study summarized the eight major crude-by-rail incidents that occurred in 2013 and 2014, and their causes. The working group identified and mapped the major rail routes traversed by unit trains of crude oil and identified the locations along each route with potential high vulnerability (such as high-derailment-risk urban areas and mountainous areas, and areas of vulnerable natural resources), and the locations of emergency response teams in relation to these highly vulnerable areas.

The study also looked at the state's ability to respond to CBR incidents and found the following:

- High-hazard areas for derailments are primarily located in the mountains, with at least one such site along every rail route into California. Other high-hazard areas are located in urban areas. In ten years (2002-2013), these areas encompass two percent of the state's trackage but have experienced 18 percent of the state's reported train derailments.

- Areas of vulnerable natural resources are located throughout California, and are locations where any rail incident would place waterways and sensitive ecosystems at risk.
- Urban areas are generally well covered by hazardous material response teams, but none are located near the high-hazard areas in rural and mountainous northern California. Other rural areas only have "Type III Hazmat" teams that are only able to provide a support role, not a lead role, in case of a major chemical or oil incident.

The study briefly summarized federal and state actions taken to increase the safety of crude-by-rail transportation. The bulk of the study was devoted to presenting recommendations from the working group.

2.1.2 Massachusetts

Commonwealth of Massachusetts Department of Environmental Protection. "Large Volume Ethanol Spills—Environmental Impacts and Response Options." Prepared by Shaw's Environmental and Infrastructure Group. July 2011. 107 pages.

Report Initiatives and Purpose

Growing volumes of ethanol shipments through Massachusetts in the late 2000s prompted the state Department of Environmental Protection to commission this study. By 2010, two to three unit trains of ethanol per week had been operating through Massachusetts, with each train carrying approximately three million gallons of ethanol, and one barge shipment per week had been carrying approximately 630,000 gallons of ethanol.

The Massachusetts Department of Environmental Protection, concerned about the increasing volumes of ethanol being transported by rail and barge through the state, and the differences in ethanol compared to standard gasoline, commissioned Shaw to prepare a study containing information on the environmental impacts of ethanol spills and emergency response techniques for treating ethanol and ethanol blends spills and fires.

Report Summary and Scope

This is the only comprehensive state-sponsored study that could be found assessing the environmental impacts and emergency response options for incidents involving rail and barge shipments of ethanol. The report contends that by 2010, denatured ethanol had become the largest volume hazardous material shipped by rail. This study considers assessment and response actions for rail and barge spills of denatured ethanol. The anticipated users of the study were local, state, and federal responders.

Thirty-two federal, state, and local agencies provided information and support for the study. Not only were agencies within the state of Massachusetts contacted, but six other states participated as well; the Ohio DEP, Illinois DEP, and Pennsylvania DEP provided information. In addition, six private-sector organizations were contacted, including one regional railroad, one transload operator, one refinery, and an oil company.

The study was divided into seven chapters, covering:

- Objectives and scope of document
- Physical and chemical characteristics of ethanol and gasoline blends

- Summary of ethanol spill incidents
- Fate and transportation characteristics of ethanol released in the environment
- Health effects and environmental risks of ethanol
- Spill assessment and delineation
- Response options for various types of ethanol spills and releases

The study provides a thorough look at the field response techniques for treating large-volume releases of denatured alcohol or ethanol blends during transportation by rail or barge. It does not address incidents or releases associated with the production, transloading, storage, or highway shipment of ethanol, although much of the information on the characteristics of ethanol and potential environmental risks resulting from spills and fires would be relevant.

2.1.3 Minnesota

Minnesota Department of Public Safety. "Minnesota's Preparedness for an Oil Transportation Incident." January 15, 2015. 192 pages

Report Initiatives and Purpose

1. Summarize the preparedness and emergency response framework in the state
2. Provide an assessment of costs and needs of fire departments and other emergency first responders for training and equipment to respond to discharge or spill incidents involving transportation of oil
3. Develop a comprehensive public and private response capacity inventory that, to the extent feasible, includes statewide identification of major emergency response equipment, equipment staging locations, mutual aid agreements, and capacities across industries involved in transportation and storage of oil
4. Provide information and analysis that forms the basis for allocation of funds under Minnesota Statutes, section 299A.55
5. Develop benchmarks or assessment criteria for the evaluation under Subdivision 2 [an evaluation of response preparedness and funding to be completed by January 2017]
6. Assist in long-range oil transportation incident preparedness planning
7. Make recommendations for any legislative changes

Report Study, Scope, and Methods

- Focuses on public safety preparedness and response to an oil transportation incident involving railroads or pipelines in Minnesota
    - does not provide analysis or recommendations on prevention activities, environmental mitigation and clean-up, infrastructure development (such as transportation or health system infrastructure), or relative merits of different modes of oil transportation
- Methods

- Review and analysis of information on state and federal laws, state and federal agencies, approaches developed by other states and provinces, and research, analysis, guidance from experts in the field of emergency preparedness and response
- Comprehensive interviews with subject matter experts, including rail and pipeline company representatives, state agency representatives, and associations of first responders and local governments
- A survey of fire department chiefs, sheriffs, police department chiefs, and emergency managers in jurisdictions that are potentially affected by an oil transportation incident
- Focused interviews with state and local elected officials in areas potentially affected by an oil transportation incident

Responsibilities

Under state and federal law, Minnesota has a comprehensive framework that would apply to an oil transportation incident:

- Railroad and pipeline companies are ultimately responsible for responding to an emergency involving the substances they transport. They must have plans in place to prevent and respond to discharges, and they must pay any costs associated with responding to a discharge.
- State agencies, particularly DPS and MPCA, have responsibilities associated with evaluating preparedness, coordinating agency response, and providing advice and resources to local governments during significant emergencies.
- Local governments are responsible for ensuring public safety in their communities; in all but the most catastrophic incidents, local officials are the incident commanders on scene. Local governments develop plans to respond to emergencies that may affect their communities, and they are empowered to develop mutual aid agreements and interjurisdictional organizations.
- Minnesota's statutory framework places an emphasis on coordination and collaboration across governments and sectors.

2.1.4 New York State – First Report

New York State Department of Transportation, New York State Department of Environmental Conservation, New York State Department of Health, New York State Division of Homeland Security and Emergency Services, and New York State Energy Research and Development Authority. "Transporting Crude Oil in New York State: A Review of Incident Response and Prevention Capacity – Status Update." December 2014. 58 pages.

Report Initiatives and Purpose

This report summarized actions taken by five State of New York regulatory agencies in the six-month period since the April 30, 2014 release of publication EO 125 (also summarized below) entitled "Transporting Crude Oil in New York State: A Review of Incident Response and Prevention Capacity." The original publication contained a list of action items and recommendations be taken by state and local government agencies and private industry,

including 11 recommendations the State should implement in order to reduce the State's vulnerability from accidents and spills related to the transportation of crude oil. The Status Update report summarized progress made on those action items.

Report Summary and Scope

The December 2014 Status Update report was intended to memorialize the following actions that had been taken by the State of New York in the six months since the April 2014 publication of EO 125 and included:

- Securing the commitment of the U.S. Coast Guard, Environmental Protection Agency (EPA), and National Oceanic and Atmospheric Administration to expedite emergency response activities and update environmental and contingency response plans
- Arranging for EPA, in consultation with the State Department of Environmental Conservation, to inspect the four Major Oil Storage Facilities in the state where crude oil is transferred from rail tank cars to other transportation modes
- Submitting comments on all federal proposed rulemaking activities related to crude-by-rail transportation and emergency planning issued by FRA, PHMSA, EPA, and other federal agencies. Also petitioning federal agencies to improve emergency plans and matched federal funding programs available to states for emergency preparedness
- Arranging for seven rail inspection "blitzes" conducted by FRA and NYSDOT representatives focusing on inspecting rail mainlines, rail yards, and tank car mechanical safety equipment. Inspections were held at three CSXT yards and two mainlines, and two Canadian Pacific yards and one mainline.
- Hiring five new state DOT rail inspectors to augment the state's existing inspection partnership with FRA
- Creating an interagency working group that has arranged training exercises, emergency drills and oil-related training for local and state responders, working with freight railroads, port and oil terminal operators, and state agencies
- Issuing new guidance from the State Division of Homeland Security and Emergency Services for fire department operations during the initial phases of a rail incident involving crude oil, including estimates of needed supplies such as foam and water depending on the magnitude of the incident (number of tank cars on fire, and number of cars exposed)
- One terminal operator, after reviewing the State's April 2014 report announced it would phase out the use of DOT-111 tank cars and require only CPC-1232 tank cars on its property

2.1.5 New York State – Second Report

New York State Department of Transportation, New York State Department of Environmental Conservation, New York State Department of Health, New York State Division of Homeland Security and Emergency Services, and New York State Energy Research and Development Authority. "Transporting Crude Oil in New York State: A Review of Incident Response and Prevention Capacity." April 30, 2014. 138 pages.

Report Initiatives and Purpose

This report, abbreviated as the Executive Order 125 report, was issued by New York State on April 30, 2014, and prepared by five different state agencies. The need for the New York State report came from an Executive Order issued by the Governor of New York directing the agencies to conduct a review of the state's crude oil incident prevention and response capabilities.

"In recognition of the increased risk of accidents and public concerns associated with the significant volume of crude oil transported through New York State, on January 28, 2014, Governor Andrew M. Cuomo issued Executive Order 125 (EO 125), directing state agencies to immediately conduct a coordinated review of New York State's crude oil incident prevention and response capacity. In EO 125, Governor Cuomo called upon state agencies to address the following specific issues:

1. the State's readiness to prevent and respond to rail and water incidents involving petroleum products;
2. statutory, regulatory, or administrative changes needed at the State level to better prevent and respond to incidents involving the transportation of crude oil and other petroleum products by rail, ship, and barge;
3. the role that local governments across the State play in protecting their communities and their residents from spills of petroleum products shipped by rail and water; and
4. enhanced coordination between the State and federal agencies to improve the State's capacity to prevent and respond to incidents involving the transportation of crude oil and other petroleum products by rail, ship, and barge.

Report Summary and Scope

This report provided an overview of the increase in crude oil transportation by rail and vessel through New York State and assessed the state's ability to effectively prevent and respond to incidents involving the transportation, transloading, and storage of crude oil. The base of information and assessments came from each of the five State agencies with responsibilities for rail safety, environmental protection, emergency response, public health, and energy development.

The Executive Order 125 report was divided into four main parts:

5. The Current Situation: Rising Concerns About the Transportation of Crude Oil (15 pages)
6. Findings and Recommendations: Recommendations and action steps for the federal government, state government, and industry partners (30 pages)
7. Timeline of Events Demonstrating New York State's Commitment to Protect Public Safety and the Environment (4 pages)
8. Appendices: Executive Order 125; Letters to Federal and Industry Partners; Rail Incident and Incident Data; Jurisdictional Agency and Role Descriptions (55 pages)

Key Judgments Made by Report

The first section, assessing the Current Situation, looked at the growth of U.S. and Canadian oil production, and the resulting change in transportation dynamics that has occurred. The report looked at incidents per billion ton-miles of crude oil transported and summarized recent crude oil incidents occurring on rail and inland waterways. The report discussed different crude oil classifications and their risks. The report also discussed railroads in the state involved in CBR transportation and noted that based on ten years of incident reporting rail safety has improved. The report also noted that the increase in crude-by-rail and crude-by-barge transportation has introduced new risks that the state should prepare for. Those risks were summarized in 11 key judgments, as follows:

- New York State is a major conduit for the North American crude oil boom
- The transportation of Bakken and Canadian synthetic and blended crudes each present unique risks
- Major recent incidents involving crude oil transportation have heightened national awareness
- Federal and State agencies have a strong hazardous material oversight safety record, but the sharp increase in crude oil poses new challenges
- The majority of the tank cars used to transport crude oil are outdated
- Recently adopted voluntary measures are incomplete and need to be incorporated into mandatory regulations on an expedited basis
- New York State needs for Bakken producers to provide critical information on crude oil characteristics and to mitigate at the source to ensure safe transportation
- Federal environmental and contingency response plans need to be expanded and updated to account for crude oil
- Trend and train-specific information is needed to prevent and respond to crude oil related incidents
- State legislative, regulatory, and administrative changes would enhance prevention and response capacity
- Local response agencies are the first line of defense and need to be properly trained and equipped

2.1.6 Pennsylvania

University of Delaware. "Assessment of Crude by Rail (CBR) Safety Issues in Commonwealth of Pennsylvania." Prepared by Dr. Allan Zarembski. August 13, 2015. 84 pages.

Report Initiatives and Purpose

The Commonwealth of Pennsylvania commissioned this study to assess the current level of risk associated with Crude by Rail shipments through the state and advise how the state could reduce the risk of a crude-by-rail incident.

Report Summary and Scope

The report used data from various government regulatory agencies, including the Federal Railroad Administration, Pipeline and Hazardous Materials Safety Administration, National Academy of Sciences, and Association of American Railroads, along with federal reports and railroad testimony at government hearings associated with CBR and rail safety. Individual Class I railroads that own track in the Commonwealth of Pennsylvania were contacted for the report.

The risk assessments provided in the report focus on three major areas of crude-by-rail safety:

- Risk of Derailment
- Risk of Tank Car Breach/Rupture
- Regulatory Oversight

The assessment of derailment risk included a summary of derailments by major categories (track, equipment, signals, etc.) both in the state of Pennsylvania and across the U.S. Data for this assessment came from the FRA's track safety database. The report compared incidents by major category (equipment, human factors, track, signal, etc.) that had occurred in Pennsylvania with nationwide totals over a 10-year period. The report also summarized major CBR derailments in the U.S. from 2013 to 2015 and noted the causes, as posted on the FRA's safety database.

The report identified ways to improve inspection or maintenance practices to reduce the potential for occurrence of the highest-risk derailment categories and categories where tank car failures might occur. The report also catalogued the number of asset protection devices (i.e., Hot Box Detectors) currently in place on Pennsylvania's Class I railroads.

The assessment also looked at proposed improvements to tank cars and operations (such as speed reductions) intended to reduce the risk of tank car rupture or breaches. This included a summary of proposed recommendations for various tank car types used to haul crude oil, including an effectiveness rating of puncture resistance for each car type. The report also assessed the risk reduction for tank car breaches from changes to two operating practices: reducing train speed for CBR, and use of ECP braking and other braking performance technologies (two-way end-of-train devices, distributed power).

The regulatory oversight section focused on efforts to reduce the volatility of Bakken crude oil prior to top loading in railcars, efforts for railroads to develop routing plans and procedures for high-hazard flammable trains, and a summary of federal and state agencies with regulatory oversight responsibilities for the transportation of hazardous materials or emergency management activities. The section included a summary of state rail inspection programs, based on information found in the FRA's Rail State Safety Participation Program. The section concluded with a summary of recent improvements and voluntary efforts prescribed the FRA and AAR, and specific operating practices implemented by CSX Transportation and Norfolk Southern to improve the safety and operation of CBR trains.

The report concluded with 27 recommendations for action to be taken by state agencies and railroads operating within the state.

2.1.7 Washington

Washington State Department of Ecology. "Washington State Marine & Rail Oil Transportation Study Preliminary Findings and Recommendations." October 1, 2014. 110 pages.

Report Initiatives and Purpose

This preliminary report preceded a larger, more comprehensive study (570 pages long) that was issued on March 1, 2015.

In April 2014, the Washington State Legislature directed and funded the state Department of Ecology to conduct a study on marine and oil transportation, in consultation with the FRA and state DOT, utilities commission, and emergency management division. The preliminary report containing recommendations for action was released in advance of the larger, comprehensive report as a result of a directive issued by the Governor of Washington State urging a quicker disclosure of findings and recommendations. The purpose of the study was to identify new safety challenges and environmental risks associated with the increase in rail and marine transportation of crude oil from the Bakken field, Canadian bitumen sands, and other new deposits. The report is intended to provide information that the Governor and State Legislature can use to determine what legislative, regulatory, or budgetary actions might be required to maximize the protection of public safety, the environment, Tribal Treaty rights, and the State's natural and economic resources as a result of the changing pattern of crude oil transportation.

Report Summary and Scope

The preliminary report was divided into six sections.

9. The Changing Oil Transportation Picture, which discussed the changes in rail and marine oil transportation, both nationally and in Washington State, the growth in transportation of Bakken crude oil and Canadian bitumen, and the growth of CBR rail-marine transload activities in Washington State.
10. Concerns about Crude by Rail Transportation Risk, which looked at the potential risks of CBR transportation in the areas of public health and safety, tribal treaties, the environment, and socio-economics.
11. Mitigating Risks from Crude by Rail Transportation through Prevention, which assessed the current regulatory framework and presented 11 findings and recommendations
12. Mitigating Potential Risks from Crude by Rail Marine Transportation through Prevention, which included 11 findings and recommendations
13. Mitigating Risks at CBR/marine transload terminals, which included 3 findings and recommendations
14. Mitigating Risk through Preparedness and Response, which included 15 findings and recommendations for action at the national, state, local, and industry level

The report used data from various government and regulatory agencies, including the Federal Railroad Administration, Energy Information Administration, Pipeline and Hazardous Materials Safety Administration, U.S. Coast Guard, and Association of American Railroads. The report also used data previously compiled by the Washington State Department of Ecology and other

state agencies, reports prepared by Washington State universities and regional coalitions, as well as individual correspondence with transload terminal operators.

2.1.8 Government Accountability Office

United States Government Accountability Office. "Report to Congressional Requesters. Oil and Gas Transportation: Department of Transportation Is Taking Actions to Address Rail Safety, but Additional Actions Are Needed to Improve Pipeline Safety." August 2014. 65 pages.

Report Initiatives and Purpose

The U.S. Government Accountability Office (GAO) was asked by the U.S. Senate Committee on Commerce, Science, and Transportation to examine the impact of shale oil and gas development on transportation infrastructure and safety. The GAO focused its review on the following areas:

- Overall challenges facing transportation infrastructure as a result of increased U.S. oil and gas production
- Specific pipeline safety risks and how the USDOT is addressing them
- Specific rail safety risks and how the USDOT is addressing them

Report Summary and Scope

To prepare its report, the GAO analyzed federal transportation infrastructure and safety data primarily from 2008 to 2012 or 2013, reviewed documents, and interviewed agency, industry, and safety stakeholders, as well as state and industry officials in states with large-scale shale oil and gas development.

The report is divided into seven sections covering:

- Challenges to transportation infrastructure from increased oil and gas production that could pose environmental, safety, or economic risks
- Safety risks from the expansion of unregulated gathering pipelines
- Federal efforts to address risks related to growing crude-by-rail traffic
- Conclusions and recommendations
- Study objectives, scope, and methodology
- Impacts of shale oil and gas development on highways in selected states
- Comments from the USDOT

The report found that from 2007 through 2012 annual production from shale and tight sandstone formations increased more than six fold for crude oil and fivefold for natural gas, aided significantly by advances in hydraulic fracturing and horizontal drilling. Much of the growth in production has occurred in regions with limited transportation linkages to processing facilities. In particular, the limited pipeline capacity to transport crude oil from these new production regions has resulted in an increased use of rail, truck, and barge. Use of these modes has increased safety risks to the natural and human environment, particularly when oil or gas is transported by truck, in comparison to pipeline transportation, which is underground. Use of these modes can also be

more expensive than pipelines and contribute to lost revenue, higher energy prices, and hindered development.

The report discussed the new pipelines being built in regions of increased shale oil and gas production. These new pipelines are being built as gathering pipelines, which traditionally are used as feeder pipelines to reach facilities or feed to higher-volume long-distance pipelines. However, the new generation of gathering pipelines under construction are larger in size and will operate at a higher pressure, increasing the safety risk. Neither the PHMSA nor states have a systematic method of gathering data on new construction of gathering pipelines, although one trade group estimates an annual increase of 14,000 miles of gas gathering pipelines and 7,800 miles of oil gathering pipelines per year through 2035. Further, in rural areas, the operation of gathering pipelines is unregulated, and these pipelines do not have to comply with PHMSA's emergency response planning requirements, even though the new pipelines will be larger and operating at the size and pressure (and therefore with similar risk) as federally regulated transmission lines.

The USDOT began a rulemaking to address this issue in 2011 but did not issue proposed rules. Subsequently, new gathering pipeline infrastructure has continued to grow, with industry predicting such growth will continue for the foreseeable future, raising concerns where such pipelines are not subject to safety regulations.

Rail shipments of crude oil in 2013 grew to 407,761 carloads per year, a dramatic increase from the approximately 9,700 carloads of crude oil moved in 2008. The majority of the oil is transported in unit trains consisting of 80 to 120 tank cars, each carrying about 30,000 gallons of oil. Nearly 50,000 tank cars were used to transport crude oil by rail as of April 2014. According to STB data, about 69 percent of the crude oil transported by rail in 2012 originated in North Dakota; Texas originated an additional 11 percent of crude oil carloads. The growth in shipments of crude oil by rail has revealed risks not fully addressed by current rail safety regulations, particularly in ensuring that oil is properly tested and packaged for shipping.

Changes to regulations have primarily focused on upgrades to tank car safety standards, although other areas of railroad transportation also should be looked at to improve the safety of crude-by-rail transportation, such as track inspection requirements. The DOT has begun to issue emergency orders and proposed rulemakings covering railroad operations that begin to address safety risks of transporting crude oil by rail. Railroads have also entered into a voluntary agreement with the USDOT in February 2014 to improve the safety of crude oil trains, including increased track inspections, improved emergency braking capabilities, use of a risk-based routing tool to identify the safest routes for transporting crude oil, lower-speed operation for crude oil trains, and emergency response training and planning.

2.1.9 Congressional Research Service

Congressional Research Service. "U.S. Rail Transportation of Crude Oil: Background and Issues for Congress." December 4, 2014. 28 pages.

Report Initiatives and Purpose

This report was prepared for the members and committees of the U.S. Congress to provide background information and issues associated with U.S. rail transportation of crude oil. Several rail incidents that occurred in 2013 involved unit trains of crude oil, including the fatal fire and

explosion in Lac-Mégantic, Quebec, prompted regulatory agencies in the United States and Canada to issue new regulations and propose additional rules governing the transportation of crude oil by rail. Some members of Congress called for stricter regulations governing the design of tank cars, prevention of train derailments, and the selection of preferred routes for transporting oil. Many of these issues faced a possibility of being included in a reauthorization of the Rail Safety Improvement Act of 2008. This report was prepared to succinctly summarize the issues associated with crude oil transportation by rail.

Report Summary and Scope

The report discusses the increases in rail transportation of crude oil, driven by the rapid growth of oil production in the U.S. and Canada and the lack of sufficient pipeline infrastructure from new production regions to domestic markets. The report also stressed that railroads consistently spill less crude oil per ton-mile than other modes of land transportation.

The report is divided into four sections covering:

- The role of railroads, barges, and trucks in crude oil transportation
- Oil spill concerns, particularly those associated with Bakken crude and Canadian dilbit
- Federal oversight of oil transport by rail
- Issues for Congress concerning tank car safety, derailment prevention, railroad operations, incident response, and tradeoffs over rail vs. other modes in oil transportation

The report was prepared by specialists in transportation policy, energy policy, energy economics, environmental policy, and energy and infrastructure policy.

There were no findings or recommendations.

2.2 Discussion of Each Study's Findings and Recommendations

2.2.1 California Study Findings and Recommendations

Table B-1. California Study Findings and Recommendations

Finding	Recommendation
The number of state rail inspectors that handle inspections, investigations, and risk assessment and analysis for rail operations is inadequate for the current and projected volumes of oil shipments occurring in California.	Increase the number of California Public Utilities Commission rail inspectors by seven to increase agency inspections and enforcement actions related to tank cars, railroad lines, bridges, and hazardous material shipping requirements associated with the increases in crude-by-rail transportation.
The state's oil spill program prevents, prepares for, and cleans up oil spills in waters off the California coast, and is funded by a per-barrel oil fee of 6.5 cents on oil transported over marine water. There is no comparable fee structure or authority for preparedness activities for pipeline or crude-by-rail.	Expand the state's Oil Spill Prevention and Response program to cover inland oil spills, and the per-barrel fee to fund the program should be expanded to cover all sources of crude oil sent to refineries in the state.
Local emergency response offices, particularly those in rural areas do not have adequate resources to respond to crude-by-rail accidents. Many of these offices rely on volunteer firefighting departments, which lack the	Provide additional state funding for local emergency responders and establish regional hazardous material response teams that could be called upon to respond to CBR incidents and assist local offices as needed.

Finding	Recommendation
necessary forces, training, and equipment to respond to an oil-by-rail incident.	
Emergency response plans are developed at the federal, state, and local level, and implemented by local and regional agencies without regulated uniformity.	The state Office of Emergency Services (OES) should review and update local, state, and federal emergency response plans to ensure they address the risks associated with the increased transportation of oil by rail. The state OES should also update six Regional Plans for Hazardous Materials Emergency Response, with the goal of developing a more standardized approach to local emergency planning and include elements for responding to crude-by-rail incidents.
Emergency responders lack basic, critical information needed to plan for crude-by-rail incidents, including what resources railroads can provide in the event of an accident and how railroads would respond to one.	The state OES should request from the railroads a complete inventory of their firefighting equipment and spill recovery resources. In addition, OES should request that railroads provide "Worst Case Scenario" plans for responding for a multi-car tank-car rail derailment incident in any part of the state.
State and local emergency response teams and firefighters are unsure of the best response techniques or resources quantities necessary to respond to crude-by-rail incidents or associated explosions.	The Office of the State Fire Marshal (OSFM) should request that the United States Fire Administration issue guidance on resources required to respond to CBR incidents, such as training guidelines based on lessons learned during recent rail incidents. The U.S. Fire Administration should also provide training in multiple formats (web-based, video, or instructor-led) that allows each state's fire service training organization to deliver the training to meet specific needs.
California firefighters and first responders lack specialized training in the areas of oil rail safety and flammable liquid safety, and generally do not have financial resources to attend out-of-state training opportunities.	The State OES and OSFM should partner with railroads and oil companies to fund the establishment of a multi-agency West Coast Regional Training Center in Sacramento to maximize in-state training capabilities.
Tank car placards do not provide an indication of the flash point or vapor pressure of the specific type of crude oil within the car, thus requiring emergency teams to request this information from a railroad during an incident, which then prolongs emergency response decisions that can be made for each incident.	The United Nations, which assigns hazardous materials identifiers on tank placards, should recommend new classifications based on crude oil characteristics, to provide relevant information for first responders. If the United Nations is unwilling to expand identifiers on tank placards, the state OES and PUC should encourage the U.S. Department of Transportation to require some kind of external visual identification on tank cars containing Bakken crude oil and similar types of crude oil to aid first responders nationwide.
Although the USDOT recently issued an order requiring railroads transporting more than 1 million gallons of crude oil from the Bakken shale formation to provide the State with information on expected weekly shipments of crude oil and the routes they will traverse, railroads are not providing actual, real-time information on the types and quantities of oil being shipped into California, which would be helpful when responding to emergency incidents.	The state OES and PUC should require Class I railroads operating in California to establish a system where emergency responders can login and access the daily location and status of railcars and train consists, including hazmat carload detail for Bakken crude oil and other hazardous substances.
Communities want more information about what steps railroads are taking to ensure the safety of CBR shipments.	The state PUC and OES should request that railroads provide better outreach programs and more information to communities, including interactive websites and open community forums, on voluntary rail safety

Finding	Recommendation
	advancements,
Local response agencies and communities want more information on what steps railroads are taking to ensure the safety of CBR shipments and where those shipments are being transported.	The state should develop and post on a public website an interactive map depicting areas along rail lines with potential high vulnerability from CBR incidents, with map layers showing major rail lines, locations of earthquake faults near rail lines, water crossings and ecosystems, schools and hospitals, rail segments with a historically high frequency of derailments, and the location of certified emergency response hazmat teams.
Growing evidence suggests that older model DOT-111 tank cars are inadequate to protect against vapor explosions of highly flammable crude oil such as that from the Bakken shale formation.	The state PUC should request that the USDOT move quickly to finalize regulations for new and retrofitted tank cars in order to more rapidly phase out DOT-111 tank cars.
New rail safety improvements such as Positive Train Control (PTC) and Electronically Controlled Pneumatic brakes (PTC) have the potential to provide additional layers of safety and lower the risk of rail incidents.	The state PUC should request that the Federal Railroad Administration require the implementation of PTC on any rail lines over which crude oil trains are expected to operate, and request that FRA require ECP brake technology on crude oil trains.
There in inconsistency in the ways and timeliness with which railroads report incidents involving hazardous materials releases; some fail to report incidents.	The state PUC should clarify incident-reporting requirements for the release of hazardous substances by rail to ensure adequate and timely reporting.
Although individual accident reports are available on FRA's website, the state does not have access to broader data that FRA receives that determine accident and injury rates and trends for railroads operating in California (so-called "normalizing data") such as rate of accidents and injuries based on locomotive miles, freight train miles, employee hours, etc.	The state PUC should request that FRA provide state-specific normalizing data, including trend analysis and risk assessment, to evaluate the risks presented by the transportation of oil by rail.
Voluntarily efforts by the industry railroad to make crude oil transportation safer have no compliance components.	The U.S. Department of Transportation should codify the railroad industry's voluntary measures to improve CBR safety into regulations that are fully enforceable by federal and state authorities.
Voluntary efforts by the railroad industry to make crude oil transportation safer are not enough to ensure safety.	The USDOT should expand upon the railroad industry's voluntarily measures and strengthen regulations in the following areas: increased track inspections (with the state PUC conducting at least one additional inspection of crude oil routes each year); improved braking systems (with the state PUC requesting information and monitoring compliance of railroad efforts to improve braking systems); use of rail traffic routing technology (with the state PUC to request that the FRA provide the analysis and results of railroad industry rail route analyses); oil train speed restrictions (with the state PUC establishing additional areas where lower speed limits could reasonably enhance safety and enforcing compliance at those locations); and the installation of wayside wheel bearing detectors every 40 miles along rail lines with trains carrying 20 or more crude oil cars (with the state PUC conducting an inventory of wayside train inspection devices on oil shipment routes and recommending additional actions if necessary)
Multiple state agencies need timely and complete data to evaluate and regulate the risks from oil transportation by rail.	State agencies should put in place or strengthen existing measures to protect confidential railroad business information and data that may impact national security,

Finding	Recommendation
	while obtaining protected access to timely and complete railroad information to determine the risks of CBR transportation.

2.2.2 Massachusetts Study Findings and Recommendations

Table B-2. Massachusetts Study Findings and Recommendations

Findings	Recommendations
In some cases, ethanol rail incidents result in fire. In many cases, these fires have been significant, involving multiple tank cars and large volumes of ethanol.	
First responders to ethanol spills generally have been local firefighters that have focused on necessary evacuations, fire containment, and protection of nearby structures or tanks.	First responders must have available the training and equipment that will allow them to counter both the water-solubility and flammability of ethanol.
In most cases, ethanol fires have been allowed to burn out. Most incidents have not occurred in highly populated areas. Cooling water has been used to protect structures, tanks, and uninvolved railcars.	Contained burning is an effective response to an ethanol spill incident. It has been used in numerous spill incidents, albeit those incidents have not generally occurred in highly populated areas.
In some cases, where large amounts of water use were necessary to fight an ethanol fire, run-off to nearby streams occurred. In one case, the stream was subsequently dammed, and 500,000 gallons of impacted water were removed for disposal.	The use of cooling water may be necessary to protect structures, tanks, or uninvolved rail cars. However, the application of water to an ethanol fire, unless in sufficient volume, does not substantially decrease the flammability of ethanol. Runoff from water use should be contained and/or recovered to the extent possible to prevent infiltration to groundwater and impacts to surface water.
Alcohol resistant foam (AR-AFFF) has had limited use in large ethanol spill and fire situations, most likely because of the limited volume of foam available to local firefighters and concerns with migration and/or recovery of the foam/ethanol.	Local fire department stocks of alcohol resistant foam should be increased, as its use is effective. The foam must be alcohol resistant, or rapid degradation and loss of the foam blanket can occur.
When AR-AFFF has been used in ethanol spills, it most commonly was used to extinguish specific breached and burning cars that were blocking passage, or to extinguish fires inside tank cars prior to removal of the contents and movement of the car. The use of AR-AFFF has been effective in these circumstances.	In situations where foam is used to treat an ethanol spill and the ethanol/foam can be recovered, environmental impacts will be limited. Unless recovery of the foam/ethanol occurs, the potential for migration to storm drains, sanitary sewer lines, groundwater, and surface water will be present. Foam not recovered that reaches surface water can increase the biochemical oxygen demand loading to streams compared to the ethanol alone. In addition, foam use on unpaved surfaces does not limit the migration of ethanol to groundwater.
The fires have consumed large volumes of ethanol, thus limiting impacts to environmental media.	Contained burning is an effective response to an ethanol spill incident. However, additional efforts by first responders to control or prevent the migration of ethanol should also be considered, as these efforts will have benefits in reducing future response actions to address groundwater or surface water impacts, and will eliminate flammability hazards from ethanol that migrates into soil or other surfaces.
The most significant impacts related to ethanol spills have been to surface water. In some cases, surface water impacts have resulted in fish kills several days after the	Ethanol pools or impacts to soils should be identified as quickly as possible to prevent infiltration to groundwater and runoff to surface water. The high solubility of

Findings	Recommendations
spill as a result of oxygen depletion. These impacts have occurred some distance from the site of the original spill.	ethanol can result in rapid transport in these media. Recovery and excavation have largely been used to address such situations. Controlled burn has not been used, but could be considered in some situations.
Due to concerns of surface water impacts, response activities have more recently involved efforts to prevent discharge to surface water through damming. Aeration of small creeks and large rivers has also been used to improve dissolved oxygen content.	Ethanol impacts to surface water are a significant concern. Ethanol spills reaching ditches or small creeks can be addressed by damming, thus allowing time for biodegradation and preventing releases to larger water bodies. Aeration of these smaller water bodies can be used to improve their dissolved oxygen content and enhance biodegradation, but these actions may not reduce ethanol content sufficiently prior to discharge to a large water body. Once ethanol is discharged to a larger river, response options are limited. Monitoring of both dissolved oxygen and ethanol should be conducted in order to determine whether concentrations are approaching anoxic or toxic levels. Barge aerators can be used to improve dissolved oxygen levels.
Migration of spilled ethanol from the surface through soil to groundwater is also an area of concern, due to possible groundwater contamination and discharge to surface water, as well as methane generation. Where possible, spilled material has been recovered by pumping. In some cases, spilled material was not identified, and migration to groundwater and surface water occurred. In cases where groundwater impacts have occurred, ethanol has degraded relatively rapidly, although gasoline constituents have been more persistent.	Ethanol incidents in the marine environment have been rare, with none of a significant volume occurring in harbors or near-shore areas. Response options in such cases are similarly limited to the use of aeration to improve dissolved oxygen levels, although this would only be effective in smaller areas, such as inlets.

2.2.3 Minnesota Study Recommendations

1. Increase awareness about oil transportation incidents, and then develop additional capacity. This initial focus on building awareness more consistently across the state should be augmented by plans for large-scale drills and hands-on training for those jurisdictions that are prepared for those activities. Ultimately, DPS recommends expanding the state's training program to support more hands on training and exercises related to emergency preparedness in general.
2. Conducting the awareness-level training already underway for fire departments and other responders
3. Developing online resources for the public and first responders, such as awareness materials and training videos
4. Developing guidance for first responders and local governments on responding to an oil incident, including assessment and evacuation protocols
5. Connect funding for training and equipment to regional coordination.
6. DPS therefore intends to direct HSEM to develop a process for organizations to apply for training or equipment funding available in the Railroad and Pipeline Safety Account.

Requirements for funding should include the formation or expansion of a multi-county or regional collaborative group to identify and share resources.

7. Delay significant changes to the Railroad and Pipeline Safety Account and related allocations.
8. DPS recommends that the funding allocation and assessment be maintained as-is until the next report required under the 2014 legislation. At that time, there will be more information regarding the state's preparedness efforts and the impact of the changes underway.
9. Develop a state-level program evaluation approach to assess hazardous materials preparedness activities.
10. In order to effectively evaluate the state's actions under the 2014 legislation, DPS recommends that the state develop a program evaluation process and framework for hazardous materials incident preparedness. Agencies participating in the State Agency Responders Committee (particularly DPS and MPCA) should jointly develop a list of priority results for preparedness activities and establish timelines and measures to show progress towards these results.
11. Enhance existing databases (or develop new databases) to provide more comprehensive information about response resources across the state.
12. DPS intends to direct HSEM to identify whether its existing resource database system can be modified to include additional information regarding resources from state agencies, private sector organizations, and local governments, including but not limited to resources needed to respond to an oil transportation incident.
13. Establish Standards for Pipeline Preparedness and Response
14. For local and state government to be able to determine what resources may be needed to develop capacity for an oil transportation incident, it will be necessary to determine if rail and pipeline companies are adequately prepared to respond. The most concrete ways to evaluate preparedness are to examine an organization's written plan against established criteria and to test the organization's preparedness through exercises or drills. The new requirements for rail companies will allow the state to examine rail preparedness efforts, but pipeline companies do not have similarly well-defined responsibilities. Pipelines also transport significant quantities of potentially dangerous material in Minnesota, so additional attention to pipeline preparedness is warranted.
15. DPS recommends that the state adopt response standards, including timelines, for pipeline companies that are similar in scope and content to the response standards applicable to railroads.
16. DPS has not developed a position regarding the appropriate response times for pipeline companies, but will participate in the legislative process as requested.

2.2.4 New York State Study Recommendations – First Report

The 11 state government recommendations made in the original EO 125 report were:

1. Hire additional railroad inspectors and train new and existing staff in other inspection program components
2. Partner with federal, local, and industry partners to increase the number, frequency, and variety of preparedness training opportunities and drills
3. Enact legislation requiring crude oil producers to provide information on the volume and characteristics of crude oil transiting the state (federal action from USDOT subsequently addressed that information need)
4. Develop a one-stop Web portal that provides access to emergency points of contact, training, grants, and other preparedness and response resources
5. Develop a comprehensive database of available emergency response equipment to support timely and effective response
6. Partner with federal, industry, and local response organizations to develop and implement a comprehensive, geographically-tiered equipment network to ensure timely and effective response in underserved areas
7. Partner with EPA and USCG to expand existing environmental and contingency and plans, and develop Geographic Response Plans for all areas of the state
8. Develop regulations that require placing oil containment booms around waterborne crude oil transfers and restrict transfer operations only to locations that meet state regulatory requirements or have USCG approval
9. Amend existing state legislation to improve rail incident reporting requirements and ensure railroad reporting compliance
10. Develop more effective airborne contaminant plume modeling capability to assist first responders
11. Conduct a review of current federal, state, local, and industry response plans to ensure efficient planning and application
12. Amend the state's Navigation Law to enable greater Oil Spill Fund program capabilities (this was a later recommendation not part of the original report)

2.2.5 New York State Study Findings and Recommendations – Second Report

The main focus of the report was the development of 27 recommended action items listed below for the state to pursue at the federal, state, local, and industry level to increase its incident prevention and response capabilities in the event of a marine or rail incident involving the transportation of crude oil. The report included 11 the State should implement in order to reduce the State's vulnerability from accidents and spills related to the transportation of crude oil.

Table B-3. New York State Study Findings and Recommendations from Second Report

Finding	Recommendation
Federal Level	
The DOT-111 tank car used to transport oil is inadequate to protect public safety and the environment	USDOT should finalize new and retrofitted tank car regulations immediately
Railroad industry voluntary efforts are incomplete and	USDOT should strengthen the voluntary measured put

Finding	Recommendation
lack the permanence and protection of government regulations	forward by the AAR and codify them in regulations
Bakken crude oil is significantly different from other forms of crude, but the transportation classification criteria do not distinguish the difference	The United Nations (which assigns hazardous material identifiers) should recommend new classifications based on crude oil characteristics to enable appropriate packaging and transmission of information on the qualities of oil being transported
Railroads do not have the same emergency response plan requirements as tanker and barge operators	USDOT should update regulations requiring railroads to develop route-specific contingency plans for lines that carry crude oil
Federal hazmat grant funding is inadequate to address the increased risk posed by crude-by-rail transportation	USDOT should increase matched funding available to states through the Hazardous Materials Emergency Preparedness Grant Program
Federal environmental planning documents and contingency response plans need to be updated	U.S. Coast Guard, EPA, and NOAA should quickly update environmental and contingency response plans
Industrial facility railroad tracks are not regulated or inspected to the same level as mainline and rail yard track	USDOT should subject industrial facility railroads to the same standards and inspection protocols as the rest of the general railroad network
The federal oil spill response Research and Technology Plan, which informs technology decisions and best practices and was mandated by law in 1990, has never been finalized	The Coast Guard and EPA should update and complete the plan, and revise it every five years as required by law (Oil Pollution Act of 1990)
U.S. Coast Guard personnel rotate every three years, taking with them accumulated experience and relationships	USCG should establish a civilian Contingency Planning position in New York State to provide organizational continuity and support state emergency preparedness and response efforts
USCG Vessel Response Plans may not be sufficient given the boom in crude oil transportation	USCG should update Vessel Response Plans for tankers and tugs carrying crude oil in New York State to ensure response protocols address the risks associated with transporting crude oil
Existing U.S. Homeland Security grant programs will not fund the purchase of firefighting equipment critical for crude oil incidents, such as foam concentrate	USDHS should update the list of authorized equipment eligible for grant funding to include crude oil firefighting equipment
State Level	
New York State only participates in FRA and PHMSA inspection programs on a limited basis	The state should hire additional railroad inspectors
The State is not taking advantage of all available preparedness training and drill scenarios available for state and local safety personnel	Partner with federal, local, and industry partners to increase the number, frequency, and variety of preparedness training opportunities and drills
There is no mechanism for collecting information on the crude oil moving through New York State	Work with industry and federal partners to establish a mechanism for obtaining more complete information on the volume and characteristics of oil being transported and stored in the state
Access to federal, state, and industry training and readiness information is not well publicized and difficult to find	Establish a one-stop web portal that provides access to emergency points of contact, training, grants, and other preparedness resources
Response assets are not efficiently spaced around the state	Partner with federal, industry, and local response organizations to develop a geographically-tiered equipment network to ensure timely responses in underserved areas
New York State does not have a comprehensive database of crude oil-specific response assets	Develop a comprehensive database of available emergency response equipment to support the timely and effective response to crude oil incidents
New York does not have detailed Geographic Response	Work with the EPA and the USCG, which maintains

Finding	Recommendation
Plans to guide crude oil spill response	Area Contingency Plans, to develop Geographic Response Plans that serve as both a planning response document and spill response tool
Waterborne crude oil spills can often be quickly mitigated by pre-staging booms at transfer points	Develop state regulations that require placing oil containment booms around waterborne transfer facilities and only allow transfer operations at locations that meet state regulatory requirements or have USCG approval
Railroad incident reporting is inconsistent	Enact legislation to improve rail incident reporting and ensure railroad reporting compliance
The State has limited capabilities for toxic plume modeling	Develop more effective plume modeling capabilities
Federal, state, local, and industry emergency response plans often overlap	The State should review federal, state, and local statues, regulations, and policies to ensure efficient planning and application; assess where emergency plans overlap; and recommend changes, while also ensuring that all plans are current, comprehensive, and maintained
Industry Level	
The volatility of Bakken crude could be significantly reduced if dissolved gas were separated from the crude at the source	Urge the American Petroleum Institute and member oil companies to reduce the volatility of Bakken crude before loading it into a tank car
Emergency responder access to crude-by-rail shipment information is uneven	Class I railroads should implement a Web-based information access system to provide real-time information on hazardous materials
Communities on crude-by-rail routes have a limited ability to affect public health and safety outcomes	The AAR should work with API to clarify and expand community engagement requirements, particularly in regard to voluntary measures undertaken by railroads
Crude oil train route risk analysis has not been completed	Class I railroads should conclude their computer model-based route risk analysis as soon as possible and update it regularly

2.2.6 Pennsylvania Study Recommendations

The report concluded with 27 recommendations for action. Eighteen recommendations were categorized as "primary," meaning those that the state could implement on its own or in cooperation with freight railroads. The other nine recommendations were categorized as "secondary," because they were considered more difficult to implement or required action by a federal agency or entity other than the state or a freight railroad.

Primary Recommendations

Recommendations for Railroads

1. Routes carrying CBR trains in Pennsylvania should be tested at least three times per year to maintain an annual service defect rate of no greater than 0.04 to 0.06 service failures per mile
2. Routes carrying CBR trains in Pennsylvania should be tested by a railroad-owned Track Geometry Car at least four times per year
3. Routes carrying CBR trains in Pennsylvania should be tested by a vision-based joint bar inspection system at least once per year, in lieu of one of the required on-foot inspections, as permitted by FRA

4. Class I railroads hauling CBR trains in Pennsylvania should adopt the BNSF Railway voluntary speed reduction to 35 mph for crude oil trains through cities with a population greater than 100,000 people
5. Routes carrying CBR trains in Pennsylvania should be equipped with Wild Impact Load Detector units along their entire route and with a spacing that ensures that any route within the state will have a WILD unit no more than 200 miles preceding (in the loaded direction) that location
6. Any WILD measurement that exceeds 120 Kips should require the train to be stopped and the wheel inspected, and if conditions allow, proceed at a reduced speed of 30 mph until the alerting car can be set out for repairs to be made; any WILD measurement that exceeds 90 kips should require the car to be flagged and the identified wheels replaced no later than 1500 miles of additional travel
7. Railroads should equip all routes in the state with sufficient Hot Box Detectors to adequately monitor oil train movements, with a maximum spacing of 25 miles between Hot Box detectors
8. Routes carrying CBR trains in Pennsylvania should have at least one Acoustic Bearing Detector installed
9. Yards and sidings that handle significant CBR volumes should be inspected by Railroad inspectors at an interval one level higher than the assigned FRA track class (i.e., yards that are FRA Class 1 should be inspected at the FRA Class 2 level)
10. Railroads operating unit oil trains in Pennsylvania should equip those trains with Electronically Controlled Pneumatic (ECP), or in the absence of ECP brakes use two-way end-of-train devices or Distributed Power to improve braking performance
11. Class I railroads hauling CBR trains in Pennsylvania should complete their initial route analysis of High-hazard flammable train routes in the state as soon as possible

Recommendations for the Commonwealth

1. Designate appropriate state and local officials to work with Class I railroads to provide all needed information and assist in the route analysis
2. Perform coordinated railroad inspections by both Pennsylvania Public Utility Commission (PUC) track inspectors and Federal Railroad Administration track inspectors to inspect major CBR routes within the state, focusing on track, equipment, hazmat, and operating practices. Prioritize inspections on mainline turnouts, sidings, and yards that have significant CBR volumes, including track owned by railroads and track owned by refineries
3. Coordinate with FRA to perform annual inspections of all routes carrying CBR trains in Pennsylvania using the FRA's T-18 Gage Restraint Measurement System test vehicle; testing should include both GRMS and conventional track geometry measurements
4. Fill existing vacancies for Pennsylvania PUC track inspectors, and assess whether additional inspectors are required in the eastern part of the state where refineries are located

5. Pennsylvania Emergency Management Agency (PEMA) should work with Class I railroads in the state to implement information-sharing technology tools and make those tools available to emergency responders located along CBR routes
6. PEMA should work with the Class I railroads to hold a full-scale emergency response exercise involving emergency responders from communities along heavy oil train routes
7. PEMA should work with all communities along all routes carrying CBR trains to ensure that the communities have appropriate emergency response plans
8. PEMA should work with the Class I railroads to obtain an inventory of emergency response resources along all routes carrying CBR trains to include locations for the staging of emergency response equipment

Secondary Recommendations

Recommendations for Railroads:

1. In addition to conventional Track Geometry Car tests, all routes carrying CBR trains in Pennsylvania should be inspected by Autonomous Track Geometry Measurement (ATGM) and/or Vehicle Track Interaction (VTI) measurement systems
2. Class I railroads operating in Pennsylvania should verify that they have an adequate number of Hot Wheel Detectors on oil train routes, particularly on routes with terrain where wheels could be more prone to overheating (such as steeply graded routes)
3. Routes carrying CBR trains in Pennsylvania should be equipped with at least one Track Defect Detector (such as a Lateral Load Measurement System) to monitor loaded oil train cars

Recommendations for the Commonwealth:

1. Ensure that the Class I railroads owning track in Pennsylvania equip routes with Positive Train Control technology, in accordance with federally mandated implemented schedules
2. Direct the State of Pennsylvania track inspectors to focus attention on the conditions of turnouts on major CBR routes in the state
3. Direct State of Pennsylvania track inspectors to work with FRA inspectors to develop a coordinated inspection program for all yards and sidings that handle a significant number of CBR cars
4. Actively work with federal regulators on the development of national Minimum Characteristics Standards for all Crude By Rail shipments, with defined target characteristics
5. Direct the PUC to work with the FRA and Class I railroads to ensure that railroads are maintaining a Bridge Safety Management Program in accordance with the Code of Federal Regulations
6. Actively work with federal regulators and the railroad industry to support increasing tank car thermal protection standards to 800 minutes for a pool fire

2.2.7 Washington Study Findings and Recommendations

The Washington State report had 40 findings and associated recommendations.

Table B-4. Washington Study Findings and Recommendations

Finding	Recommendation
Crude by Rail Transportation	
Federal laws and regulations governing CBR are changing	The State should actively comment and engage the FRA and PHMSA in the establishment of operating requirements for CBR that provide the highest level of protection; strict classifications of what constitutes a high-hazard flammable train; and the most stringent requirements possible for tank car standards
Derailment prevention is key to public safety, health, and environmental protection	Modify the railroad regulatory fee structure to enable the state to hire additional FRA-certified state rail inspectors and increase inspections of railroad track, hazardous materials, operations, motive power, equipment, and grade crossing installations
CBR compliance measures are not consistently enforced or apply to all types high-hazard flammable trains/Key trains	The State should establish voluntary agreements with railroads operating in the State to operate loaded HHFT/Key Trains at a maximum speed of 45 mph
Washington State does not have enough state rail inspectors	Modify the railroad regulatory fee structure to enable the state to hire additional FRA-certified state rail inspectors and increase inspections
The state Utilities and Transportation Commission (UTC) has limited authority to conduct hazmat inspections on private shipper property	Amend statutory regulations to allow UTC state inspectors to enter a private shipper's property to conduct hazmat inspections related to rail operations
The state UTC has identified a number of at-grade highway-rail crossings with characteristics that increase the risk of an accident/incident, the severity of which would likely be increased in the event of an incident with a crude oil train	Provide state authority and funding to conduct a diagnostic review to determine whether the identified crossings have sufficient protective devices
The state UTC does not have jurisdiction over grade crossings in "first-class cities;" those cities are free to open, close, or modify grade crossings without UTC involvement	Amend state law to require first-class cities to report to the UTC when grade crossings are opened or closed, and allow those cities to opt in to the UTC's railroad crossing inspection and enforcement program
Federal and state safety and inspection regulations do not apply to private grade crossings	Amend state law to give the UTC jurisdiction over private crossings and enforce minimum safety standards
Current tank car hazardous material placarding does not provide enough information for non-railroad first responders in the event of an incident	The USDOT should amend hazardous material identification requirements on trains to be more user-friendly to first responders
FRA and state rail incident databases are not updated quickly enough, are difficult to use and navigate, and in some cases have inconsistent information between what the state reports and what the FRA reports	FRA, in conjunction with state and local governments, should review and enhance the usability of existing databases to include sort-ability by state and incident type, and ensure that state and federal preliminary accident investigation forms are placed online within one month
There is no mechanism for railroads, regulatory agencies, and stakeholders, to discuss rail safety and cooperative approaches to reducing accidents and promoting safe practices	FRA, PHMSA, and the state UTC should develop a Railroad Safety Committee to improve communication between state and federal agencies and railroads, and develop cooperative safety efforts. The program could be modeled after the U.S. Coast Guard/Washington State harbor safety committee
CBR Marine Transportation	
Build on the State's successful vessel spill and accident	The State Department of Ecology and Pilotage

Finding	Recommendation
prevention measures	Commission should continue to support maritime safety programs and continue to conduct training and drills in spill prevention and preparedness
Risk mitigation options that address human error and improve situational awareness are the most effective	The State Department of Ecology should develop marine safety, industry oversight, and inspection criteria to reduce human error and improve situational awareness, including supporting proposed USCG rulemaking on barge inspections and crew working hours, installing an automated track control system into mobile navigational systems used by state pilots, and advocating crew situational awareness training on all classes of vessels including commercial fishing and towing vessels
Modern ships with protected fuel tanks (a requirement for all vessels built after 2010) have been shown to reduce oil spill probability	The State should require all newly permitted or significantly expanded marine terminals to accept vessels built after 2010 only if equipped with the new fuel tank construction
There has been no railroad representation on the state Harbor Safety Committee, Area Maritime Committee, or area planning committees, all of which are involved in improving spill and accident prevention and maritime safety and security	Encourage railroads in Washington State to participate in the State's three harbor safety committees, two Area Maritime Security committees, the Northwest Area Committee, and local area planning committees; the state Ecology department and USCG should increase funding for the harbor safety committees
Tug Escort Requirements for oil tankers are not required at Grays Harbor or on the Columbia River, though some facilities have voluntary mandated them	Expand state regulations to require tug escorts for tank vessels not just along Puget Sound (existing requirement) but also for tank vessels on the Columbia River and at Grays Harbor
Other countries have funded programs to station Emergency Tow/Rescue Tugs at key points to stop drifting vessels from grounding on leeward shores or as passive escorts to high-risk ships	The State should evaluate the effectiveness of implementing an Emergency Tow/Rescue Tug program for Turn Point, Grays Harbor, and the Columbia River, working with the U.S. Coast Guard and Harbor Safety Committee
Current criteria used to classify a High-Risk Vessel are based on incorrect or inconsistent data	The State Department of Ecology should lead an analysis with the USCG and Harbor Safety Committee to develop a consistent precise definition of a High-Risk Vessel, and develop standards and tug escort requirements for High-Risk Vessels
A formal Vessel Tracking System (VTS), which would reduce shipping accidents such as collisions and groundings, is not in service at Grays Harbor. Existing VTS systems are facing reductions in funding and resources	The USCG should establish a long-term waterways management plan that includes appropriate VTS services to accommodate increased vessel traffic on the Columbia River, Grays Harbor, and the outer coast
Bunkering operations in Puget Sound have the potential to increase as a result of rising CBR transloading activities	The State Department of Ecology should work with USCG and the Harbor Safety Committees to update bunkering restrictions and evaluate limiting or moving bunkering activities to locations that have, or could implement, enhanced prevention and preparedness capabilities
Speed restrictions on container ships may reduce the likelihood of collisions with other vessels	The State Department of Ecology should work with the USCG and Harbor Safety Committees to restrict the speed of container ships in congested areas of ports or shipping channels in Puget Sound to reduce the likelihood of collisions
Foreign-flag tankers that import crude oil introduce additional risk by anchoring off the coast to store crude	Work with the USCG to enact regulations, voluntary actions, or revised harbor safety standards that eliminate

Finding	Recommendation
oil in their hulls and making multiple trips from anchorage to berth and back during the off-loading process	the industry practice of multiple berthing/partial discharging/anchoring of tankers carrying foreign crude oil
Crude by Rail Terminals	
The State Facility Oil Handling Regulation has not been updated for facility spill prevention standards since 1994 and does not include standards for crude by rail transload terminals	The State Department of Ecology should revise the Design Standards for Class 1 facilities to address all modes of oil handling into and out of a Class 1 facility
Existing state-established Best Achievable Protection (BAP) standards for preventing and preparing for oil spills only exist for tank vessels and has not been extended to facilities handling oil	The State Legislature should modify the BAP Planning Standards to all facilities handling oil
Oregon has differing regulations from Washington for oil spill prevention from tanker ships and facilities, which increases risk on the shared waterway of the Lower Columbia River	Encourage the state of Oregon to adopt facility oil handling regulations that include a requirement to pre-boom oil transfers to mitigate risk of and enhance protection from oil spills
Oil Spill Planning and Emergency Response	
Federal regulations governing oil spill response plans for High-Hazard Flammable Trains are being updated	The State should actively participate in the Notice of Proposed Rulemaking comment process with FRA and PHMSA to establish revised and more stringent requirements for oil spill response plans
Railroad equipment is not covered under state-approved oil spill contingency plans	Modify the State statutory definition of "facility" to include moving unit oil trains, as well as stationary trains conducting oil spill transfers in State Oil Spill Contingency Plans. Direct the State Department of Ecology to develop rules related to oil spill contingency plans for trains as per existing facility regulations
Washington State has not established a level of financial responsibility for oil handling facilities, including rail that would require a responsible party to pay for the costs and damages of an oil spill up to a certain amount	Modify State regulations and direct the State Department of Ecology extend financial responsibility requirements to rail and mobile facilities, and issue Certificates of Financial Responsibility to ensure that those transporting oil can pay for cleanup costs and damages resulting from oil spills
The current state definition of oil may not include certain heavy oils, diluted bitumen, synthetic crudes, or other types of oil produced in Canada that are being transported to Washington	The State Legislature should amend the definitions of oil to include crude oil, bitumen, synthetic crude oil, natural gas well condensate, and all other types of oil
State and local agencies do not have the means to gather information on the type or volume of oil being shipped through Washington	Modify state regulations to require railroads to submit advance notice to the State on the volume and characteristics of oil being transferred by rail facilities to other facilities or to vessels
Local, County, and State Emergency Preparedness Response Capabilities	
Almost two-thirds of local fire departments and fire districts do not have adequate funding to plan, train, and equip their communities for a crude oil incident, or purchase necessary equipment such as oil spill containment devices and responder health and safety monitoring and fire suppression devices	The State should establish and fund a grant program for enhanced and continuous oil spill response equipment and local first responder firefighting equipment; ongoing funding should also be made available to provide periodic training to first responders
Local responders have a lack of knowledge in the equipment and response resources available, and railroads plans in place, in the event of a crude-by-rail incident	Washington Military Department's Emergency Management Division (EMD) should adapt county-level emergency plans to address crude-by-rail Oil and Hazards Materials Response; the State should work with FRA and PHMSA to establish a strategy for railroads to work with local responders to identify response

Finding	Recommendation
	strategies, equipment, and available resources
Most local emergency response agencies do not have sufficient resources to adequately train their personnel or conduct emergency planning	The Washington Office of Financial Management and the state fire marshal should develop funding options for the legislature to provide coordinated training. The state fire marshal should work with the railroads to develop a mandatory first responder tank car training program, and expand existing centralized hazardous material training systems to address the unique hazards of transporting crude oil by rail
The State has not implemented a 2006 plan to form regional hazardous materials response teams	The State Department of Ecology and fire marshal should determine startup and recurring costs for establishing regional hazmat response teams, and determine a plan of action for how such teams should be composed, equipped, trained, located, funded, and directed to assist
Geographic Response Plans, which direct immediate actions for oil spills to water, have not been developed for most of the rail corridors through which crude by rail trains operate, and do not address new marine risks such as potentially submerged or sinking oils	The State Department of Ecology should update existing and develop new Geographic Response Plans for inland and marine areas at risk from oil spills, and include all rail corridors through which crude by rail trains are transiting or will transit in future
Oil Spill Response Resources	
The shift away from oil tanker vessels to rail and pipeline has caused a drop in revenues to the State's Spill Prevention, Preparedness, and Response Program	The State should identify new funding options to adequately fund the spills program
The State's oil spill response resources, planning standards, and response tactics may not adequately cover the changing oil characteristics and transportation modes that have occurred as a result of the shift to pipeline and crude by rail	Permitting agencies should require crude-by-rail facility applicants to conduct a thorough evaluation of specific locations of risk for train and/or vessel incidents; the State's Northwest Area Contingency Plan should establish a task force to analyze the type of volume of Group V oils currently moving into the region and target planning efforts at sinking oil
Plans to construct crude-by-rail transload facilities at Grays Harbor and on the Columbia will require enhancements to the current regulatory response planning and purchases of response equipment for oil spills from the facilities or tank vessel traffic serving them	The Department of Ecology should review statewide regulatory planning standards to determine whether the equipment standards are adequate for the potential increase in crude-by-rail facilities and associated tank vessel traffic, particularly at Grays Harbor and the Columbia River; Ecology should established and fund an enhanced and ongoing spill response equipment grant program, and work with local first responder groups to identify additional equipment and training needs
Mitigating Future Risk	
Oil transportation in the State needs to be evaluated as an ongoing, long-term process	Ensure permanent ongoing funding for the State Department of Ecology to develop and continually update a Rail Transportation Risk Analysis and continue updating a Vessel Transportation Risk Analysis
There is great concern among the public and stakeholder groups about the effect of crude oil transportation by rail and vessel	The State should continue outreach efforts on the changing energy picture to potentially affected tribes, communities, and stakeholders to further refine the issues of concern for future studies and action

2.2.8 U.S. Government Accountability Office Study Findings and Recommendations

Findings

1. The increase in U.S. oil and gas production presents challenges for transportation infrastructure because some of the increase is occurring in production areas with inadequate transportation linkages.
2. In particular, insufficient pipeline capacity has resulted in the increased use of rail, truck, and barge to transport crude oil from production areas to refineries.
3. These transportation limitations and related effects could pose environmental risks and have economic implications.
4. Additional pipeline capacity is being constructed to transport crude oil and natural gas. The new pipelines are gathering pipelines (defined as pipelines that transport products to processing facilities and other long-distance pipelines), but differ from older gather pipelines because they are larger in size and operate at higher pressure. Gathering pipelines, if located in rural areas, are generally not subject to USDOT or state safety regulations or emergency response requirements.
5. The increase in size and pressure of newer gathering pipelines raises safety concerns because they could affect a greater area in the event of an incident.
6. Crude oil carloads moved by rail in 2012 increased by 24 times over that moved in 2008, which has raised concerns about testing and packaging of crude oil, use of unit trains (trains of about 80 to 120 crude oil cars), and emergency response preparedness.
7. The USDOT has issued safety alerts on the importance of proper testing and packaging of crude oil. However, industry stakeholders said that DOT's guidance on this issue is vague and that clarity about the type and frequency of testing is needed. In July 2014, DOT proposed new regulations for crude oil shippers to develop a product-testing program subject to DOT's review.
8. Unit trains, which can carry 3 million or more gallons of crude oil, are not covered under DOT's comprehensive emergency response planning requirements for transporting crude oil by rail because the requirements currently only apply to individual tank cars and not unit trains. In July 2014, DOT sought public comment on potential options for addressing this gap in emergency response planning requirements for transporting crude oil by rail.

Recommendations

1. The USDOT, in conjunction with the PHMSA, should move forward with a Notice of Proposed Rulemaking that addresses the risks of larger-diameter, higher-pressure gathering pipelines, including subjecting such pipelines to emergency response planning requirements that currently do not apply.
2. Because of the ongoing rail safety rulemakings, the GAO did not make additional recommendations related to rail in this report.

3.0 Appendix C - Detailed Characteristics of Rail Routes Currently Carrying Bulk Crude in Iowa

3.1 BNSF

Table C-1. Characteristics of BNSF Network Subdivisions Currently Carrying Bulk Crude in Iowa

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Crude Oil Trains Daily by Segment
BNSF Marshall Subdivision	Iowa / Minnesota state line near Lester, Iowa-Sioux City, Iowa (75.7 miles)	One main track with passing sidings	Automatic Block Signal (ABS) / Track Warrant Control (TWC)	Class 4	49 mph	N/A	286,000 lbs.	BNSF designates as Trackside Warning Devices (TWD). TWDs exist at 15-25 mile intervals, and include Hot Box Detector (HBD) and Dragging Equipment Detector (DED) installations near Alvord, Perkins, and West Le Mars, Iowa	Unknown	0-1
BNSF Sioux City Subdivision	Sioux City, Iowa-Iowa / Nebraska state line near Sioux City, Iowa (2.6 miles)	One main track with passing sidings	Track Warrant Control (TWC)	Class 4	30 mph	N/A	286,000 lbs.	BNSF designates as Trackside Warning Devices (TWD). Existing TWD includes a High/Wide/Shifted Load Detector (SLD) at Floyd (Sioux City), Iowa	Unknown	0-1
BNSF Creston Subdivision	Iowa / Nebraska state line near Pacific Junction, Iowa-Creston, Iowa	Segments of two main tracks and one main track	Centralized Traffic Control (CTC)	Class 4	60 mph	79 mph (Amtrak)	286,000 lbs.	BNSF designates as Trackside Warning Devices (TWD). TWDs exist at 5-7 mile intervals. All	Unknown	0-1

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Crude Oil Trains Daily by Segment
	(86.1 miles)							installations include a DED (every 5-7 miles) and some installations include a DED and a HBD (every 15-25 miles). TWDs exist near Pacific Junction (two installations), Glenwood, Malvern, Hastings, Emerson, McPherson, Red Oak, Stanton, Villisca (two installations), Nodaway, Brooks, Corning, Prescott, Cromwell, and Creston, Iowa		
BNSF Ottumwa Subdivision	Creston, Iowa-Iowa / Illinois state line at Burlington, Iowa (188.1 miles)	Two main tracks	Mixture of Centralized Traffic Control (CTC), Track Warrant Control (TWC), and Yard Limits (YL)	Class 4	60 mph	79 mph (Amtrak)	286,000 lbs.	BNSF designates as Trackside Warning Devices (TWD). TWDs exist at 5-30 mile intervals. All installations include a DED (every 5-30 miles) and some installations include a DED and a HBD (every 15-30 miles). TWDs exist near	Unknown	0-1

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Crude Oil Trains Daily by Segment
								Thayer, Osceola, Russell, Melrose, Halpin, Albia, Maxon, Agency City, Fairfield, Mount Pleasant, and Dayman, Iowa.		
BNSF Chillicothe Subdivision	Iowa / Illinois state line at Fort Madison, Iowa-Fort Madison, Iowa (2.5 miles)	Two main tracks	Centralized Traffic Control (CTC)	Class 5	55 mph freight	79 mph (Amtrak)	286,000 lbs.	No Trackside Warning Devices (TWD) on the segment of this subdivision in Iowa.	Unknown	0-1
BNSF Marceline Subdivision	Fort Madison, Iowa-Iowa / Missouri state line near Argyle, Iowa (17.7 miles)	Two main tracks	Centralized Traffic Control (CTC) and Automatic Train Stop (ATS)	Class 5	70 mph	90 mph (Amtrak)	286,000 lbs.	BNSF designates as Trackside Warning Devices (TWD). TWDs exist at 5-7 mile intervals. All installations include a DED and HBD. TWD installations exist near Bricker and Argyle, Iowa.	Unknown	0-1

3.2 CP

Table C-2. Characteristics of CP Network Subdivisions Currently Carrying Bulk Crude in Iowa

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Crude Oil Trains Daily by Segment
CP Marquette Subdivision	Iowa / Minnesota state line at New Albin, Iowa-Sabula Junction, Iowa (136.5 miles) Note: CP has approximately 1.9 miles of trackage rights over the CN Dubuque Subdivision at Dubuque, Iowa, that are not included in the mileage listed above.	One main track with passing sidings	Centralized Traffic Control (CTC) Sabula Junction-Lake, Iowa; Track Warrant Control (TWC) Lake, Iowa-Iowa / Minnesota state line at New Albin, Iowa	Class 3	40 mph	N/A	286,000 lbs.	CP designates as Trackside Warning Detectors (TWD). TWDs exist at 25-35 mile intervals. All installations include a DED and HBD. TWDs exist near New Albin, Harpers Ferry, Guttenberg, Spechts Ferry, and Green Island, Iowa. TWDs near New Albin, Spechts Ferry, and Green Island also have a Hot Wheel Detector (HWD).	CP anticipates future installation of a Wheel Impact Load Detector (WILD) on the Marquette Subdivision.	0-2
CP Davenport Subdivision	Sabula Junction, Iowa-Nahant (Davenport), Iowa (54.2 miles)	One main track with passing sidings	Centralized Traffic Control (CTC) Sabula Junction-Deer Creek, Iowa;	Class 3	40 mph	N/A	286,000 lbs.	CP designates as Trackside Warning Detectors (TWD). TWDs exist at 25-30 mile intervals. All installations include a DED and HBD. TWDs exist near Le	Unknown	0-2

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Crude Oil Trains Daily by Segment
			Automatic Block Signals (ABS) / Track Warrant Control (TWC) Deer Creek-Davenport, Iowa; Yard Limits (YL) Davenport-Nahant, Iowa					Claire and Deer Creek, Iowa.		
CP Ottumwa Subdivision	Nahant (Davenport), Iowa-Ottumwa, Iowa (107.1 miles)	One main track with passing sidings	Mixture of Centralized Traffic Control (CTC); Automatic Block Signals (ABS) / Track Warrant Control (TWC); and Yard Limits (YL)	Class 4 / Class 3	49 mph (Nahant-Muscatine); 40 mph (Muscatine-Ottumwa)	N/A	286,000 lbs.	CP designates as Trackside Warning Detectors (TWD). TWDs exist at 20-30 mile intervals. All installations include a DED and HBD. TWDs exist near Rutledge, Rubio, Ainsworth, Letts, and Montpelier, Iowa.	Unknown	0-2

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Crude Oil Trains Daily by Segment
CP Laredo Subdivision	Ottumwa, Iowa-Iowa / Missouri state line near Sewal, Iowa (61.2 miles)	One main track with passing sidings	Yard Limits (YL) at Ottumwa, Iowa; Track Warrant Control (TWC) Ottumwa, Iowa-Iowa / Missouri state line near Sewal, Iowa	Class 3	40 mph	N/A	286,000 lbs.	CP designates as Trackside Warning Detectors (TWD). TWDs exist at 25-30 mile intervals. All installations include a DED and HBD. TWDs exist near Seymour and Blakesburg, Iowa.	Unknown	0-2

4.0 Appendix D - Detailed Characteristics of Rail Routes Currently Carrying Ethanol in Iowa

4.1 BNSF

Table D-1. Characteristics of BNSF Network Subdivisions Currently Carrying Bulk Ethanol in Iowa

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
BNSF Marshall Subdivision	Iowa / Minnesota state line near Lester, Iowa-Sioux City, Iowa (75.7 miles)	One main track with passing sidings	Automatic Block Signal (ABS) / Track Warrant Control (TWC)	Class 4	49 mph	N/A	286,000 lbs.	BNSF designates as Trackside Warning Devices (TWD). TWDs exist at 15-25 mile intervals, and include Hot Box Detector (HBD) and Dragging Equipment Detector (DED) installations near Alvord, Perkins, and West Le Mars, Iowa	Unknown	0-3
BNSF Sioux City Subdivision	Sioux City, Iowa-Iowa / Nebraska state line near Sioux City, Iowa (2.6 miles)	One main track with passing sidings	Track Warrant Control (TWC)	Class 4	30 mph	N/A	286,000 lbs.	BNSF designates as Trackside Warning Devices (TWD). Existing TWD includes a High/Wide/Shifted Load Detector (SLD) at Floyd (Sioux City), Iowa	Unknown	0-3
BNSF Creston Subdivision	Iowa / Nebraska state line near Pacific Junction, Iowa-Creston, Iowa	Segments of two main tracks and one main track	Centralized Traffic Control (CTC)	Class 4	60 mph	79 mph (Amtrak)	286,000 lbs.	BNSF designates as Trackside Warning Devices (TWD). TWDs exist at 5-7 mile intervals. All	Unknown	0-2

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
	(86.1 miles); note that the BNSF line segment between Red Oak, Iowa, and Shenandoah, Iowa, is designated a BNSF industrial lead of the Creston Subdivision (not included in the subdivision mileage above) and is approximately 21.2 miles long.							installations include a DED (every 5-7 miles) and some installations include a DED and a HBD (every 15-25 miles). TWDs exist near Pacific Junction (two installations), Glenwood, Malvern, Hastings, Emerson, McPherson, Red Oak, Stanton, Villisca (two installations), Nodaway, Brooks, Corning, Prescott, Cromwell, and Creston, Iowa		
BNSF Ottumwa Subdivision	Creston, Iowa-Iowa / Illinois state line at Burlington, Iowa (188.1 miles)	Two main tracks	Mixture of Centralized Traffic Control (CTC), Track Warrant Control (TWC), and Yard Limits (YL)	Class 4	60 mph	79 mph (Amtrak)	286,000 lbs.	BNSF designates as Trackside Warning Devices (TWD). TWDs exist at 5-30 mile intervals. All installations include a DED (every 5-30 miles) and some installations include a DED and a HBD (every 15-30 miles). TWDs exist near	Unknown	0-2

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
								Thayer, Osceola, Russell, Melrose, Halpin, Albia, Maxon, Agency City, Fairfield, Mount Pleasant, and Dayman, Iowa.		
BNSF Hannibal Subdivision	Burlington, Iowa-Iowa / Missouri state line at Keokuk, Iowa (44.4 miles)	One main track with passing sidings	Track Warrant Control (TWC)	Class 3	40 mph	N/A	286,000 lbs.	BNSF designates as Trackside Warning Devices (TWD). TWDs exist at 25-30 mile intervals. All installations include a DED and HBD. A TWD exists near Montrose, Iowa.	Unknown	0-2
BNSF Chillicothe Subdivision	Iowa / Illinois state line at Fort Madison, Iowa-Fort Madison, Iowa (2.5 miles)	Two main tracks	Centralized Traffic Control (CTC)	Class 5	55 mph	79 mph (Amtrak)	286,000 lbs.	No Trackside Warning Devices (TWD) on the segment of this subdivision in Iowa	Unknown	0-2
BNSF Marceline Subdivision	Fort Madison, Iowa-Iowa / Missouri state line near Argyle, Iowa (17.7 miles)	Two main tracks	Centralized Traffic Control (CTC) and Automatic Train Stop (ATS)	Class 5	70 mph	90 mph (Amtrak)	286,000 lbs.	BNSF designates as Trackside Warning Devices (TWD). TWDs exist at 5-7 mile intervals. All installations include a DED and HBD. TWD installations exist near Bricker	Unknown	0-2

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
								and Argyle, Iowa.		
BNSF Council Bluffs Subdivision	Pacific Junction, Iowa-Council Bluffs, Iowa (18.4 miles)	One main track with passing sidings	Track Warrant Control (TWC) Pacific Junction, Iowa-Council Bluffs, Iowa; Yard Limits (YL) at Council Bluffs, Iowa	Class 2	25 mph	N/A	286,000 lbs.	No Trackside Warning Devices (TWD).	Unknown	0-1
BNSF Napier Subdivision	Pacific Junction, Iowa-Iowa / Missouri state line near Hamburg, Iowa (33.0 miles)	One main track with passing sidings	Track Warrant Control (TWC)	Class 4	49 mph	N/A	286,000 lbs.	BNSF designates as Trackside Warning Devices (TWD). One TWD exists on this segment and includes a DED and HBD installation near Pacific Junction, Iowa.	Unknown	0-1
BNSF Bayard Subdivision	Council Bluffs, Iowa-Bayard, Iowa (100.0 miles)	One main track with passing sidings	Track Warrant Control (TWC)	Class 2	25 mph	N/A	286,000 lbs.	No Trackside Warning Devices (TWD).	Unknown	0-1
BNSF Aberdeen Subdivision	Sioux City, Iowa-Iowa / South Dakota	One main track with passing sidings	Restricted Limits (RL)	Class 2	10-25 mph	N/A	286,000 lbs.	No Trackside Warning Devices (TWD).	Unknown	0-1 (DAIR trackage

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
	state line near North Sioux City, South Dakota (7.1 miles)									rights trains over BNSF)

4.2 CN

Table D-2. Characteristics of CN Network Currently Carrying Bulk Ethanol in Iowa

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
CN Dubuque Subdivision	Iowa / Illinois state line near Dubuque, Iowa-Hilltop (Waterloo), Iowa (90.0 miles)	One main track with passing sidings	Centralized Traffic Control (CTC)	Class 4	50 mph	N/A	286,000 lbs.	CN designates as Defect Detectors (DD). DDs exist at 20 to 35 mile intervals, and include Hot Box Detector (HBD). It is not known if the DDs also have a Dragging Equipment Detector (DED). DD installations exist near Epworth and Masonville, Iowa. CN has a Wheel Impact Load Detector (WILD) installation near Farley, Iowa.	Unknown	0-2
CN Waterloo Subdivision	Hilltop (Waterloo), Iowa-Tara, Iowa (109.2 miles)	One main track with passing sidings	Centralized Traffic Control (CTC) Hilltop, Iowa-Waterloo, Iowa; Automatic	Class 3	50 mph	N/A	286,000 lbs.	CN designates as Defect Detectors (DD). CN has one DD on the subdivision near Iowa Falls, Iowa.	Unknown	0-1

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
			Block Signals (TWC) / Yard Limits (YL) at Waterloo, Iowa; Centralized Traffic Control (CTC) Waterloo, Iowa-Tara, Iowa							
CN Cherokee Subdivision	Tara, Iowa-Sioux City, Iowa (127.6 miles)	One main track with passing sidings	Track Authority (TA) Tara, Iowa-Le Mars, Iowa; Automatic Block Signals (ABS) / Track Warrant Control (TWC) Le Mars, Iowa-Sioux City, Iowa	Class 3	40 mph	N/A	286,000 lbs.	CN designates as Defect Detectors (DD). CN has one DD on the subdivision near Pomeroy, Iowa.	Unknown	0-1
CN Omaha Subdivision	Tara, Iowa-Council Bluffs, Iowa (130.2	One main track with passing sidings	Track Authority (TA);	Class 3	40 mph	N/A	286,000 lbs.	CN designates as Defect Detectors (DD). CN has one	Unknown	0-1

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
	miles)		Centralized Traffic Control (CTC) at Ida, Iowa					DD on the subdivision near Dunlap, Iowa.		
CN Ida Grove Subdivision	Ida, Iowa-Ida Grove, Iowa (24.5 miles)	One main track	Track Authority (TA)	Class 2	25 mph	N/A	286,000 lbs.	No Trackside Warning Devices (TWD)	Unknown	0-1
CN Osage Subdivision	Mona Junction (Waterloo), Iowa-Iowa / Minnesota state line at Lyle, Minnesota (75.6 miles)	One main track with passing sidings	Track Authority (TA)	Class 3	40 mph	N/A	268,000 lbs.	No Trackside Warning Devices (TWD)	Unknown	0-1
CN Cedar Rapids Subdivision	Manchester-Iowa-Cedar Rapids, Iowa (41.6 miles)	One main track with passing sidings	Track Authority (TA)	Class 3; Class 2 (varies by segment)	40 mph; 25 mph (varies by segment)	N/A	286,000 lbs.	No Trackside Warning Devices (TWD)	Unknown	0-1

4.3 CP

Table D-3. Characteristics of CP Network Currently Carrying Bulk Ethanol in Iowa

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
CP Marquette Subdivision	Iowa / Minnesota state line at New Albin, Iowa-Sabula Junction, Iowa (136.5 miles) Note: CP has approximately 1.9 miles of trackage rights over the CN Dubuque Subdivision at Dubuque, Iowa, that are not included in the mileage listed above.	One main track with passing sidings	Centralized Traffic Control (CTC) Sabula Junction-Lake, Iowa; Track Warrant Control (TWC) Lake, Iowa-Iowa / Minnesota state line at New Albin, Iowa	Class 3	40 mph	N/A	286,000 lbs.	CP designates as Trackside Warning Detectors (TWD). TWDs exist at 25-35 mile intervals. All installations include a DED and HBD. TWDs exist near New Albin, Harpers Ferry, Guttenberg, Spechts Ferry, and Green Island, Iowa. TWDs near New Albin, Spechts Ferry, and Green Island also have a Hot Wheel Detector (HWD).	CP anticipates future installation of a Wheel Impact Load Detector (WILD) on the Marquette Subdivision.	0-3
CP Davenport Subdivision	Sabula Junction, Iowa-Nahant (Davenport), Iowa (54.2 miles)	One main track with passing sidings	Centralized Traffic Control (CTC) Sabula Junction-Deer Creek, Iowa;	Class 3	40 mph	N/A	286,000 lbs.	CP designates as Trackside Warning Detectors (TWD). TWDs exist at 25-30 mile intervals. All installations include a DED and HBD. TWDs exist near Le	Unknown	0-3

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
			Automatic Block Signals (ABS) / Track Warrant Control (TWC) Deer Creek-Davenport, Iowa; Yard Limits (YL) Davenport-Nahant, Iowa					Claire and Deer Creek, Iowa.		
CP Ottumwa Subdivision	Nahant (Davenport), Iowa-Ottumwa, Iowa (107.1 miles)	One main track with passing sidings	Mixture of Centralized Traffic Control (CTC); Automatic Block Signals (ABS) / Track Warrant Control (TWC); and Yard Limits (YL)	Class 4 / Class 3	49 mph (Nahant-Muscatine); 40 mph (Muscatine-Ottumwa)	N/A	286,000 lbs.	CP designates as Trackside Warning Detectors (TWD). TWDs exist at 20-30 mile intervals. All installations include a DED and HBD. TWDs exist near Rutledge, Rubio, Ainsworth, Letts, and Montpelier, Iowa.	Unknown	0-3

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
CP Laredo Subdivision	Ottumwa, Iowa-Iowa / Missouri state line near Sewal, Iowa (61.2 miles)	One main track with passing sidings	Yard Limits (YL) at Ottumwa, Iowa; Track Warrant Control (TWC) Ottumwa, Iowa-Iowa / Missouri state line near Sewal, Iowa	Class 3	40 mph	N/A	286,000 lbs.	CP designates as Trackside Warning Detectors (TWD). TWDs exist at 25-30 mile intervals. All installations include a DED and HBD. TWDs exist near Seymour and Blakesburg, Iowa.	Unknown	0-3
CP Chicago Subdivision	Iowa / Illinois state line at Sabula, Iowa-Sabula Junction, Iowa (1.0 mile)	One main track	Centralized Traffic Control (CTC)	Class 3	25 mph	N/A	286,000 lbs.	No TWDs exist on this segment in Iowa.	Unknown	0-3
CP Bay Subdivision	Island, Iowa-Lake, Iowa (at Sabula Junction, Iowa) (0.3 mile)	One main track	Centralized Traffic Control (CTC)	Unkn-own	10 mph	N/A	286,000 lbs.	No TWDs exist on this segment in Iowa.	Unknown	0-3
CP Mason City Subdivision	Marquette, Iowa-Mason City, Iowa (116.7 miles)	One main track with passing sidings	Track Warrant Control (TWC)	Class 3	40 mph	N/A	286,000 lbs.	CP designates as Trackside Warning Detectors (TWD). TWDs exist at 25 to 40 mile intervals. All installations include a DED and	Unknown	0-2

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
								HBD. TWDs exist near Luana, Calmar, Lawler, and Rudd, Iowa.		
CP Sheldon Subdivision	Mason City, Iowa-Sheldon, Iowa (136.7 miles)	One main track with passing sidings	Track Warrant Control (TWC)	Class 2	25 mph	N/A	286,000 lbs.	CP designates as Trackside Warning Detectors (TWD). TWDs exist at 25 to 40 mile intervals. All installations include a DED and HBD. TWDs exist near Clear Lake, Hutchins, and Cylinder, Iowa.	Unknown	0-1
CP Owatonna Subdivision	Mason City, Iowa-Iowa / Minnesota state line at Lyle, Minnesota (28.2 miles)	One main track with passing sidings	Track Warrant Control (TWC)	Class 3	40 mph	N/A	286,000 lbs.	CP designates as Trackside Warning Detectors (TWD). One TWD installation, including a DED and HBD, exists near Plymouth, Iowa.	Unknown	0-1

4.4 UP

Table D-4. Characteristics of UP Network Currently Carrying Bulk Ethanol in Iowa

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
UP Geneva Subdivision	Iowa / Illinois state line near Clinton, Iowa-Clinton, Iowa (2.1 miles)	Two main tracks	Centralized Traffic Control (CTC) / Automatic Train Control (ATC)	Class 5	70 mph	N/A	286,000 lbs.	UP designates as Train Defect Detectors (TDD). TDD installations on this subdivision in Illinois include a DED and a HBD. No TDDs exist on this subdivision in Iowa.	Unknown	0-3
UP Clinton Subdivision	Clinton, Iowa-Boone, Iowa (196.6 miles)	Two main tracks	Centralized Traffic Control (CTC) / Automatic Train Control (ATC)	Class 5	70 mph	N/A	286,000 lbs.	UP designates as Train Defect Detectors (TDD). This subdivision includes over 60 TDD installations, most of which are DEDs spaced at short intervals of under 5 miles. TDDs with a combined DED / HBD installation exist at 15-20 mile intervals.	Unknown	0-3
UP Boone Subdivision	Boone, Iowa-East Missouri Valley, Iowa	Two main tracks	Centralized Traffic Control	Class 5	70 mph	N/A	286,000 lbs.	UP designates as Train Defect Detectors (TDD).	Unknown	0-3

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
	(121.0 miles)		(CTC) / Automatic Train Control (ATC)					TDDs exist at varying intervals. TDDs with a DED installation only are spaced at short intervals and exist near Boone (three installations) and Ogden, Iowa. TDDs with a combined DED / HBD installation are spaced at 15-25 mile intervals, and exist near Beaver, Scranton, Carroll, Vail, Haley, and Woodbine, Iowa.		
UP Mason City Subdivision	Des Moines, Iowa-Mason City, Iowa (119.5 miles)	One main track with passing sidings	Centralized Traffic Control (CTC) Des Moines, Iowa-Nevada, Iowa; Automatic Block Signals (ABS) / Track	Class 4	60 mph	N/A	286,000 lbs.	UP designates as Train Defect Detectors (TDD). TDDs exist at 5-20 mile intervals. All installations include a DED (every 5-20 miles) and some installations include a DED and a HBD (every 15-30 miles). TDDs exist near Elkhart, South	Unknown	0-3

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
			Warrant Control (TWC) Nevada, Iowa-Flint, Iowa; Automatic Block Signals (ABS) / Yard Limits (YL) Flint, Iowa-Mason City, Iowa					Chicago Junction (Nevada), Garden City, Buckeye, Iowa Falls (two installations), Argon, Chapin, and Flint, Iowa.		
UP Oskaloosa Subdivision	Marshalltown, Iowa-Bridgeport, Iowa (68.7 miles)	One main track with passing sidings	Track Warrant Control (TWC)	Class 2	25 mph	N/A	286,000 lbs.	No Train Defect Detectors (TDD).	Unknown	0-1
UP Jewell Subdivision	West Ames, Iowa-Goldfield, Iowa (55.5 miles)	One main track with passing sidings	Track Warrant Control (TWC)	Class 3	40 mph (West Ames, Iowa-Eagle Grove, Iowa); 30 mph (Eagle Grove, Iowa-Goldfield, Iowa)	N/A	286,000 lbs.	No Train Defect Detectors (TDD).	Unknown	0-1
UP Fort Dodge Subdivision	Eagle Grove, Iowa-Moorland, Iowa (25.5 miles)	One main track with passing sidings	Track Warrant Control (TWC)	Class 4	49 mph	N/A	286,000 lbs. Moorland, Iowa-South Fort Dodge,	No Train Defect Detectors (TDD).	Unknown	0-1

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
			Moorland, Iowa-Eagle Grove, Iowa; Yard Limits (YL) at Eagle Grove, Iowa				Iowa; 268,000 lbs. South Fort Dodge, Iowa-Vincent, Iowa; 286,000 lbs. Vincent, Iowa-Eagle Grove, Iowa			
UP Estherville Subdivision	Goldfield, Iowa-Superior, Iowa (79.3 miles) Note: UP has approximately 41.6 miles of trackage rights over the CP Sheldon Subdivision between the UP Estherville Subdivision at Emmetsburg, Iowa, and Hartley, Iowa, that are not included in the	One main track with passing sidings	Track Warrant Control (TWC)	Class 4	49 mph	N/A	286,000 lbs.	No Train Defect Detectors (TDD).	Unknown	0-1

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
	mileage listed above.									
UP Rake Subdivision	Iowa / Minnesota state line near Rake, Iowa-Estherville, Iowa (51.9 miles)	One main track with passing sidings	Track Warrant Control (TWC)	Class 3	40 mph	N/A	286,000 lbs. Iowa / Minnesota state line near Rake, Iowa-Rake, Iowa; 268,000 lbs. Rake, Iowa-Estherville, Iowa	No Train Defect Detectors (TDD).	Unknown	0-1
UP Tara Subdivision	East Grand Junction, Iowa-Rolfe, Iowa (58.1 miles)	One main track with passing sidings	Track Warrant Control (TWC)	Class 3	40 mph (East Grand Junction, Iowa-Tara, Iowa); 30 mph (Tara, Iowa-Rolfe, Iowa)	N/A	286,000 lbs. (East Grand Junction, Iowa-Tara, Iowa); 268,000 lbs. (Tara, Iowa-Rolfe, Iowa)	No Train Defect Detectors (TDD).	Unknown	0-1
UP Laurens Subdivision	Rolfe, Iowa-Albert City, Iowa (28.5 miles)	One main track	Track Warrant Control (TWC)	Class 3	30 mph	N/A	268,000 lbs.	No Train Defect Detectors (TDD).	Unknown	0-1
UP Blair Subdivision	East Missouri Valley, Iowa-Iowa / Nebraska state line near Blair, Nebraska (14.2 miles)	Two main tracks and one main track	Centralized Traffic Control (CTC) / Automatic Train	Class 4	60 mph	N/A	286,000 lbs.	UP designates as Train Defect Detectors (TDD). TDDs exist at 20-25 mile intervals on this subdivision. All	Unknown	0-3

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
			Control (ATC) East Missouri Valley, Iowa-Allen Creek, Iowa; Centralized Traffic Control (CTC) Allen Creek, Iowa-Iowa / Nebraska state line near Blair, Nebraska					installations include a DED and a HBD. One TDD exists on this subdivision in Iowa near Allen Creek.		
UP Omaha Subdivision	Missouri Valley, Iowa-Iowa / Nebraska state line at Council Bluffs, Iowa (23.1 miles)	Three main tracks, two main tracks, one main track	Centralized Traffic Control (CTC) / Automatic Train Control (ATC) Missouri Valley, Iowa-Council Bluffs, Iowa; Centralized	Class 4	60 mph	N/A	286,000 lbs. (Missouri Valley, Iowa-Council Bluffs, Iowa); 315,000 lbs. (Council Bluffs, Iowa-Iowa / Nebraska state line at Council Bluffs,	UP designates as Train Defect Detectors (TDD). TDDs exist at short intervals on this subdivision. All installations include a DED and one installation includes a DED and a HBD. TDDs exist on this subdivision in Iowa near South Missouri Valley, (three installations),	Unknown	0-3

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
			Traffic Control (CTC) Council Bluffs, Iowa-Iowa / Nebraska state line at Council Bluffs, Iowa				Iowa)	Crescent, and North Council Bluffs (three installations), Iowa.		
UP Sioux City Subdivision	California Junction, Iowa-Sioux City, Iowa (70.4 miles)	One main track with passing sidings	Centralized Traffic Control (CTC) California Junction, Iowa-Modale, Iowa; Automatic Block Signals (ABS) / Track Warrant Control (TWC) Modale, Iowa-Sioux City, Iowa; Yard Limits	Class 4	49 mph	N/A	286,000 lbs.	UP designates as Train Defect Detectors (TDD). TDDs exist at 15-25 mile intervals on this subdivision. All installations include a DED and a HBD. TDDs exist near Mondamin, Blencoe, and Salix, Iowa.	Unknown	0-2

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
			(YL) at Sioux City, Iowa							
UP Albert Lea Subdivision	Mason City, Iowa-Iowa / Minnesota state line near Northwood, Iowa (24.4 miles)	One main track with passing sidings	Yard Limits (YL) at Mason City, Iowa; Centralized Traffic Control (CTC) Mason City, Iowa-Iowa / Minnesota state line near Northwood, Iowa	Class 4	50 mph	N/A	286,000 lbs.	UP designates as Train Defect Detectors (TDD). TDDs exist at 15-25 mile intervals on this subdivision. All installations include a DED and a HBD. One TDD exists on this subdivision in Iowa near Manly.	Unknown	0-3
UP Worthington Subdivision	Le Mars, Iowa-Iowa / Minnesota state line near Bigelow, Minnesota (55.7 miles) Note: UP has approximately 22.5 miles of trackage rights over the CN Cherokee	One main track with passing sidings	Track Warrant Control (TWC)	Class 4	49 mph	N/A	286,000 lbs.	UP designates as Train Defect Detectors (TDD). TDDs exist at 20-mile intervals. All installations include a DED and a HBD. TDDs exist near Carnes, Sheldon, and Sibley, Iowa.	Unknown	0-2

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
	Subdivision between the UP Worthington Subdivision at Le Mars, Iowa, and Sioux City, Iowa, that are not included in the mileage listed above.									
UP Fairmont Subdivision	Mason City, Iowa – Iowa / Minnesota state line near Scarville, Iowa (34.0 miles)	One main track with passing sidings	Track Warrant Control (TWC)	Class 3	40 mph	N/A	286,000 lbs.	UP designates as Train Defect Detectors (TDD). One TDD installation exists on the subdivision near Scarville, Iowa, and includes a DED and a HBD.	Unknown	0-1
UP Trenton Subdivision	Des Moines, Iowa-Iowa / Missouri state line near Lineville, Iowa (87.0 miles)	One main track with passing sidings	Centralized Traffic Control (CTC) Des Moines, Iowa-Beech, Iowa; Automatic Block Signals (ABS) / Track	Class 4	60 mph	N/A	286,000 lbs.	UP designates as Train Defect Detectors (TDD). TDDs exist at 15-25 mile intervals. Installations include a DED and a HBD. TDDs exist near Carlisle, Melcher, Chariton, and Corydon, Iowa, and on the Iowa /	Unknown	0-3

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
			warrant Control (TWC) Beech, Iowa-Williamson, Iowa; Centralized Traffic Control (CTC) Williamson, Iowa-Iowa / Missouri state line near Lineville, Iowa					Missouri state line near Lineville, Iowa.		

4.5 IAIS

Table D-5. Characteristics of IAIS Network Currently Carrying Bulk Ethanol in Iowa

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
IAIS Iowa City Subdivision	Iowa / Illinois state line near Davenport, Iowa-South Amana, Iowa (77.4 miles)	One main track with passing sidings	Track Warrant Control (TWC)	Class 3	40 mph	N/A	286,000 lbs.	IAIS designates as Trackside Warning Detectors (TWD). TWDs exist at 25-mile intervals, and include Hot Box Detector (HBD), Dragging Equipment Detector (DED), and Hot Wheel Detector (HWD) installations near Stockton, Downey, and Oxford, Iowa.	Unknown	0-2
IAIS Newton Subdivision	South Amana, Iowa-East Des Moines, Iowa (93.2 miles)	One main track with passing sidings	Track Warrant Control (TWC)	Class 3	40 mph	N/A	286,000 lbs.	IAIS designates as Trackside Warning Detectors (TWD). TWDs exist at 25 to 30 mile intervals, and include Hot Box Detector (HBD), Dragging Equipment Detector (DED), and Hot Wheel Detector (HWD) installations near Victor, Grinnell, and	Unknown	0-1

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
								Colfax, Iowa.		
IAIS Council Bluffs Subdivision	Des Moines, Iowa-Council Bluffs, Iowa (127.8 miles) Note: IAIS has approximately 2.7 miles of trackage rights over the UP Perry Subdivision – Des Moines Industrial Lead in Des Moines and to the IAIS Council Bluffs Subdivision at West Des Moines, Iowa, that are not included in the mileage listed above.	One main track with passing sidings	Track Warrant Control (TWC)	Class 3	40 mph	N/A	286,000 lbs.	No Trackside Warning Devices (TWD)	Unknown	0-1
IAIS Cedar Rapids Subdivision (owned by CIC; controlled by IAIS)	Yocum Connection (South Amana), Iowa-Cedar Rapids, Iowa (17.8 miles)	One main track	Track Warrant Control (TWC)	Class 3	25 mph	N/A	286,000 lbs.	No Trackside Warning Devices (TWD)	Unknown	0-2 (IAIS)

4.6 IANR

Table D-6. Characteristics of IANR Network Currently Carrying Bulk Ethanol in Iowa

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
IANR Manly Subdivision	Manly, Iowa-Cedar Falls Junction, Iowa (67.3 miles) Note: IANR has approximately 8.7 miles of trackage rights over the CN Waterloo Subdivision and North Waterloo Industrial Lead between the IANR Manly Subdivision at Cedar Falls Junction, Iowa, and Waterloo, Iowa, that are not included in the mileage listed above.	One main track with passing sidings	Yard Limits (YL) at Manly, Iowa; Track Warrant Control (TWC) Manly, Iowa-Cedar Falls Junction, Iowa	Class 2	25 mph Note: IANR limits any train carrying hazardous materials to 10 mph over sections of main track with jointed rail. At the grain elevator in Shell Rock, Iowa, IANR trains operate with a 10 mph head-end restriction through all grade crossings owing to restricted visibility around standing cars on adjacent	N/A	286,000 lbs.	No Trackside Warning Devices (TWD)	Unknown	0-1

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
					elevator tracks.					
IANR Cedar Rapids Subdivision	Waterloo, Iowa-Cedar Rapids, Iowa (50.2 miles) Note: IANR has approximately 7.2 miles of trackage rights over the UP Clinton Subdivision – Waterloo Industrial Lead between the IANR Cedar Rapids Subdivision at Waterloo, Iowa, and the IANR Oelwein Subdivision at Dewar, Iowa; and approximately 4.0 miles of trackage rights over the UP Cedar Rapids Industrial Lead in Cedar	One main track with passing sidings	Yard Limits (YL) at Waterloo, Iowa; Track Warrant Control (TWC) Waterloo, Iowa-Cedar Rapids, Iowa	Class 2	25 mph Note: IANR limits any train carrying hazardous materials to 10 mph over sections of main track with jointed rail. At the grain elevators in La Porte City and Vinton, Iowa, IANR trains operate with a 10 mph head-end restriction through all grade crossings owing to restricted visibility around standing cars on adjacent	N/A	286,000 lbs.	No Trackside Warning Devices (TWD)	Unknown	0-1

Railroad and Operating Subdivision Within Iowa	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
	Rapids, Iowa, that are not included in the mileage listed above.				elevator tracks.					
IANR Oelwein Subdivision	Dewar, Iowa-Oelwein, Iowa (approximately 19.0 miles)	One main track	Track Warrant Control (TWC) Dewar, Iowa-Oelwein, Iowa; Yard Limits (YL) at Oelwein, Iowa	Class 1	10 mph	N/A	268,000 lbs.	No Trackside Warning Devices (TWD)	Unknown	0-1

4.7 Other Short Lines

Table D-7. Characteristics of Other Short Line Rail Networks Currently Carrying Ethanol in Iowa

Railroad	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
CIC	CIC network consists of trackage in the Cedar Rapids and Iowa City, Iowa, areas (approximately 57 miles). Ethanol trains use several segments of the network in Cedar Rapids only. The CIC-owned 17.8-mile segment between Cedar Rapids, Iowa, and Yocum Connection (South Amana), Iowa, is controlled by IAIS and its likely ethanol train volumes are described in Table D-7 above.	One main track with passing sidings	Yard Limits (YL); Restricted Speed (RS); Track Warrant Control (TWC)	Class 1, Class 2, Class 3 (varies by segment)	10-25 mph (varies by segment)	N/A	286,000 lbs.	No Trackside Warning Detectors (TWD)	Unknown	0-1 on CIC network in Cedar Rapids

Railroad	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
DAIR	Segments of trackage rights over State of South Dakota-owned trackage between Hudson and Elk Point, South Dakota (designated as the DAIR Hawarden Subdivision), and the BNSF Aberdeen Subdivision between Elk Point, South Dakota, and Sioux City, Iowa (approximately 34.0 miles of the DAIR Hawarden Subdivision and 7.0 miles of the BNSF Aberdeen Subdivision is located in Iowa); for characteristics	One main track with passing sidings (DAIR only)	Restricted Speed (RS) – DAIR only	Class 2 (DAIR only)	20 mph (DAIR only)	N/A	286,000 lbs. (DAIR only)	No Trackside Warning Detectors (TWD) – DAIR only	Unknown	0-1

Railroad	Segment in Iowa and Approximate Mileage	Track Configuration	Method of Operation	FRA Track Class	Maximum Authorized Speed for Freight Trains	Maximum Authorized Speed for Passenger Trains	Maximum Allowable Gross Weight per Car	Existing Wayside Asset Protection Devices and Spacing	Proposed Wayside Asset Protection Devices	Likely Average Number of Ethanol Trains Daily by Segment
	of the BNSF Aberdeen Subdivision between Elk Point, South Dakota, and Sioux City, Iowa, see Table D-7 above.									
IARR	Steamboat Rock, Iowa-Ackley, Iowa (8.5 miles)	One main track	Unknown	Class 1	10 mph	N/A	265,000 lbs.	No Trackside Warning Devices (TWD)	Unknown	0-1

5.0 Appendix E – Risk and Vulnerability Assessment: Data and Results

Crude Oil and Ethanol Transportation: Risk and Vulnerability Assessment Methodology

This section presents a top-level summary of the risks and vulnerabilities associated with transporting crude oil and ethanol by rail through Iowa. The analysis considers crude oil transportation routes, recorded previous events, likelihood of future incidents, and potential impacts from those incidents to derive an aggregate value for risk. County-specific information may be available to those who are authorized to review it upon official request to Iowa DOT.

This risk assessment is a building block process using various factors, such as length of railroad track, volume of traffic on the rails, and populations, critical facilities, and environmentally important segments within an identified hazard area. The individual factors are analyzed to determine and overall risk for a given county. The data and information provided for this risk and vulnerability assessment are the best available data at the time of collection and should be regarded as a snapshot in time; data could change over time.

It is important to note that eight counties were excluded from the RVA results. This is because no unit-train quantities of bulk crude oil and ethanol are hauled through them [at the time of the Study], or there were no critical infrastructure, population, or environmental exposures located within the hazard buffer zone. Reference Figure 6 - Current Iowa Railroad Routes for Bulk Crude Oil and Ethanol Transportation when examining Tables E-9 thru E-12 and Tables E-15 thru E-16.

The results of the "Risk and Vulnerability Assessment" are provided in Table E-16 (and Figure E-1) and are intended for planning purposes only, including: to prioritize and develop prevention, protection, mitigation, response, and/or recovery strategies and resources. Sections 5.1 through 5.8 describe the terms used within the risk and vulnerability assessments, the associated methodologies, and the data collection references. Section 5.9 provides the results of the assessment.

Note: All risk assessment results are based on methodology designed specifically for the State of Iowa using Iowa-specific data, statistics, and conditions.

5.1 Hazard Area

The "hazard area" is set at the geographic area within 0.5-miles of the centerline of the identified crude oil and ethanol rail transportation infrastructure.

This hazard area is expressed as a "buffer" (a constant offset from a non-point geographical feature). This buffer distance was selected because 0.5-miles corresponds to the USDOT Emergency Response Guidebook evacuation zone for a crude oil and ethanol rail transportation incident involving fire and explosion, which represents the worst-case scenario.

5.2 Exposure

"Exposure" refers to the population, structures, and environment within the identified hazard area.

The following exposure categories were researched and analyzed:

- Population – The estimated number of people living within the buffer

- Housing – The estimated number of housing units within the buffer
- Critical Facilities – The estimated number of critical facility structures within the buffer zone. For the purposes of this report, this category includes public safety, fire, emergency medical (ambulance) facilities, jails, prisons, courthouses, K-12 schools, childcare centers, hospital facilities, nursing homes, town and city halls, and water intake facilities.
- Environmental – The estimated number of acres of environmentally sensitive lands. For the purposes of this report the environmental impact researched and studied includes the following:
    - Significant Public Lakes – Significant public lakes are managed by the Iowa Department of Natural Resources to be accessible and provide fishing opportunities for any angler.[22]
    - Federal Reservoirs – Large natural or artificial lakes used as a source of water supply. Federal reservoirs in Iowa include:
        - Saylorville
        - Red Rock
        - Rathbun
        - Coralville[23]
    - Protected Wetlands and Setbacks – Wetlands are transitional areas, sandwiched between permanently flooded environments and well-drained uplands. They include mangroves, marshes, swamps, forested wetlands, bogs, wet prairies, prairie potholes, and vernal pools.[24]
    - Outstanding Streams – a surface water that Iowa DNR has classified as an outstanding state resource water body in the water quality standards.[25]
    - Designated Streams – water bodies that maintain flow throughout the year, or contain sufficient pooled areas during intermittent flow periods, to maintain a viable aquatic community.[26]
    - Protected Streams – land areas adjacent to five designated scenic rivers in Iowa. These areas are legislatively authorized as having outstanding cultural and natural resource values in accordance with Iowa code. They are:
        - Wapsipinicon River (Sweets Marsh to Mississippi)
        - Middle Raccoon River (Panora to Redfield)

[22] Iowa Department of Natural Resources. Retrieved from http://www.iowadnr.gov/Fishing/Where-to-Fish/Lakes-Ponds-Reservoirs. December 7, 2015.
[23] The Handbook of Iowa Boating Laws and Responsibilities. Iowa Department of Natural Resources. 2014. Print.
[24] USGS National Wetlands Research Center. Retrieved from http://www.nwrc.usgs.gov/wetlands.htm. December 2, 2015.
[25] Iowa Antidegredation Implementation Procedure. Iowa Department of Natural Resources Water Resources Section. February 17, 2010. Print.
[26] Iowa Surface Water Classifications (567 IAC 61.3). 2010. Print.

- Upper Iowa River (Kendallville to Highway 76)
- Little Sioux River (Spencer to Linn Grove)
- Boone River ((Brewers Creek to Des Moines River)[27]

A "top ten list" of County Exposure Rankings is located in Appendix F, and County Profiles are listed in Appendix G.

5.3 Vulnerability

"Vulnerability" is defined as the population, facilities, and environment that are susceptible to impacts by the hazard. Vulnerability is a subset of exposure. As it relates to crude oil and ethanol by rail accidents, any particular incident is likely to affect only a small portion of the buffer. Therefore, an accepted planning assumption of 10 percent of the total exposure per linear rail mile within each county was determined to be vulnerable. The 10 percent value was derived from calculations of population distribution along the railroads coupled with the fact that freight trains are rarely more than one mile long meaning an area of impact would be no greater than one mile along any 10-mile stretch of railroad.

Average Total Exposure Per Linear Mile × 10% = Vulnerability

5.4 Impact

The "impact" is the potential effect an incident might have on populations, facilities, and the environment, including casualties, damage to buildings, and/or harm to the environment.

5.4.1 Impact Level

In order to analyze impact, an Impact Rating Scale was developed. The Impact Rating Scale, shown in Table E-1, assigns a qualitative level (low, medium, or high) to the effects an incident would likely have on vulnerable assets – that is, 10 percent of an average population or number of critical facilities along one linear mile of track and within the buffer. Environmental impacts, having a fixed geographic location are factored at 10 percent impact of the total vulnerable area. This report assumes all exposed areas to have the potential to suffer at least a low impact level.

Table E-1. Impact Rating Scale

Impact Level	Potential Population Impact	Potential Critical Facilities Impact	Potential Environmental Impact
Low	No more than one injury or fatality	Less than 10% damage impact to critical facilities	0 acres or 0 linear miles environmentally sensitive land affected
Medium	More than one but fewer than 10 injuries and/or fatalities	At least 10% and less than 20% damage to critical facilities	.01 – 10 acres or .01 – 1 mile of environmentally sensitive land affected
High	10 or more injuries and/or	At least 20% damage to	>10 acres or >1 linear mile

[27] Iowa Department of Natural Resources. *Protected Waters*. http://www.iowadnr.gov/Things-to-Do/Canoeing-Kayaking/Stream-Care/Protected-Water-Areas.

Impact Level	Potential Population Impact	Potential Critical Facilities Impact	Potential Environmental Impact
	fatalities	critical facilities	of environmentally sensitive land affected

The impact levels were assigned as described below.

5.4.2 Population Impact Level

The Population Impact Level results are provided in Table E-9. They were assigned quantitatively, based on Table E-1 above where the population vulnerability was analyzed, by county, to be:

- zero (0) to one (1) injuries and/or fatalities, a low value was assigned;
- one (1) or more, but fewer than ten (10) injuries and/or fatalities, a medium value was assigned; or
- ten (10) or more or more injuries and/or fatalities, a high value was assigned.

5.4.3 Critical Facilities Impact Level

The Critical Facilities Impact Level results are provided in Table E-10. They were assigned quantitatively, based on Table E-1 above where the critical facilities vulnerability was analyzed, by county, to be:

- less than 10 percent damage to critical facilities, a low value was assigned;
- at least 10 percent but less than 20 percent damage to critical facilities, a medium value was assigned; or
- At least 20 percent damage to critical facilities, a high value was assigned.

5.4.4 Environmental Impact Level

The Environmental Impact Level results are provided in Tables E-11 and E-12. They were assigned quantitatively, based on Table E-1 above where the environmental vulnerability was analyzed, by county, to be:

- 0 acres or 0 linear miles, a low value was assigned;
- 0.01-10 acres or 0.01 to 1 linear miles, a medium value was assigned; or
- >10 acres or >1 linear mile, a high value was assigned.

5.4.5 Average Impact Value

An average impact value for each county was calculated by assigning a quantitative value to each impact level within each exposure category (population, critical facilities, and environmental impacts). The values were weighted and multiplied to produce a non-linear distribution of results, to better identify highly impacted outliers. (Refer to Table E-2).

Table E-2. Impact Value

Impact Level	Impact Value
Low	1
Medium	3
High	5

To calculate the Average Impact Value:

(Population Impact Value + Critical Facility Impact Value + Environmental Impact Value)÷3 = Average Impact Value

5.5 Likelihood

Likelihood is an estimate of how often an incident might occur within the buffer. Incidents may occur within the buffer with or without impact. In this Study, likelihood is described by a Likelihood Rating Scale – an assessment of the chances that a hazard event might occur in the buffer zone during a 20-year timespan, based on a review of historic events and available data.

The railroad likelihood value was derived in a multi-step process. Each county's total train miles was determined by multiplying the total linear mile of main track by the average number of trains per day that traverse the tracks. The average number of trains per day was calculated using the highest combined value of the ranges of both crude oil and ethanol trains, based on the most recent available data provided by the railroads. The highest values were used to develop a worst-case scenario for planning purposes. It is important to note that the actual number of trains per day can vary depending on crude oil and ethanol production and transportation routing. This assessment should be considered as a snapshot of a regularly changing and adjusting transportation industry.

(Linear Mile of Main Track × Average # Trains) = Train Miles

Each county's train miles were evaluated to determine the percent of total main train miles within the state.

County Train Miles ÷ State Train Miles = % Total Train Miles

The county's percent of the total train miles was then multiplied by the total number of incidents projected to occur in Iowa within a 20-year period. This resulted in the Railroad Likelihood Value. Historical incident values are provided in the Railroad Likelihood results, Section 3.9.4.

% Total Train Miles × 20 = Railroad Likelihood Value (20-year)

The result is a projected number of incidents that could occur in any county over the next 20 years, from which probability is derived.

The 20-year probability was then annualized by dividing the railroad likelihood value by 20.

Railroad Likelihood Value ÷ 20 = Annual Probability

Table E-3. Likelihood Rating Scale

Likelihood Value	Likelihood Level	% Probability per 20 years
1	Negligible	<0.10%
2	Low	0.11% – 0.99%
3	Moderate	1.00% – 1.99%
4	High	2.00%-2.99%
5	Highest	>3.0%

5.6 Risk (Sensitivity)

"Risk" is a metric that aggregates all the analyses described above. It combines the potential impacts with the likelihood of occurrence. In this report, risk is expressed using three metrics: risk level (H, M, L); risk (sensitivity) value (an absolute numeric value).

5.6.1 Risk (Sensitivity) Value

A numeric value representing each county's risk (sensitivity) was calculated by multiplying the Average Impact Value by the assigned Likelihood Value.

Average Impact Value × Likelihood Value= Risk (Sensitivity) Value

5.6.2 Risk (Sensitivity) Level

Each county was assigned a risk level using the calculated Risk Value as shown in Table E-4.

Table E-4. Assigning Risk (Sensitivity) Level

Risk (Sensitivity) Value	Risk (Sensitivity) Level
0.00-4.99	Low
5.00-9.99	Medium
10.00+	High

5.7 Data Collection and Metadata

5.7.1 Transportation Network Datasets

The following datasets were used to derive the buffer zones based on known crude oil and ethanol transportation railroads:

Table E-5. Transportation Network Datasets

Data Name	Data Provided By	Data Description	Data Type
Railroad Mainline	Iowa DOT	Railroad Mainlines	Esri FGDB Feature Class Polyline File

5.7.2 Population Vulnerability

The following datasets were used to derive the vulnerable population based on geographic location (not demographic factors):

Table E-6. Population Datasets

Data Name	Data Provided By	Data Description	Data Type
Housing Units	Iowa DNR Natural Resources Geographic Information Systems Library	2010 Census Block Level Housing Units	Esri FGDB Feature Class Polygon File
Population	Iowa DNR Natural Resources Geographic Information Systems Library	2010 Census Block Level Population	Esri FGDB Feature Class Polygon File

Population estimates were interpolated from the proportional area of each block level group population within the 1-mile corridor for each county.

5.7.3 Critical Facilities Vulnerability

The following datasets were used to derive the vulnerable critical facilities:

Table E-7. Critical Facilities Vulnerability

Data Name	Data Provided By	Data Description	Data Type
Medical Ambulances, Fire Protection	Iowa DOT	Locations of Medical Ambulance and Fire Protection Services	Esri FGDB Feature Class Point File
Courthouses Prisons, Jails, Public Safety Providers	Iowa DOT (via Info Group)	Locations of Courthouses Prisons and Safety Providers(Police, Fire)	Esri FGDB Feature Class Point File
School K-12	Iowa DOT	Location of K-12 Schools	Esri FGDB Feature Class Point File
Childcare Centers	Iowa DOT (via Info Group)	Locations of Childcare Centers	Esri FGDB Feature Class Point File
Hospitals	Iowa DOT (via Info Group)	Locations of Hospitals / Health Providers	Esri FGDB Feature Class Point File
Nursing Homes	Iowa DOT (via Info Group)	Locations of Nursing Homes	Esri FGDB Feature Class Point File
Town and City Halls	Iowa DOT (via Info Group)	Locations of Town Halls, City Halls, Government facilities	Esri FGDB Feature Class Point File
Surface Water Public	Iowa DNR	Surface water intakes (and infiltration galleries) at	Esri FGDB

Data Name	Data Provided By	Data Description	Data Type
Intake	Natural Resources Geographic Information Systems Library	facilities with operating permits for Public Water Supplies (systems that serve 25 or more people) for drinking water. This data is from the Iowa DNR's Safe Drinking Water Information System (SDWIS).	Feature Class Point File

5.7.4 Environmental Vulnerability

The following datasets were used to derive the environmental vulnerability:

Table E-8. Environmental Vulnerability

Data Name	Data Provided By	Data Description	Data Type
Significant Public Lakes	Iowa DNR Natural Resources Geographic Information Systems Library	Public lakes are the recognized significant publicly-owned lakes by the Iowa Department of Natural Resources	Esri FGDB Feature Class Polygon File
Federal Reservoirs	Iowa DNR Natural Resources Geographic Information Systems Library	Federally Owned Reservoirs of Iowa	Esri FGDB Feature Class Polygon File
Designated Wetland Setbacks	Iowa DNR Natural Resources Geographic Information Systems Library	Wetlands Designated as Protected by the Iowa DNR	Esri FGDB Feature Class Polygon File
Outstanding Iowa Waters	Iowa DNR Natural Resources Geographic Information Systems Library	A surface water that Iowa DNR has classified as an outstanding state resource water in the water quality standards	Esri FGDB Feature Class Polyline File
Designated Rivers	Iowa DNR Natural Resources Geographic Information Systems Library	This coverage consists of designated stream segments in the state of Iowa. Classifications for designated streams are determined through a Use Assessment/Use Attainability Analysis. The coverage was developed using the National Hydrography Dataset (NHD) and Hydro Event Management (HEM) tools. Stream segments delineated from the NHD were related to the Surface Water Classification Document (SWC), which is the rule referenced document in Chapter 61.3(5)	Esri FGDB Feature Class Polyline File
Protected Water Areas	Iowa DNR Natural Resources Geographic	Protected water area means a water area permanently designated by the Natural Resource Commission for inclusion in the protected water area system	Esri FGDB Feature Class Polyline File

Data Name	Data Provided By	Data Description	Data Type
	Information Systems Library		
Conservation and Recreation Lands	Iowa DNR Natural Resources Geographic Information Systems Library	Conservation and Recreational Lands with public access (Parks, WMA, DNR Lands)	Esri FGDB Feature Class Polygon File

5.8 Metadata

Each exposure dataset was overlaid and "clipped" by the 0.5-mile buffer using geographic information systems (GIS) to produce four *exposure* datasets for each county:

- Population exposed to rail hazards
- Housing units exposed to rail hazards
- Critical infrastructure exposed to rail hazards
- Environmental areas exposed to rail hazards

A summary of county data can be found in Appendix B: County Profiles.

5.9 Crude Oil and Ethanol by Rail Transportation Risk and Vulnerability

5.9.1 Railroad Vulnerable Population Impact

While each county's vulnerability accounts for the linear miles of railroad that transports either crude oil or ethanol, or both, the amount of railroad infrastructure in a county is not directly proportionate to the risk to population. For example, Harrison County contains the most linear miles of railroad main track (130.16 miles), with 6,706 people and 3,173 housing units within the 0.5-mile buffer zone. Linn County has the largest population (45,876) and number of housing units (20,325) within the 0.5-mile buffer zone, and contains 118.32 linear miles of main track, or 387.73 people per mile of railroad compared to 51.52 people per mile of railroad in Harrison County.

Table E-9 provides, by county, the length of railroad, estimated population, and housing units within the buffer, and the vulnerable population impact level. Methodology for Population Impact is provided in Section 5.4.2.

Table E-9. Railroad Vulnerable Population Impact

County	Estimated Linear Mile of Railroad	Estimated Population	Average Vulnerable Population per Linear Mile of Track	Impact to 10% of the Population per Linear Mile	Impact Level
Adair	7.75	1,409	182	18	High
Adams	34.88	1,499	14	1	Low

County	Estimated Linear Mile of Railroad	Estimated Population	Average Vulnerable Population per Linear Mile of Track	Impact to 10% of the Population per Linear Mile	Impact Level
Allamakee	40.14	3,954	14	1	Low
Appanoose	22.36	1,339	12	1	Low
Benton	74.55	10,724	24	2	Medium
Black Hawk	77.65	38,100	164	16	High
Boone	49.18	9,525	65	6	Medium
Bremer	23.65	5,994	253	25	High
Buchanan	27.45	6,881	84	8	Medium
Buena Vista	36.27	11,915	329	33	High
Butler	46.00	6,421	140	14	High
Calhoun	40.67	3,380	83	8	Medium
Carroll	74.65	7,530	25	3	Medium
Cass	25.82	3,723	144	14	High
Cedar	57.23	5,435	19	2	Medium
Cerro Gordo	77.70	25,388	54	5	Medium
Cherokee	29.80	5,656	190	19	High
Chickasaw	33.35	4,727	47	5	Medium
Clarke	51.92	4,580	29	3	Medium
Clay	24.39	7,245	297	30	High
Clayton	59.29	5,251	13	1	Low
Clinton	102.66	20,639	40	4	Medium
Crawford	109.52	8,483	19	2	Medium
Dallas	17.50	2,549	146	15	High
Delaware	38.68	4,668	121	12	High
Des Moines	44.70	14,700	110	11	High
Dickinson	2.18	143	65	7	Medium
Dubuque	62.16	26,166	60	6	Medium
Emmet	36.22	4,570	126	13	High
Fayette	0. 50*	295	295	15	High
Floyd	64.52	8,133	42	4	Medium
Franklin	26.16	1,830	17	2	Medium
Fremont	26.93	381	14	1	Low
Greene	61.53	3,543	14	1	Low
Grundy	3.01*	10	3	1	Low
Guthrie	25.76	2,218	86	9	Medium
Hamilton	51.03	7,598	149	15	High
Hancock	24.30	3,508	144	14	High
Hardin	58.09	4,804	21	2	Medium
Harrison	130.16	6,706	9	1	Low
Henry	38.72	7,135	61	6	Medium
Humboldt	31.36	1,199	38	4	Medium
Ida	8.92	1,892	212	21	High
Iowa	34.03	4,017	39	4	Medium
Jackson	32.96	2,602	16	2	Medium
Jasper	38.22	8,870	232	23	High
Jefferson	53.19	5,212	12	1	Low
Johnson	27.20	32,980	606	61	High

County	Estimated Linear Mile of Railroad	Estimated Population	Average Vulnerable Population per Linear Mile of Track	Impact to 10% of the Population per Linear Mile	Impact Level
Keokuk	9.40	81	2	0	Low
Kossuth	54.51	5,093	93	9	Medium
Lee	79.03	14,750	62	6	Medium
Linn	118.32	45,876	65	6	Medium
Louisa	19.01	2,030	21	2	Medium
Lucas	73.65	5,327	12	1	Low
Lyon	18.49	1,092	15	1	Low
Madison	8.54	1,450	170	17	High
Mahaska	25.31	7,614	301	30	High
Marion	16.35	1,425	29	3	Medium
Marshall	67.55	10,076	37	4	Medium
Mills	66.50	4,063	15	2	Medium
Mitchell	30.45	4,121	135	14	High
Monona	25.71	3,648	71	7	Medium
Monroe	72.19	4,207	6	1	Low
Montgomery	46.89	4,724	25	3	Medium
Muscatine	50.35	16,641	83	8	Medium
O' Brien	12.75	3,673	96	10	High
Osceola	18.00	2,285	63	6	Medium
Page	11.83	3,263	276	28	High
Palo Alto	51.61	5,701	110	11	High
Plymouth	84.80	10,627	18	2	Medium
Pocahontas	36.87	2,882	78	8	Medium
Polk	56.62	41,180	182	18	High
Pottawattamie	126.60	29,784	59	6	Medium
Poweshiek	48.63	9,641	198	20	High
Sac	35.05	1,768	50	5	Medium
Scott	62.49	38,248	87	9	Medium
Shelby	24.16	1,304	54	5	Medium
Sioux	59.56	7,824	19	2	Medium
Story	90.94	34,614	95	10	High
Tama	50.75	2,678	18	2	Medium
Union	44.23	6,067	46	5	Medium
Wapello	84.24	10,088	15	1	Low
Warren	14.04	2,447	58	6	Medium
Washington	25.62	4,773	37	4	Medium
Wayne	43.00	2,591	12	1	Low
Webster	86.74	18,314	211	21	High
Winnebago	16.32	2,188	134	13	High
Winneshiek	29.71	2,708	46	5	Medium
Woodbury	41.16	31,035	108	11	High
Worth	45.33	4,022	89	9	Medium
Wright	21.63	3,843	44	4	Medium

** Fayette and Grundy counties do not have crude oil or ethanol rail transportation within their jurisdictional borders, but do have areas within the 0/5 mile buffer zones. The Estimated Linear Miles of Railroad for these counties refer to these buffer zones.*

5.9.2 Railroad Critical Facilities Impact

The potential impact of a railroad incident on critical facilities was estimated through an analysis of the number of critical facilities within the buffer (refer to Table E-10). Methodology for Critical Facilities Impact is provided in Section 5.4.3.

Table E-10. Railroad Vulnerable Critical Facilities Impact

County	Estimated Linear Mile of Railroad	EMS and Fire	Court-houses and Public Safety	K - 12 Schools	Childcare Centers	Hospital Facilities	Nursing Homes	Town and City Halls	Water Intake Facilities	Average # of Facilities per Train Mile of Track	10% Impact to Facilities per Mile of Track	Impact Level
Adair	7.75	2	3	0	0	1	1	3	0	1.29	12.91%	Medium
Adams	34.88	2	8	3	1	2	0	11	1	0.80	8.03%	Low
Allamakee	40.14	4	5	5	5	4	1	15	0	0.97	9.72%	Low
Appanoose	22.36	1	2	3	0	0	0	4	0	0.45	4.47%	Low
Benton	74.55	5	13	10	2	4	2	26	0	0.83	8.32%	Low
Black Hawk	77.65	4	20	20	11	11	7	31	0	1.34	13.39%	Medium
Boone	49.18	2	8	11	3	4	7	19	0	1.10	10.98%	Medium
Bremer	23.65	3	2	7	3	4	3	2	0	1.01	10.15%	Medium
Buchanan	27.45	3	3	12	4	4	3	5	0	1.24	12.39%	Medium
Buena Vista	36.27	3	7	13	4	4	4	24	0	1.63	16.27%	Medium
Butler	46.00	6	9	6	3	5	5	10	0	0.96	9.56%	Low
Calhoun	40.67	1	8	6	1	3	6	20	0	1.11	11.06%	Medium
Carroll	74.65	3	16	7	7	13	2	25	0	0.98	9.78%	Low
Cass	25.82	2	8	1	3	5	1	17	0	1.43	14.33%	Medium
Cedar	57.23	5	9	7	3	4	3	9	0	0.70	6.99%	Low
Cerro Gordo	77.70	3	7	18	15	25	8	12	0	1.13	11.33%	Medium
Cherokee	29.80	6	10	10	6	4	3	22	0	2.05	20.47%	High
Chickasaw	33.35	0	7	6	4	3	3	15	0	1.14	11.39%	Medium
Clarke	51.92	3	8	3	2	2	5	10	0	0.64	6.36%	Low
Clay	24.39	2	12	7	5	4	2	15	1	1.97	19.68%	Medium
Clayton	59.29	3	4	6	4	1	7	10	0	0.59	5.90%	Low
Clinton	102.66	6	14	16	6	7	4	16	1	0.68	6.82%	Low
Crawford	109.52	5	6	12	2	5	5	33	0	0.62	6.21%	Low
Dallas	17.50	2	2	3	2	0	0	3	0	0.69	6.86%	Low
Delaware	38.68	6	6	5	7	3	6	20	0	1.37	13.70%	Medium
Des Moines	44.70	4	12	13	6	9	3	23	0	1.57	15.66%	Medium
Dickinson	2.18	1	1	0	0	0	0	1	0	1.38	13.76%	Medium
Dubuque	62.16	4	16	19	12	12	9	32	0	1.67	16.73%	Medium
Emmet	36.22	1	8	4	2	4	2	13	0	0.94	9.39%	Low
Fayette	0.50*	0	0	0	0	0	0	0	0	0.00	0.00%	Low
Floyd	64.52	2	5	7	8	6	6	10	0	0.68	6.82%	Low
Franklin	26.16	0	3	1	0	0	0	5	0	0.34	3.44%	Low

County	Estimated Linear Mile of Railroad	EMS and Fire	Court-houses and Public Safety	K - 12 Schools	Childcare Centers	Hospital Facilities	Nursing Homes	Town and City Halls	Water Intake Facilities	Average # of Facilities per Train Mile of Track	10% Impact to Facilities per Mile of Track	Impact Level
Fremont	26.93	1	0	0	0	1	0	0	0	0.07	0.74%	Low
Greene	61.53	2	4	3	1	2	3	16	0	0.50	5.04%	Low
Grundy	3.01*	0	0	0	0	0	0	0	0	0.00	0.00%	Low
Guthrie	25.76	2	4	3	0	2	1	4	0	0.62	6.21%	Low
Hamilton	51.03	4	9	8	2	5	0	25	0	1.04	10.39%	Medium
Hancock	24.30	2	3	2	1	7	2	14	0	1.28	12.76%	Medium
Hardin	58.09	4	4	2	3	8	3	8	0	0.55	5.51%	Low
Harrison	130.16	4	13	13	4	9	3	23	0	0.53	5.30%	Low
Henry	38.72	1	9	7	5	6	8	18	0	1.39	13.95%	Medium
Humboldt	31.36	0	0	4	0	0	0	4	0	0.26	2.55%	Low
Ida	8.92	2	3	5	1	2	1	9	0	2.58	25.79%	High
Iowa	34.03	2	7	3	2	1	2	12	0	0.85	8.52%	Low
Jackson	32.96	2	3	3	0	1	1	7	0	0.52	5.16%	Low
Jasper	38.22	3	9	6	7	8	4	17	0	1.41	14.13%	Medium
Jefferson	53.19	2	9	8	0	7	4	19	1	0.94	9.40%	Low
Johnson	27.20	8	15	11	23	31	3	46	1	5.07	50.74%	High
Keokuk	9.40	0	0	0	0	0	0	0	0	0.00	0.00%	Low
Kossuth	54.51	4	8	8	1	2	1	18	0	0.77	7.70%	Low
Lee	79.03	4	14	8	6	1	7	19	2	0.77	7.72%	Low
Linn	118.32	15	33	16	26	29	12	58	1	1.61	16.06%	Medium
Louisa	19.01	0	2	2	2	1	0	2	0	0.47	4.73%	Low
Lucas	73.65	3	4	7	3	4	2	17	1	0.56	5.57%	Low
Lyon	18.49	2	1	2	0	0	0	6	0	0.59	5.95%	Low
Madison	8.54	1	0	3	1	1	0	3	0	1.05	10.54%	Medium
Mahaska	25.31	1	5	8	10	2	5	14	0	1.78	17.78%	Medium
Marion	16.35	1	1	3	0	1	0	3	0	0.55	5.50%	Low
Marshall	67.55	4	10	8	6	8	1	19	0	0.83	8.29%	Low
Mills	66.50	4	8	4	3	3	9	19	0	0.75	7.52%	Low
Mitchell	30.45	1	8	6	1	2	5	12	0	1.15	11.49%	Medium
Monona	25.71	1	6	4	1	0	3	13	0	1.09	10.89%	Medium
Monroe	72.19	2	4	5	3	5	8	8	0	0.48	4.85%	Low
Montgomery	46.89	2	7	5	2	2	4	18	0	0.85	8.53%	Low
Muscatine	50.35	5	13	6	5	3	1	19	0	1.03	10.33%	Medium

County	Estimated Linear Mile of Railroad	EMS and Fire	Court-houses and Public Safety	K - 12 Schools	Childcare Centers	Hospital Facilities	Nursing Homes	Town and City Halls	Water Intake Facilities	Average # of Facilities per Train Mile of Track	10% Impact to Facilities per Mile of Track	Impact Level
O' Brien	12.75	3	2	3	2	6	4	12	0	2.51	25.09%	High
Osceola	18.00	1	3	0	0	1	4	13	0	1.22	12.22%	Medium
Page	11.83	1	4	5	2	0	3	4	0	1.61	16.06%	Medium
Palo Alto	51.61	0	10	12	5	5	9	25	0	1.28	12.79%	Medium
Plymouth	84.80	4	13	15	5	8	8	26	0	0.93	9.32%	Low
Pocahontas	36.87	2	5	8	1	0	4	8	0	0.76	7.59%	Low
Polk	56.62	5	59	12	19	31	16	128	2	4.80	48.04%	High
Pottawattamie	126.60	5	20	17	17	16	10	31	0	0.92	9.16%	Low
Poweshiek	48.63	3	5	5	1	6	3	13	1	0.76	7.61%	Low
Sac	35.05	1	3	4	0	1	2	9	0	0.57	5.71%	Low
Scott	62.49	5	14	20	13	11	6	31	1	1.62	16.16%	Medium
Shelby	24.16	4	5	3	0	0	2	3	0	0.70	7.04%	Low
Sioux	59.56	4	3	8	2	10	5	11	0	0.72	7.22%	Low
Story	90.94	7	16	14	6	11	6	37	0	1.07	10.67%	Medium
Tama	50.75	2	4	5	0	0	0	7	0	0.35	3.55%	Low
Union	44.23	2	7	8	4	2	5	13	1	0.95	9.50%	Low
Wapello	84.24	4	10	8	2	9	3	22	5	0.75	7.48%	Low
Warren	14.04	2	2	3	2	0	0	1	0	0.71	7.12%	Low
Washington	25.62	1	7	4	2	2	2	13	0	1.21	12.10%	Medium
Wayne	43.00	3	7	7	1	6	2	9	1	0.84	8.37%	Low
Webster	86.74	7	22	15	9	15	9	49	0	1.45	14.53%	Medium
Winnebago	16.32	2	3	5	2	2	2	8	0	1.47	14.70%	Medium
Winneshiek	29.71	3	4	7	2	3	0	8	0	0.91	9.09%	Low
Woodbury	41.16	4	22	23	22	24	8	46	1	3.64	36.45%	High
Worth	45.33	6	12	6	3	2	4	14	0	1.04	10.37%	Medium
Wright	21.63	1	3	3	2	2	2	3	0	0.74	7.40%	Low

** Fayette and Grundy counties do not have crude oil or ethanol rail transportation within their jurisdictional borders, but do have areas within the 0/5 mile buffer zones. The Estimated Linear Miles of Railroad for these counties refer to these buffer zones.*

5.9.3 Railroad Vulnerable Environmental Impact

Tables E-11 and E-12 provide, by county, the total area, in acres or linear miles within the buffer, and the determined impact level. The entire area, each of these summed, is used to calculate the vulnerability for each county from which the impact level was assigned as described in Section 5.4.4 Environmental Impact Level.

Table E-11. Railroad Vulnerable Environmental Impact in Acres – Lakes, Reservoirs, Wetlands, and Setbacks

County	Public Lakes	Federal Reservoirs	Protected Wetlands and Setbacks	Vulnerable Acres	Impact Level
Adair	0.00	0.00	0.00	0.00	Low
Adams	0.00	0.00	0.00	0.00	Low
Allamakee	0.00	0.00	0.00	0.00	Low
Appanoose	0.00	75.49	0.00	7.55	Medium
Benton	0.00	0.00	528.15	52.81	High
Black Hawk	28.29	0.00	0.00	2.83	Medium
Boone	0.00	0.00	100.91	10.09	High
Bremer	0.00	0.00	0.00	0.00	Low
Buchanan	0.00	0.00	0.00	0.00	Low
Buena Vista	200.22	0.00	469.29	66.95	High
Butler	0.00	0.00	0.00	0.00	Low
Calhoun	0.00	0.00	0.00	0.00	Low
Carroll	0.00	0.00	0.00	0.00	Low
Cass	21.39	0.00	0.00	2.14	Medium
Cedar	0.00	0.00	0.00	0.00	Low
Cerro Gordo	732.72	0.00	1,181.27	191.40	High
Cherokee	0.00	0.00	0.00	0.00	Low
Chickasaw	0.00	0.00	0.00	0.00	Low
Clarke	20.37	0.00	0.00	2.04	Medium
Clay	0.00	0.00	1,999.60	199.96	High
Clayton	0.00	0.00	721.81	72.18	High
Clinton	0.00	0.00	0.00	0.00	Low
Crawford	6.62	0.00	0.00	0.66	Medium
Dallas	0.00	0.00	0.00	0.00	Low
Delaware	0.00	0.00	4.71	0.47	Medium
Des Moines	0.00	0.00	479.98	48.00	High
Dickinson	0.00	0.00	0.00	0.00	Low
Dubuque	0.00	0.00	0.00	0.00	Low
Emmet	0.00	0.00	467.04	46.70	High
Fayette	0.00	0.00	0.00	0.00	Low
Floyd	0.00	0.00	0.00	0.00	Low
Franklin	36.06	0.00	0.00	3.61	Medium
Fremont	0.00	0.00	0.00	0.00	Low
Greene	0.00	0.00	0.00	0.00	Low
Grundy	0.00	0.00	0.00	0.00	Low
Guthrie	0.00	0.00	0.00	0.00	Low
Hamilton	35.58	0.00	28.94	6.45	Medium
Hancock	26.02	0.00	972.66	99.87	High
Hardin	0.00	0.00	0.00	0.00	Low
Harrison	0.00	0.00	1,039.27	103.93	High
Henry	0.00	0.00	0.00	0.00	Low
Humboldt	0.00	0.00	0.00	0.00	Low
Ida	0.00	0.00	0.00	0.00	Low

County	Public Lakes	Federal Reservoirs	Protected Wetlands and Setbacks	Vulnerable Acres	Impact Level
Iowa	0.00	0.00	0.00	0.00	Low
Jackson	0.00	0.00	0.00	0.00	Low
Jasper	0.00	0.00	0.00	0.00	Low
Jefferson	0.00	0.00	0.00	0.00	Low
Johnson	11.89	0.00	0.00	1.19	Medium
Keokuk	0.00	0.00	0.00	0.00	Low
Kossuth	0.00	0.00	0.00	0.00	Low
Lee	0.00	0.00	0.00	0.00	Low
Linn	0.00	0.00	0.00	0.00	Low
Louisa	0.00	0.00	0.00	0.00	Low
Lucas	0.26	0.00	13.14	1.34	Medium
Lyon	0.00	0.00	0.00	0.00	Low
Madison	0.00	0.00	0.00	0.00	Low
Mahaska	0.00	0.00	0.00	0.00	Low
Marion	0.00	0.00	0.00	0.00	Low
Marshall	0.00	0.00	0.00	0.00	Low
Mills	0.00	0.00	0.00	0.00	Low
Mitchell	0.00	0.00	0.00	0.00	Low
Monona	0.00	0.00	0.00	0.00	Low
Monroe	0.00	0.00	0.00	0.00	Low
Montgomery	7.64	0.00	0.00	0.76	Medium
Muscatine	0.00	0.00	8.73	0.87	Medium
O’ Brien	0.00	0.00	0.00	0.00	Low
Osceola	0.00	0.00	0.00	0.00	Low
Page	0.00	0.00	0.00	0.00	Low
Palo Alto	252.59	0.00	0.00	25.26	High
Plymouth	0.00	0.00	0.00	0.00	Low
Pocahontas	0.00	0.00	0.00	0.00	Low
Polk	67.56	0.00	180.35	24.79	High
Pottawattamie	0.00	0.00	0.00	0.00	Low
Poweshiek	6.44	0.00	0.00	0.64	Medium
Sac	0.00	0.00	1,094.30	109.43	High
Scott	0.00	0.00	0.00	0.00	Low
Shelby	0.00	0.00	0.00	0.00	Low
Sioux	0.00	0.00	0.00	0.00	Low
Story	0.00	0.00	0.00	0.00	Low
Tama	0.00	0.00	2,565.67	256.57	High
Union	12.41	0.00	0.00	1.24	Medium
Wapello	12.64	0.00	0.00	1.26	Medium
Warren	0.00	0.00	0.00	0.00	Low
Washington	0.00	0.00	0.00	0.00	Low
Wayne	0.00	0.00	0.00	0.00	Low
Webster	0.00	0.00	0.00	0.00	Low
Winnebago	0.00	0.00	867.51	86.75	High
Winneshiek	26.77	0.00	0.00	2.68	Medium
Woodbury	0.00	0.00	0.00	0.00	Low
Worth	0.00	0.00	0.00	0.00	Low
Wright	0.00	0.00	0.00	0.00	Low

Table E-12. Railroad Vulnerable Environmental Impact in Linear Miles – Streams

County	Outstanding Streams	Designated Streams	Protected Streams	Vulnerable Miles	Impact Level
Adair	0.00	1.65	0.00	0.16	Medium
Adams	0.00	14.91	0.00	1.49	High
Allamakee	1.34	5.06	0.00	0.64	Medium
Appanoose	0.00	4.74	0.00	0.47	Medium
Benton	0.00	30.89	0.00	3.09	High
Black Hawk	0.00	28.65	2.08	3.07	High
Boone	0.00	4.57	0.00	0.46	Medium
Bremer	0.00	11.13	0.00	1.11	High
Buchanan	0.00	5.79	6.71	1.25	High
Buena Vista	0.00	2.09	0.00	0.21	Medium
Butler	0.00	43.08	0.00	4.31	High
Calhoun	0.00	5.02	0.00	0.50	Medium
Carroll	0.00	20.16	0.00	2.02	High
Cass	0.00	11.91	0.00	1.19	High
Cedar	0.00	9.05	0.00	0.90	Medium
Cerro Gordo	0.00	32.12	0.00	3.21	High
Cherokee	0.00	9.15	0.00	0.91	Medium
Chickasaw	0.00	12.56	0.00	1.26	High
Clarke	0.00	0.00	0.00	0.00	Low
Clay	0.00	12.08	0.33	1.24	High
Clayton	8.72	18.99	0.00	2.77	High
Clinton	0.00	19.43	1.82	2.13	High
Crawford	0.00	56.13	0.00	5.61	High
Dallas	0.00	15.09	0.00	1.51	High
Delaware	0.00	8.77	0.00	0.88	Medium
Des Moines	0.00	7.74	0.00	0.77	Medium
Dickinson	0.00	0.00	0.00	0.00	Low
Dubuque	0.00	26.00	0.00	2.60	High
Emmet	0.00	13.48	0.00	1.35	Medium
Fayette	0.00	0.18	0.00	0.02	Medium
Floyd	0.00	21.44	0.00	2.14	High
Franklin	0.00	6.52	0.00	0.65	Medium
Fremont	0.00	0.00	0.00	0.00	Low
Greene	0.00	13.02	0.00	1.30	High
Grundy	0.00	0.00	0.00	0.00	Low
Guthrie	0.00	10.00	0.00	1.00	High
Hamilton	0.00	21.54	2.80	2.43	High
Hancock	0.00	1.01	0.00	0.10	Medium
Hardin	0.00	6.94	0.00	0.69	Medium
Harrison	0.00	41.53	0.00	4.15	High
Henry	0.00	3.94	0.00	0.39	Medium
Humboldt	0.00	9.31	0.00	0.93	Medium
Ida	0.00	11.96	0.00	1.20	High
Iowa	0.00	23.09	0.00	2.31	High
Jackson	0.00	4.16	0.00	0.42	Medium
Jasper	0.00	13.74	0.00	1.37	High
Jefferson	0.00	6.98	0.00	0.70	Medium
Johnson	0.00	22.97	0.00	2.30	High
Keokuk	0.00	3.11	0.00	0.31	Medium
Kossuth	0.00	7.51	0.00	0.75	Medium
Lee	0.00	11.34	0.00	1.13	High

County	Outstanding Streams	Designated Streams	Protected Streams	Vulnerable Miles	Impact Level
Linn	0.00	43.78	2.44	4.62	High
Louisa	0.00	1.04	0.00	0.10	Medium
Lucas	0.00	17.75	0.00	1.77	High
Lyon	0.00	2.73	0.00	0.27	Medium
Madison	0.00	0.00	0.00	0.00	Low
Mahaska	0.00	19.15	0.00	1.91	High
Marion	0.00	3.73	0.00	0.37	Medium
Marshall	0.00	19.39	0.00	1.94	High
Mills	0.00	9.00	0.00	0.90	Medium
Mitchell	0.00	2.60	0.00	0.26	Medium
Monona	0.00	11.07	0.00	1.11	High
Monroe	0.00	16.04	0.00	1.60	High
Montgomery	0.00	11.39	0.00	1.14	High
Muscatine	0.00	29.17	0.00	2.92	High
O' Brien	0.00	9.03	0.00	0.90	Medium
Osceola	0.00	7.60	0.00	0.76	Medium
Page	0.00	2.99	0.00	0.30	Medium
Palo Alto	0.00	2.66	0.00	0.27	Medium
Plymouth	0.00	72.42	0.00	7.24	High
Pocahontas	0.00	1.16	0.00	0.12	Medium
Polk	0.00	25.52	0.00	2.55	High
Pottawattamie	0.00	36.44	0.00	3.64	High
Poweshiek	0.00	26.75	0.00	2.68	High
Sac	0.00	20.46	0.00	2.05	High
Scott	0.00	16.15	1.55	1.77	High
Shelby	0.00	19.40	0.00	1.94	High
Sioux	0.00	58.41	0.00	5.84	High
Story	0.00	10.70	0.00	1.07	High
Tama	0.00	19.48	0.00	1.95	High
Union	0.00	10.05	0.00	1.01	High
Wapello	0.00	25.07	0.00	2.51	High
Warren	0.00	5.77	0.00	0.58	Medium
Washington	0.00	8.81	0.00	0.88	Medium
Wayne	0.00	1.48	0.00	0.15	Medium
Webster	0.00	17.23	0.00	1.72	High
Winnebago	0.00	3.77	0.00	0.38	Medium
Winneshiek	0.00	6.50	0.00	0.65	Medium
Woodbury	0.00	9.30	0.00	0.93	Medium
Worth	0.00	5.80	0.00	0.58	Medium
Wright	0.00	10.14	0.00	1.01	High

5.9.4 Railroad Likelihood

While future rail incidents cannot be predicted, a historical review can be used to conservatively estimate the chances of railroad accidents per year. Based on PHMSA data, Iowa experienced ten serious railroad incidents from 2004 through 2014.[28] PHMSA considers a railroad incident to be "serious" if it involves:

- A fatality or major injury caused by the release of a hazardous material.

[28] U.S. Department of Transportation, Pipeline Hazardous Materials Safety Administration, *Incident Reports Database Search*, https://hazmatonline.phmsa.dot.gov/IncidentReportsSearch/ (accessed December 4, 2015).

- The evacuation of 25 or more employees or responders or any number of the general public as a result of release of a hazardous material or exposure to fire.
- A release or exposure to fire which results in the closure of a major transportation artery.
- The alteration of an aircraft flight plan or operation.
- The release of radioactive materials from Type B packaging.
- The suspected release of a "Risk Group 3" or "Risk Group 4" infectious substance.
- The release of over 11.9 gallons or 88.2 pounds of a severe marine pollutant.
- The release of a bulk quantity (over 119 gallons or 882 pounds) of a hazardous material.[29]

Table E-13. Railroad 10 Year Incident

2004–2014		
	10 Year Average	*10 Year Range*
Incident Count	1	0 - 10
# Evacuated	15.81	1581
Fatalities	0	0
Injuries	0.2	2
Property Damage	$0	$0 - $0

Causative factors range from human error, to equipment malfunction, to infrastructure failure. Table E-15 is calculated by tank car, rather than per incident.

Table E-14. Serious Railroad Incidents by Cause

Failure Cause Description	% of All Accidents
Over-pressurized	20%
Loose Closure	30%
Liner	10%
Missing Component	10%
Misaligned Component	10%
Derailment	10%
Human Error	10%

Based on historical data presented in Table E-14, Iowa is estimated to experience an annualized one significant railroad incidents per year, or approximately ten incidents over the next ten years (based on annualized incidents). Of those ten incidents, based on statistical data, it is reasonable to assume that approximately one of those would be caused by derailment.

[29] U.S. Department of Transportation, Pipeline Hazardous Materials Safety Administration, *Serious Incident Definition*, http://www.phmsa.dot.gov/portal/site/PHMSA/menuitem.6f23687cf7b00b0f22e4c6962d9c8789/?vgnextoid=706851d415b7c110VgnVCM1000009ed07898RCRD&vgnextchannel=8010dd246007c110VgnVCM1000009ed07898RCRD (accessed December 4, 2015).

5.9.5 Railroad Incident Likelihood

Railroad: Likelihood Rating

The likelihood rating was then assigned by examining the percent probability and assigning the appropriate value as outlined in Table E-15. Methodology for Likelihood Rating is provided in Section 5.5.

Table E-15. Railroad Likelihood Rating

County	Estimated Linear Miles of Rail	Number of Trains per day	Total Train Miles	% Total Train Miles (Statewide) per day	Likelihood Value	Annual Probability	Likelihood Level
Adair	7.75	1	7.75	0.05%	0.01	0.05%	Negligible
Adams	34.88	3	104.64	0.66%	0.13	0.66%	Low
Allamakee	40.14	7	281.01	1.78%	0.36	1.78%	Moderate
Appanoose	22.36	5	111.80	0.71%	0.14	0.71%	Low
Benton	74.55	6	447.30	2.84%	0.57	2.84%	High
Black Hawk	77.65	3	232.94	1.48%	0.30	1.48%	Moderate
Boone	49.18	3	147.55	0.94%	0.19	0.94%	Low
Bremer	23.65	1	23.65	0.15%	0.03	0.15%	Low
Buchanan	27.45	3	82.35	0.52%	0.10	0.52%	Low
Buena Vista	36.27	1	36.27	0.23%	0.05	0.23%	Low
Butler	46.00	1	46.00	0.29%	0.06	0.29%	Low
Calhoun	40.67	1	40.67	0.26%	0.05	0.26%	Low
Carroll	74.65	4	298.60	1.89%	0.38	1.89%	Moderate
Cass	25.82	1	25.82	0.16%	0.03	0.16%	Low
Cedar	57.23	5	286.13	1.82%	0.36	1.82%	Moderate
Cerro Gordo	77.70	6	466.17	2.96%	0.59	2.96%	High
Cherokee	29.80	1	29.80	0.19%	0.04	0.19%	Low
Chickasaw	33.35	3	100.05	0.63%	0.13	0.63%	Low
Clarke	51.92	3	155.76	0.99%	0.20	0.99%	Low
Clay	24.39	1	24.39	0.15%	0.03	0.15%	Low
Clayton	59.29	7	415.04	2.63%	0.53	2.63%	High
Clinton	102.66	5	513.30	3.26%	0.65	3.26%	Highest
Crawford	109.52	4	438.07	2.78%	0.56	2.78%	High
Dallas	17.50	1	17.50	0.11%	0.02	0.11%	Low
Delaware	38.68	1	38.68	0.25%	0.05	0.25%	Low
Des Moines	44.70	3	134.11	0.85%	0.17	0.85%	Low
Dickinson	2.18	1	2.18	0.01%	0.00	0.01%	Negligible
Dubuque	62.16	7	435.14	2.76%	0.55	2.76%	High
Emmet	36.22	1	36.22	0.23%	0.05	0.23%	Low
Fayette	0.50*	1	0.50	0.00%	0.00	0.00%	Negligible
Floyd	64.52	3	193.56	1.23%	0.25	1.23%	Moderate
Franklin	26.16	4	104.63	0.66%	0.13	0.66%	Low
Fremont	26.93	1	26.93	0.17%	0.03	0.17%	Low
Greene	61.53	4	246.12	1.56%	0.31	1.56%	Moderate
Grundy	3.01*	1	3.01	0.02%	0.00	0.02%	Negligible
Guthrie	25.76	1	25.76	0.16%	0.03	0.16%	Low
Hamilton	51.03	1	51.03	0.32%	0.06	0.32%	Low
Hancock	24.30	1	24.30	0.15%	0.03	0.15%	Low
Hardin	58.09	4	232.34	1.47%	0.29	1.47%	Moderate
Harrison	130.16	6	780.97	4.96%	0.99	4.96%	Highest
Henry	38.72	3	116.15	0.74%	0.15	0.74%	Low

County	Estimated Linear Miles of Rail	Number of Trains per day	Total Train Miles	% Total Train Miles (Statewide) per day	Likelihood Value	Annual Probability	Likelihood Level
Humboldt	31.36	1	31.36	0.20%	0.04	0.20%	Low
Ida	8.92	1	8.92	0.06%	0.01	0.06%	Negligible
Iowa	34.03	3	102.08	0.65%	0.13	0.65%	Low
Jackson	32.96	5	164.79	1.05%	0.21	1.05%	Moderate
Jasper	38.22	1	38.22	0.24%	0.05	0.24%	Low
Jefferson	53.19	8	425.55	2.70%	0.54	2.70%	High
Johnson	27.20	2	54.39	0.35%	0.07	0.35%	Low
Keokuk	9.40	5	46.99	0.30%	0.06	0.30%	Low
Kossuth	54.51	1	54.51	0.35%	0.07	0.35%	Low
Lee	79.03	3	237.08	1.50%	0.30	1.50%	Moderate
Linn	118.32	6	709.90	4.50%	0.90	4.50%	Highest
Louisa	19.01	5	95.04	0.60%	0.12	0.60%	Low
Lucas	73.65	6	441.88	2.80%	0.56	2.80%	High
Lyon	18.49	4	73.95	0.47%	0.09	0.47%	Low
Madison	8.54	1	8.54	0.05%	0.01	0.05%	Negligible
Mahaska	25.31	1	25.31	0.16%	0.03	0.16%	Low
Marion	16.35	3	49.05	0.31%	0.06	0.31%	Low
Marshall	67.55	4	270.21	1.71%	0.34	1.71%	Moderate
Mills	66.50	4	265.98	1.69%	0.34	1.69%	Moderate
Mitchell	30.45	1	30.45	0.19%	0.04	0.19%	Low
Monona	25.71	2	51.42	0.33%	0.07	0.33%	Low
Monroe	72.19	9	649.75	4.12%	0.82	4.12%	Highest
Montgomery	46.89	4	187.56	1.19%	0.24	1.19%	Moderate
Muscatine	50.35	4	201.41	1.28%	0.26	1.28%	Moderate
O' Brien	12.75	3	38.26	0.24%	0.05	0.24%	Low
Osceola	18.00	2	36.00	0.23%	0.05	0.23%	Low
Page	11.83	1	11.83	0.08%	0.02	0.08%	Negligible
Palo Alto	51.61	1	51.61	0.33%	0.07	0.33%	Low
Plymouth	84.80	7	593.62	3.77%	0.75	3.77%	Highest
Pocahontas	36.87	1	36.87	0.23%	0.05	0.23%	Low
Polk	56.62	4	226.50	1.44%	0.29	1.44%	Moderate
Pottawattamie	126.60	4	506.41	3.21%	0.64	3.21%	Highest
Poweshiek	48.63	1	48.63	0.31%	0.06	0.31%	Low
Sac	35.05	1	35.05	0.22%	0.04	0.22%	Low
Scott	62.49	7	437.40	2.78%	0.56	2.78%	High
Shelby	24.16	1	24.16	0.15%	0.03	0.15%	Low
Sioux	59.56	7	416.89	2.65%	0.53	2.65%	High
Story	90.94	4	363.76	2.31%	0.46	2.31%	High
Tama	50.75	3	152.26	0.97%	0.19	0.97%	Low
Union	44.23	3	132.69	0.84%	0.17	0.84%	Low
Wapello	84.24	8	673.90	4.28%	0.86	4.28%	Highest
Warren	14.04	3	42.13	0.27%	0.05	0.27%	Low
Washington	25.62	5	128.08	0.81%	0.16	0.81%	Low
Wayne	43.00	5	215.02	1.36%	0.27	1.36%	Moderate
Webster	86.74	1	86.74	0.55%	0.11	0.55%	Low
Winnebago	16.32	1	16.32	0.10%	0.02	0.10%	Low
Winneshiek	29.71	2	59.43	0.38%	0.08	0.38%	Low
Woodbury	41.16	7	288.10	1.83%	0.37	1.83%	Moderate
Worth	45.33	1	45.33	0.29%	0.06	0.29%	Low
Wright	21.63	4	86.52	0.55%	0.11	0.55%	Low

** Fayette and Grundy counties do not have crude oil or ethanol rail transportation within their jurisdictional borders, but do have areas within the 0.5-mile buffer zones. The Estimated Linear Miles of Railroad for these counties refer to these buffer zones.*

5.9.6 Crude Oil and Ethanol Railroad Transportation Sensitivity

Table E-16 summarizes the likelihood, impact, and associated sensitivity (risk) in each county for railroad crude oil and ethanol rail transportation based on utilizing the methodology presented in Section 5.6: Risk. Figure 1 depicts the sensitivity levels for each county where crude oil and/or ethanol are transported by rail. All other maps supporting the RVA are located in Appendix I: Maps. Methodology for Railroad Risk (Sensitivity) is provided in Section 5.6.

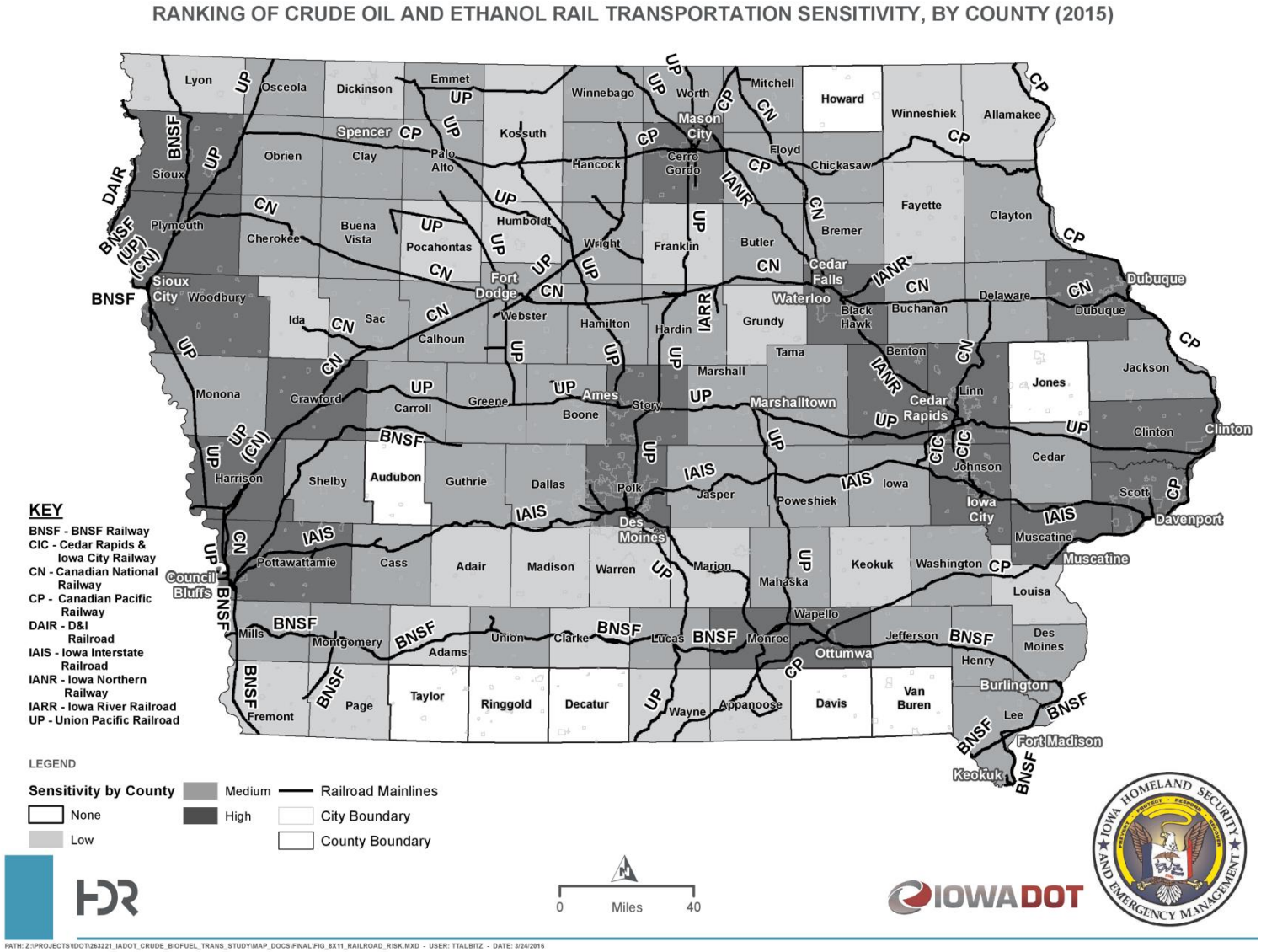
Table E-16. Sensitivity

All Counties	Population Impact Level	Critical Facilities Impact Level	Environ-mental Impact Level	Average Impact Value	Likelihood Level	Likelihood Value	Sensitivity Value	Assigned Sensitivity Level
Adair	5	3	3	3.67	Negligible	1	3.67	Low
Adams	1	1	5	2.33	Low	2	4.67	Low
Allamakee	1	1	3	1.67	Moderate	3	5.00	Low
Appanoose	1	1	3	1.67	Low	2	3.33	Low
Benton	3	1	5	3.00	High	4	12.00	High
Black Hawk	5	3	5	4.33	Moderate	3	13.00	High
Boone	3	3	5	3.67	Low	2	7.33	Medium
Bremer	5	3	5	4.33	Low	2	8.67	Medium
Buchanan	3	3	5	3.67	Low	2	7.33	Medium
Buena Vista	5	3	5	4.33	Low	2	8.67	Medium
Butler	5	1	5	3.67	Low	2	7.33	Medium
Calhoun	3	3	3	3.00	Low	2	6.00	Medium
Carroll	3	1	5	3.00	Moderate	3	9.00	Medium
Cass	5	3	5	4.33	Low	2	8.67	Medium
Cedar	3	1	3	2.33	Moderate	3	7.00	Medium
Cerro Gordo	3	3	5	3.67	High	4	14.67	High
Cherokee	5	5	3	4.33	Low	2	8.67	Medium
Chickasaw	3	3	5	3.67	Low	2	7.33	Medium
Clarke	3	1	3	2.33	Low	2	4.67	Low
Clay	5	3	5	4.33	Low	2	8.67	Medium
Clayton	1	1	5	2.33	High	4	9.33	Medium
Clinton	3	1	5	3.00	Highest	5	15.00	High
Crawford	3	1	5	3.00	High	4	12.00	High
Dallas	5	1	5	3.67	Low	2	7.33	Medium
Delaware	5	3	3	3.67	Low	2	7.33	Medium
Des Moines	5	3	5	4.33	Low	2	8.67	Medium
Dickinson	3	3	1	2.33	Negligible	1	2.33	Low
Dubuque	3	3	5	3.67	High	4	14.67	High
Emmet	5	1	5	3.67	Low	2	7.33	Medium
Fayette	5	1	3	3.00	Negligible	1	3.00	Low
Floyd	3	1	5	3.00	Moderate	3	9.00	Medium
Franklin	3	1	3	2.33	Low	2	4.67	Low
Fremont	1	1	1	1.00	Low	2	2.00	Low
Greene	1	1	5	2.33	Moderate	3	7.00	Medium
Grundy	1	1	1	1.00	Negligible	1	1.00	Low
Guthrie	3	1	5	3.00	Low	2	6.00	Medium
Hamilton	5	3	5	4.33	Low	2	8.67	Medium

All Counties	Population Impact Level	Critical Facilities Impact Level	Environ-mental Impact Level	Average Impact Value	Likelihood Level	Likelihood Value	Sensitivity Value	Assigned Sensitivity Level
Hancock	5	3	5	4.33	Low	2	8.67	Medium
Hardin	3	1	3	2.33	Moderate	3	7.00	Medium
Harrison	1	1	5	2.33	Highest	5	11.67	High
Henry	3	3	3	3.00	Low	2	6.00	Medium
Humboldt	3	1	3	2.33	Low	2	4.67	Low
Ida	5	5	5	5.00	Negligible	1	5.00	Low
Iowa	3	1	5	3.00	Low	2	6.00	Medium
Jackson	3	1	3	2.33	Moderate	3	7.00	Medium
Jasper	5	3	5	4.33	Low	2	8.67	Medium
Jefferson	1	1	3	1.67	High	5	8.33	Medium
Johnson	5	5	5	5.00	Low	2	10.00	High
Keokuk	1	1	3	1.67	Low	2	3.33	Low
Kossuth	3	1	3	2.33	Low	2	4.67	Low
Lee	3	1	5	3.00	Moderate	3	9.00	Medium
Linn	3	3	5	3.67	Highest	5	18.33	High
Louisa	3	1	3	2.33	Low	2	4.67	Low
Lucas	1	1	5	2.33	High	4	9.33	Medium
Lyon	1	1	3	1.67	Low	2	3.33	Low
Madison	5	3	1	3.00	Negligible	1	3.00	Low
Mahaska	5	3	5	4.33	Low	2	8.67	Medium
Marion	3	1	3	2.33	Low	2	4.67	Low
Marshall	3	1	5	3.00	Moderate	3	9.00	Medium
Mills	3	1	3	2.33	Moderate	3	7.00	Medium
Mitchell	5	3	3	3.67	Low	2	7.33	Medium
Monona	3	3	5	3.67	Low	2	7.33	Medium
Monroe	1	1	5	2.33	Highest	5	11.67	High
Montgomery	3	1	5	3.00	Moderate	3	9.00	Medium
Muscatine	3	3	5	3.67	Moderate	3	11.00	High
O' Brien	5	5	3	4.33	Low	2	8.67	Medium
Osceola	3	3	3	3.00	Low	2	6.00	Medium
Page	5	3	3	3.67	Negligible	1	3.67	Low
Palo Alto	5	3	5	4.33	Low	2	8.67	Medium
Plymouth	3	1	5	3.00	Highest	5	15.00	High
Pocahontas	3	1	3	2.33	Low	2	4.67	Low
Polk	5	5	5	5.00	Moderate	3	15.00	High
Pottawattamie	3	1	5	3.00	Highest	5	15.00	High
Poweshiek	5	1	5	3.67	Low	2	7.33	Medium
Sac	3	1	5	3.00	Low	2	6.00	Medium
Scott	3	3	5	3.67	High	4	14.67	High
Shelby	3	1	5	3.00	Low	2	6.00	Medium
Sioux	3	1	5	3.00	High	4	12.00	High
Story	5	3	5	4.33	High	4	17.33	High
Tama	3	1	5	3.00	Low	2	6.00	Medium
Union	3	1	5	3.00	Low	2	6.00	Medium
Wapello	1	1	5	2.33	Highest	5	11.67	High
Warren	3	1	3	2.33	Low	2	4.67	Low
Washington	3	3	3	3.00	Low	2	6.00	Medium
Wayne	1	1	3	1.67	Moderate	3	5.00	Low
Webster	5	3	5	4.33	Low	2	8.67	Medium
Winnebago	5	3	5	4.33	Low	2	8.67	Medium
Winneshiek	3	1	3	2.33	Low	2	4.67	Low

All Counties	Population Impact Level	Critical Facilities Impact Level	Environ-mental Impact Level	Average Impact Value	Likelihood Level	Likelihood Value	Sensitivity Value	Assigned Sensitivity Level
Woodbury	5	5	3	4.33	Moderate	3	13.00	High
Worth	3	3	3	3.00	Low	2	6.00	Medium
Wright	3	1	5	3.00	Low	2	6.00	Medium

Figure E-1. Ranking of Crude Oil and Ethanol Railroad Transportation Sensitivity, by County (2015)



Source: HDR, as of 3/24/2016

5.9.7 Sensitivity Examples

The following examples of sensitivity calculations are provided to aid in understanding of how each county was assessed, and how the results of the assessment determined the county's sensitivity rating:

Marion County – Low Sensitivity Rating

Marion County has an estimated population of 33,365 with 1,425 (4.27 percent) of that total population residing within ½ mile of the crude oil and ethanol transporting railroads. This results in an averaged 29 people per train mile of track. Using a 10 percent impact factor, the assessment assumes a potential population impact to be three people, resulting in a medium population impact rating (Value: 3).

There are a total of nine critical facilities within the identified hazard area of Marion County, which averages out to 0.55 facilities per mile of track. A 10 percent impact to critical facilities per mile of track equals 5.5 percent, which is less than 10 percent for overall loss to the facilities and results in a low critical facility impact rating (Value: 1).

Marion County has no exposed water bodies but it does have 3.73 miles of exposed stream length, creating a 10 percent vulnerability of 0.37 miles. This results in a low impact rating for water bodies and a medium impact rating for streams. Since the overall potential impact to the county is 0.37 miles, the overall impact rating is medium (Value: 3).

The population, critical facility, and environmental factors are calculated together to create an Average Impact Value of 2.33.

Marion County has 16.35 miles of active railroads that transport crude oil and ethanol. They average three crude oil/ethanol trains per day, which calculates out to be 49.05 total train miles, or 0.31 percent of the total train miles in Iowa. Given the historical accounts for significant rail incidents during transport in Iowa, the annual probability, or likelihood, of occurrence in Marion County is 0.31 percent, a low likelihood rating (Value: 2).

The Average Impact Value and Likelihood Value are multiplied together, resulting in the Low Sensitivity Level with a Sensitivity Rating of 4.67.

Wright County – Medium Sensitivity Rating

Wright County has an estimated population of 12,480 with 3,843 (29.93 percent) of that total population residing within ½ mile of the crude oil and ethanol transporting railroads. This results in an averaged 44 people per train mile of track. Using a 10 percent impact factor, the assessment assumes a potential population impact to be four people, resulting in a medium population impact rating (Value: 3).

There are a total of 16 critical facilities within the identified hazard area of Wright County, which averages out to 0.74 facilities per mile of track. A 10 percent impact to critical facilities per mile of track equals 7.4 percent, which is less than 10 percent for overall loss to the facilities and results in a low critical facility impact rating (Value: 1).

Wright County has no exposed water bodies but it does have 10.14 miles of exposed stream length, creating a 10 percent vulnerability of 1.01 miles. This results in a low impact rating for

water bodies and a high impact rating for streams. Since the overall potential impact to the county is 1.01 miles, the overall impact rating is high (Value: 5).

The population, critical facility, and environmental factors are calculated together to create an Average Impact Value of 2.33.

Wright County has 21.63 miles of active railroads that transport crude oil and ethanol. They average four crude oil/ethanol trains per day, which calculates out to be 86.52 total train miles, or 0.55 percent of the total train miles in Iowa. Given the historical accounts for significant rail incidents during transport in Iowa, the annual probability, or likelihood, of occurrence in Wright County is 0.55 percent, a low likelihood rating (Value: 2).

The Average Impact Value and Likelihood Value are multiplied together, resulting in the Medium Sensitivity Level with a Sensitivity Rating of 6.00.

Dubuque County – High Sensitivity Rating

Dubuque County has an estimated population of 96,370 with 26,166 (27.15 percent) of that total population residing within ½ mile of the crude oil and ethanol transporting railroads. This results in an averaged 60 people per train mile of track. Using a 10 percent impact factor, the assessment assumes a potential population impact to be six people, resulting in a medium population impact rating (Value: 3).

There are a total of 104 critical facilities within the identified hazard area of Dubuque County, which averages out to 1.67 facilities per mile of track. A 10 percent impact to critical facilities per mile of track equals 16.73 percent, which is between 10 percent and 20 percent for overall loss to the facilities and results in a medium critical facility impact rating (Value: 3).

Dubuque County has no exposed water bodies but it does have 26.0 miles of exposed stream length, creating a 10 percent vulnerability of 2.60 miles. This results in a low impact rating for water bodies and a high impact rating for streams. Since the overall potential impact to the county is 2.60 miles, the overall impact rating is high (Value: 5).

The population, critical facility, and environmental factors are calculated together to create an Average Impact Value of 2.33.

Dubuque County has 62.16 miles of active railroads that transport crude oil and ethanol. They average seven crude oil/ethanol trains per day, which calculates out to be 435.14 total train miles, or 2.76 percent of the total train miles in Iowa. Given the historical accounts for significant rail incidents during transport in Iowa, the annual probability of occurrence in Dubuque County is 2.76 percent, a high likelihood rating (Value: 4).

The Average Impact Value and Likelihood Value are multiplied together, resulting in the High Sensitivity Level with a Sensitivity Rating of 14.69.

6.0 Appendix F - County Exposure Rankings: Top Ten Counties in Iowa

6.1 Percent of Total County in the Buffer Zone

Table F-1. Percent of Total County in the Buffer Zone

County	Percent of Total County in the Buffer Zone
Wapello	19.97%
Harrison	18.68%
Lucas	17.10%
Monroe	16.65%
Linn	16.50%
Butler	16.42%
Story	15.88%
Crawford	15.33%
Lee	15.27%
Mills	15.20%

6.2 Percent of County Population Exposed

Table F-2. Percent of County Population Exposed

County	Percent of County Population Exposed
Palo Alto	62.66%
Lucas	61.22%
Cerro Gordo	58.70%
Buena Vista	57.90%
Worth	52.75%
Monroe	52.58%
Poweshiek	51.64%
Floyd	50.58%
Hamilton	50.26%
Clarke	49.70%

6.3 County Housing Units Exposed

Table F-3. Percent of County Housing Units Exposed

County	Percent of County Housing Units Exposed
Lucas	61.66%
Palo Alto	61.08%
Cerro Gordo	56.55%
Buena Vista	54.84%
Worth	54.73%
Floyd	52.10%
Monroe	50.72%
Hamilton	50.23%
Union	49.65%
Clarke	49.25%

6.4 Total County Facilities Exposed

Table F-4. Total County Facilities Exposed

County	Facilities Exposed (#)
Polk	272
Linn	190
Woodbury	150
Johnson	138
Webster	126
Pottawattamie	116
Black Hawk	104
Dubuque	104
Scott	101
Story	97

6.5 Total Lakes, Reservoirs, & Wetlands, Exposed

Table F-5. Total Lakes, Reservoirs, & Wetlands, Exposed

County	Lakes, Reservoirs, & Wetlands, Exposed (Acres)
Tama	2,565.67
Clay	1,999.60
Cerro Gordo	1,913.98
Sac	1,094.30
Harrison	1,039.27
Hancock	998.69
Winnebago	867.51
Clayton	721.81
Buena Vista	669.51
Benton	528.15

6.6 Total Length of Streams Exposed

Table F-6. Total Length of Streams Exposed

County	Length of Streams Exposed (Miles)
Plymouth	72.42
Sioux	58.41
Crawford	56.13
Linn	46.22
Butler	43.08
Harrison	41.53
Pottawattamie	36.44
Cerro Gordo	32.12
Benton	30.89
Black Hawk	30.74

6.7 Total Exposed Conservation and Recreation Lands

Table F-7. Total Exposed Conservation and Recreation Lands

County	Exposed Conservation and Recreation Lands (Acres)
Clayton	10,067
Allamakee	9,266
Jackson	7,564
Clinton	6,159
Dubuque	6,127
Scott	5,698
Lee	5,618
Muscatine	3,534
Tama	2,943
Polk	2,917

7.0 Appendix G - County Profiles

7.1 Adair County Profile

Overview	
Total County Area (square miles)	569.27
Estimated Linear Miles of Railroad	7.75
Percent Total County in the Buffer Zone	1.36%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	7,454
Estimated Exposed Population	1,409
Percent Total County Population Exposed	18.90%
Total County Housing Units (2014)	3,674
Estimated Exposed Housing Units	664
Percent Total County Exposed Housing Units	18.06%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	3
K-12 Schools	0
Childcare Centers	0
Hospital Facilities	1
Nursing Homes	1
Town and City Halls	3
Water Intakes	0
Total County Exposed Facilities	10

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	11
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	1.65
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	1.65

7.2 Adams County Profile

Overview	
Total County Area (square miles)	423.44
Estimated Linear Miles of Railroad	34.88
Percent Total County in the Buffer Zone	8.24%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	3,875
Estimated Exposed Population	1,499
Percent Total County Population Exposed	38.70%
Total County Housing Units (2014)	2,010
Estimated Exposed Housing Units	772
Percent Total County Exposed Housing Units	38.39%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	8
K-12 Schools	3
Childcare Centers	1
Hospital Facilities	2
Nursing Homes	0
Town and City Halls	11
Water Intakes	1
Total County Exposed Facilities	28

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	8
K-12 Schools	3
Childcare Centers	1
Hospital Facilities	2
Nursing Homes	0
Town and City Halls	11
Water Intakes	1
Total County Exposed Facilities	28
Total Exposed Conservation and Recreation Lands (acres)	27
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	14.91
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	14.91

7.3 Allamakee County Profile

Overview	
Total County Area (square miles)	639.08
Estimated Linear Miles of Railroad	40.14
Percent Total County in the Buffer Zone	6.28%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	14,038
Estimated Exposed Population	3,954
Percent Total County Population Exposed	28.17%
Total County Housing Units (2014)	7,650
Estimated Exposed Housing Units	2,669
Percent Total County Exposed Housing Units	34.89%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	4
Courthouses, Prisons, and Public Safety	5
K-12 Schools	5
Childcare Centers	5
Hospital Facilities	4
Nursing Homes	1
Town and City Halls	15
Water Intakes	0
Total County Exposed Facilities	39

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	9,266
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	1.34
Designated Streams (length in miles)	5.06
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	6.40

7.4 Appanoose County Profile

Overview	
Total County Area (square miles)	497.29
Estimated Linear Miles of Railroad	22.36
Percent Total County in the Buffer Zone	4.50%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	12,661
Estimated Exposed Population	1,339
Percent Total County Population Exposed	10.58%
Total County Housing Units (2014)	6,578
Estimated Exposed Housing Units	685
Percent Total County Exposed Housing Units	10.42%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	1
Courthouses, Prisons, and Public Safety	2
K-12 Schools	3
Childcare Centers	0
Hospital Facilities	0
Nursing Homes	0
Town and City Halls	4
Water Intakes	0
Total County Exposed Facilities	10

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	513
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	75.49
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	75.49
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	4.74
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	4.74

7.5 Benton County Profile

Overview	
Total County Area (square miles)	716.27
Estimated Linear Miles of Railroad	74.55
Percent Total County in the Buffer Zone	10.41%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	25,680
Estimated Exposed Population	10,724
Percent Total County Population Exposed	41.76%
Total County Housing Units (2014)	11,079
Estimated Exposed Housing Units	4,717
Percent Total County Exposed Housing Units	42.58%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	5
Courthouses, Prisons, and Public Safety	13
K-12 Schools	10
Childcare Centers	2
Hospital Facilities	4
Nursing Homes	2
Town and City Halls	26
Water Intakes	0
Total County Exposed Facilities	62

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	436
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	528.15
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	528.15
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	30.89
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	30.28

7.6 Black Hawk County Profile

Overview	
Total County Area (square miles)	565.77
Estimated Linear Miles of Railroad	77.65
Percent Total County in the Buffer Zone	13.72%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	132,897
Estimated Exposed Population	38,100
Percent Total County Population Exposed	28.67%
Total County Housing Units (2014)	56,890
Estimated Exposed Housing Units	16,775
Percent Total County Exposed Housing Units	29.49%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	4
Courthouses, Prisons, and Public Safety	20
K-12 Schools	20
Childcare Centers	11
Hospital Facilities	11
Nursing Homes	7
Town and City Halls	31
Water Intakes	0
Total County Exposed Facilities	104

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	2741
Significant Public Lakes (acres)	28.29
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	28.29
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	28.65
Protected Streams (length in miles)	2.08
Total Exposed Length of Streams (length in miles)	30.74

7.7 Boone County Profile

Overview	
Total County Area (square miles)	571.57
Estimated Linear Miles of Railroad	49.18
Percent Total County in the Buffer Zone	8.60%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	26,433
Estimated Exposed Population	9,525
Percent Total County Population Exposed	36.03%
Total County Housing Units (2014)	11,793
Estimated Exposed Housing Units	4,400
Percent Total County Exposed Housing Units	37.31%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	8
K-12 Schools	11
Childcare Centers	3
Hospital Facilities	4
Nursing Homes	7
Town and City Halls	19
Water Intakes	0
Total County Exposed Facilities	54

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	231
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	100.91
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	100.91
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	4.57
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	4.57

7.8 Bremer County Profile

Overview	
Total County Area (square miles)	435.48
Estimated Linear Miles of Railroad	23.65
Percent Total County in the Buffer Zone	5.43%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	24,721
Estimated Exposed Population	5,994
Percent Total County Population Exposed	24.25%
Total County Housing Units (2014)	10,136
Estimated Exposed Housing Units	2,085
Percent Total County Exposed Housing Units	20.57%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	3
Courthouses, Prisons, and Public Safety	2
K-12 Schools	7
Childcare Centers	3
Hospital Facilities	4
Nursing Homes	3
Town and City Halls	2
Water Intakes	0
Total County Exposed Facilities	24

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	436
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	11.13
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	11.13

7.9 Buchanan County Profile

Overview	
Total County Area (square miles)	571.02
Estimated Linear Miles of Railroad	27.45
Percent Total County in the Buffer Zone	4.81%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	21,038
Estimated Exposed Population	6,881
Percent Total County Population Exposed	32.71%
Total County Housing Units (2014)	8,990
Estimated Exposed Housing Units	2,990
Percent Total County Exposed Housing Units	33.26%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	3
Courthouses, Prisons, and Public Safety	3
K-12 Schools	12
Childcare Centers	4
Hospital Facilities	4
Nursing Homes	3
Town and City Halls	5
Water Intakes	0
Total County Exposed Facilities	34

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	24
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	5.79
Protected Streams (length in miles)	6.71
Total Exposed Length of Streams (length in miles)	12.50

7.10 Buena Vista County Profile

Overview	
Total County Area (square miles)	574.92
Estimated Linear Miles of Railroad	36.27
Percent Total County in the Buffer Zone	6.31%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	20,578
Estimated Exposed Population	11,915
Percent Total County Population Exposed	57.90%
Total County Housing Units (2014)	8,299
Estimated Exposed Housing Units	4,551
Percent Total County Exposed Housing Units	54.84%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	3
Courthouses, Prisons, and Public Safety	7
K-12 Schools	13
Childcare Centers	4
Hospital Facilities	4
Nursing Homes	4
Town and City Halls	24
Water Intakes	0
Total County Exposed Facilities	59

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	416
Significant Public Lakes (acres)	200.22
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	469.29
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	669.51
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	0
Protected Streams (length in miles)	2.09
Total Exposed Length of Streams (length in miles)	2.09

7.11 Butler County Profile

Overview	
Total County Area (square miles)	280.13
Estimated Linear Miles of Railroad	46.00
Percent Total County in the Buffer Zone	16.42%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	15,006
Estimated Exposed Population	6,421
Percent Total County Population Exposed	42.79%
Total County Housing Units (2014)	6,731
Estimated Exposed Housing Units	2,942
Percent Total County Exposed Housing Units	43.71%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	6
Courthouses, Prisons, and Public Safety	9
K-12 Schools	6
Childcare Centers	3
Hospital Facilities	5
Nursing Homes	5
Town and City Halls	10
Water Intakes	0
Total County Exposed Facilities	44

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	687
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	43.08
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	43.08

7.12 Calhoun County Profile

Overview	
Total County Area (square miles)	569.97
Estimated Linear Miles of Railroad	40.67
Percent Total County in the Buffer Zone	7.14%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	9,866
Estimated Exposed Population	3,380
Percent Total County Population Exposed	34.26%
Total County Housing Units (2014)	5,088
Estimated Exposed Housing Units	1,768
Percent Total County Exposed Housing Units	34.75%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	1
Courthouses, Prisons, and Public Safety	8
K-12 Schools	6
Childcare Centers	1
Hospital Facilities	3
Nursing Homes	6
Town and City Halls	20
Water Intakes	0
Total County Exposed Facilities	45

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	93
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	5.02
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	5.02

7.13 Carroll County Profile

Overview	
Total County Area (square miles)	569.44
Estimated Linear Miles of Railroad	74.65
Percent Total County in the Buffer Zone	13.11%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	20,562
Estimated Exposed Population	7,530
Percent Total County Population Exposed	36.62%
Total County Housing Units (2014)	9,419
Estimated Exposed Housing Units	3,639
Percent Total County Exposed Housing Units	38.64%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	3
Courthouses, Prisons, and Public Safety	16
K-12 Schools	7
Childcare Centers	7
Hospital Facilities	13
Nursing Homes	2
Town and City Halls	25
Water Intakes	0
Total County Exposed Facilities	73

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	156
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	20.16
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	20.16

7.14 Cass County Profile

Overview	
Total County Area (square miles)	564.27
Estimated Linear Miles of Railroad	25.82
Percent Total County in the Buffer Zone	4.58%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	13,448
Estimated Exposed Population	3,723
Percent Total County Population Exposed	27.69%
Total County Housing Units (2014)	6,564
Estimated Exposed Housing Units	1,902
Percent Total County Exposed Housing Units	28.97%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	8
K-12 Schools	1
Childcare Centers	3
Hospital Facilities	5
Nursing Homes	1
Town and City Halls	17
Water Intakes	0
Total County Exposed Facilities	37

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	142
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	20.16
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	20.16

7.15 Cedar County Profile

Overview	
Total County Area (square miles)	579.44
Estimated Linear Miles of Railroad	57.23
Percent Total County in the Buffer Zone	9.88%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	18,411
Estimated Exposed Population	5,435
Percent Total County Population Exposed	29.52%
Total County Housing Units (2014)	8,116
Estimated Exposed Housing Units	2,407
Percent Total County Exposed Housing Units	29.66%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	5
Courthouses, Prisons, and Public Safety	9
K-12 Schools	7
Childcare Centers	3
Hospital Facilities	4
Nursing Homes	3
Town and City Halls	9
Water Intakes	0
Total County Exposed Facilities	40

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	33
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	9.05
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	9.05

7.16 Cerro Gordo County Profile

Overview	
Total County Area (square miles)	568.31
Estimated Linear Miles of Railroad	77.70
Percent Total County in the Buffer Zone	13.67%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	43,254
Estimated Exposed Population	25,388
Percent Total County Population Exposed	58.70%
Total County Housing Units (2014)	22,238
Estimated Exposed Housing Units	12,576
Percent Total County Exposed Housing Units	56.55%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	3
Courthouses, Prisons, and Public Safety	7
K-12 Schools	18
Childcare Centers	15
Hospital Facilities	25
Nursing Homes	8
Town and City Halls	12
Water Intakes	0
Total County Exposed Facilities	88

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	2,203
Significant Public Lakes (acres)	732.72
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	1,181.27
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	1,913.98
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	32.12
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	32.13

7.17 Cherokee County Profile

Overview	
Total County Area (square miles)	576.91
Estimated Linear Miles of Railroad	29.80
Percent Total County in the Buffer Zone	5.17%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	11,836
Estimated Exposed Population	5,656
Percent Total County Population Exposed	47.79%
Total County Housing Units (2014)	5,791
Estimated Exposed Housing Units	2,770
Percent Total County Exposed Housing Units	47.84%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	6
Courthouses, Prisons, and Public Safety	10
K-12 Schools	10
Childcare Centers	6
Hospital Facilities	4
Nursing Homes	3
Town and City Halls	22
Water Intakes	0
Total County Exposed Facilities	61

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	15
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	9.15
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	9.15

7.18 Chickasaw County Profile

Overview	
Total County Area (square miles)	504.38
Estimated Linear Miles of Railroad	33.35
Percent Total County in the Buffer Zone	6.61%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	12,264
Estimated Exposed Population	4,727
Percent Total County Population Exposed	38.54%
Total County Housing Units (2014)	5,664
Estimated Exposed Housing Units	2,270
Percent Total County Exposed Housing Units	40.08%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	0
Courthouses, Prisons, and Public Safety	7
K-12 Schools	6
Childcare Centers	4
Hospital Facilities	3
Nursing Homes	3
Town and City Halls	15
Water Intakes	0
Total County Exposed Facilities	38

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	164
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	12.56
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	12.56

7.19 Clarke County Profile

Overview	
Total County Area (square miles)	431.17
Estimated Linear Miles of Railroad	51.92
Percent Total County in the Buffer Zone	12.04%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	9,217
Estimated Exposed Population	4,580
Percent Total County Population Exposed	49.70%
Total County Housing Units (2014)	4,132
Estimated Exposed Housing Units	2,035
Percent Total County Exposed Housing Units	49.25%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	3
Courthouses, Prisons, and Public Safety	8
K-12 Schools	3
Childcare Centers	2
Hospital Facilities	2
Nursing Homes	5
Town and City Halls	10
Water Intakes	0
Total County Exposed Facilities	33

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	114
Significant Public Lakes (acres)	20.37
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	20.37
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	0
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	0

7.20 Clay County Profile

Overview	
Total County Area (square miles)	567.24
Estimated Linear Miles of Railroad	24.39
Percent Total County in the Buffer Zone	4.30%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	16,515
Estimated Exposed Population	7,245
Percent Total County Population Exposed	43.87%
Total County Housing Units (2014)	8,112
Estimated Exposed Housing Units	3,377
Percent Total County Exposed Housing Units	41.63%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	12
K-12 Schools	7
Childcare Centers	5
Hospital Facilities	4
Nursing Homes	2
Town and City Halls	15
Water Intakes	1
Total County Exposed Facilities	48

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	1,083
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	1,990.60
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	1,990.60
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	12.08
Protected Streams (length in miles)	0.33
Total Exposed Length of Streams (length in miles)	12.41

7.21 Clayton County Profile

Overview	
Total County Area (square miles)	778.54
Estimated Linear Miles of Railroad	59.29
Percent Total County in the Buffer Zone	7.62%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	17,692
Estimated Exposed Population	5,251
Percent Total County Population Exposed	29.68%
Total County Housing Units (2014)	9,032
Estimated Exposed Housing Units	3,168
Percent Total County Exposed Housing Units	35.08%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	3
Courthouses, Prisons, and Public Safety	4
K-12 Schools	6
Childcare Centers	4
Hospital Facilities	1
Nursing Homes	7
Town and City Halls	10
Water Intakes	0
Total County Exposed Facilities	35

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	10,067
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	721.81
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	721.81
Outstanding Streams (length in miles)	8.72
Designated Streams (length in miles)	18.99
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	27.70

7.22 Clinton County Profile

Overview	
Total County Area (square miles)	694.92
Estimated Linear Miles of Railroad	102.66
Percent Total County in the Buffer Zone	14.77%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	48,051
Estimated Exposed Population	20,639
Percent Total County Population Exposed	42.95%
Total County Housing Units (2014)	21,792
Estimated Exposed Housing Units	9,356
Percent Total County Exposed Housing Units	42.93%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	6
Courthouses, Prisons, and Public Safety	14
K-12 Schools	16
Childcare Centers	6
Hospital Facilities	7
Nursing Homes	4
Town and City Halls	16
Water Intakes	1
Total County Exposed Facilities	70

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	6,159
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	19.43
Protected Streams (length in miles)	1.82
Total Exposed Length of Streams (length in miles)	21.25

7.23 Crawford County Profile

Overview	
Total County Area (square miles)	714.19
Estimated Linear Miles of Railroad	109.52
Percent Total County in the Buffer Zone	15.33%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	17,228
Estimated Exposed Population	8,483
Percent Total County Population Exposed	49.24%
Total County Housing Units (2014)	6,985
Estimated Exposed Housing Units	3,271
Percent Total County Exposed Housing Units	46.82%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	5
Courthouses, Prisons, and Public Safety	6
K-12 Schools	12
Childcare Centers	2
Hospital Facilities	5
Nursing Homes	5
Town and City Halls	33
Water Intakes	0
Total County Exposed Facilities	68

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	373
Significant Public Lakes (acres)	6.62
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	6.62
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	56.13
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	56.13

7.24 Dallas County Profile

Overview	
Total County Area (square miles)	588.45
Estimated Linear Miles of Railroad	17.50
Percent Total County in the Buffer Zone	2.97%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	77,400
Estimated Exposed Population	2,549
Percent Total County Population Exposed	3.29%
Total County Housing Units (2014)	29,884
Estimated Exposed Housing Units	1,108
Percent Total County Exposed Housing Units	3.71%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	2
K-12 Schools	3
Childcare Centers	2
Hospital Facilities	0
Nursing Homes	0
Town and City Halls	3
Water Intakes	0
Total County Exposed Facilities	12

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	70
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	15.09
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	15.09

7.25 Delaware County Profile

Overview	
Total County Area (square miles)	577.76
Estimated Linear Miles of Railroad	38.68
Percent Total County in the Buffer Zone	6.69%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	17,398
Estimated Exposed Population	4,668
Percent Total County Population Exposed	26.83%
Total County Housing Units (2014)	8,026
Estimated Exposed Housing Units	2,077
Percent Total County Exposed Housing Units	25.88%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	6
Courthouses, Prisons, and Public Safety	6
K-12 Schools	5
Childcare Centers	7
Hospital Facilities	3
Nursing Homes	6
Town and City Halls	20
Water Intakes	0
Total County Exposed Facilities	53

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	27
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	4.71
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	4.71
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	8.77
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	8.77

7.26 Des Moines County Profile

Overview	
Total County Area (square miles)	416.12
Estimated Linear Miles of Railroad	44.70
Percent Total County in the Buffer Zone	10.74%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	40,225
Estimated Exposed Population	14,700
Percent Total County Population Exposed	36.52%
Total County Housing Units (2014)	18,463
Estimated Exposed Housing Units	6,716
Percent Total County Exposed Housing Units	36.38%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	4
Courthouses, Prisons, and Public Safety	12
K-12 Schools	13
Childcare Centers	6
Hospital Facilities	9
Nursing Homes	3
Town and City Halls	23
Water Intakes	0
Total County Exposed Facilities	70

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	751
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	479.98
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	479.98
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	7.74
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	7.74

7.27 Dickinson County Profile

Overview	
Total County Area (square miles)	380.61
Estimated Linear Miles of Railroad	2.18
Percent Total County in the Buffer Zone	0.57%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	16,935
Estimated Exposed Population	143
Percent Total County Population Exposed	0.84%
Total County Housing Units (2014)	13,191
Estimated Exposed Housing Units	65
Percent Total County Exposed Housing Units	0.50%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	1
Courthouses, Prisons, and Public Safety	1
K-12 Schools	0
Childcare Centers	0
Hospital Facilities	0
Nursing Homes	0
Town and City Halls	1
Water Intakes	0
Total County Exposed Facilities	3

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	0
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	0
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	0

7.28 Dubuque County Profile

Overview	
Total County Area (square miles)	608.31
Estimated Linear Miles of Railroad	62.16
Percent Total County in the Buffer Zone	10.22%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	96,370
Estimated Exposed Population	26,166
Percent Total County Population Exposed	27.15%
Total County Housing Units (2014)	40,369
Estimated Exposed Housing Units	11,725
Percent Total County Exposed Housing Units	29.04%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	4
Courthouses, Prisons, and Public Safety	16
K-12 Schools	19
Childcare Centers	12
Hospital Facilities	12
Nursing Homes	9
Town and City Halls	32
Water Intakes	0
Total County Exposed Facilities	104

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	6,127
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	26.00
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	26.00

7.29 Emmet County Profile

Overview	
Total County Area (square miles)	395.88
Estimated Linear Miles of Railroad	36.22
Percent Total County in the Buffer Zone	9.15%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	9,990
Estimated Exposed Population	4,570
Percent Total County Population Exposed	45.75%
Total County Housing Units (2014)	4,752
Estimated Exposed Housing Units	2,128
Percent Total County Exposed Housing Units	44.78%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	1
Courthouses, Prisons, and Public Safety	8
K-12 Schools	4
Childcare Centers	2
Hospital Facilities	4
Nursing Homes	2
Town and City Halls	13
Water Intakes	0
Total County Exposed Facilities	34

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	310
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	467.04
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	467.04
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	13.48
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	13.48

7.30 Fayette County Profile

Overview	
Total County Area (square miles)	730.81
Estimated Linear Miles of Railroad	0.50*
Percent Total County in the Buffer Zone	0.07%

*There are no crude oil or ethanol railroads operating in Fayette County, but parts of the county are within ½ mile of an operating crude oil or ethanol railroad in a neighboring county.

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	20,343
Estimated Exposed Population	295
Percent Total County Population Exposed	1.45%
Total County Housing Units (2014)	9,522
Estimated Exposed Housing Units	105
Percent Total County Exposed Housing Units	1.11%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	0
Courthouses, Prisons, and Public Safety	0
K-12 Schools	0
Childcare Centers	0
Hospital Facilities	0
Nursing Homes	0
Town and City Halls	0
Water Intakes	0
Total County Exposed Facilities	0

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	0
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	0.18
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	0.18

7.31 Floyd County Profile

Overview	
Total County Area (square miles)	500.63
Estimated Linear Miles of Railroad	64.52
Percent Total County in the Buffer Zone	12.89%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	16,077
Estimated Exposed Population	8,133
Percent Total County Population Exposed	50.58%
Total County Housing Units (2014)	7,516
Estimated Exposed Housing Units	3,916
Percent Total County Exposed Housing Units	52.10%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	5
K-12 Schools	7
Childcare Centers	8
Hospital Facilities	6
Nursing Homes	6
Town and City Halls	10
Water Intakes	0
Total County Exposed Facilities	44

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	326
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	21.44
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	21.44

7.32 Franklin County Profile

Overview	
Total County Area (square miles)	581.97
Estimated Linear Miles of Railroad	26.16
Percent Total County in the Buffer Zone	4.49%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	10,436
Estimated Exposed Population	1,830
Percent Total County Population Exposed	17.54%
Total County Housing Units (2014)	4,860
Estimated Exposed Housing Units	842
Percent Total County Exposed Housing Units	17.32%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	0
Courthouses, Prisons, and Public Safety	3
K-12 Schools	1
Childcare Centers	0
Hospital Facilities	0
Nursing Homes	0
Town and City Halls	5
Water Intakes	0
Total County Exposed Facilities	9

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	141
Significant Public Lakes (acres)	36.06
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	36.06
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	6.52
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	6.52

7.33 Fremont County Profile

Overview	
Total County Area (square miles)	511.15
Estimated Linear Miles of Railroad	26.93
Percent Total County in the Buffer Zone	5.27%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	7,022
Estimated Exposed Population	381
Percent Total County Population Exposed	5.43%
Total County Housing Units (2014)	3,445
Estimated Exposed Housing Units	190
Percent Total County Exposed Housing Units	5.52%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	1
Courthouses, Prisons, and Public Safety	0
K-12 Schools	0
Childcare Centers	0
Hospital Facilities	1
Nursing Homes	0
Town and City Halls	0
Water Intakes	0
Total County Exposed Facilities	2

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	1,141
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	0
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	0

7.34 Greene County Profile

Overview	
Total County Area (square miles)	569.57
Estimated Linear Miles of Railroad	61.53
Percent Total County in the Buffer Zone	10.80%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	9,200
Estimated Exposed Population	3,543
Percent Total County Population Exposed	38.51%
Total County Housing Units (2014)	4,533
Estimated Exposed Housing Units	1,772
Percent Total County Exposed Housing Units	39.09%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	4
K-12 Schools	3
Childcare Centers	1
Hospital Facilities	2
Nursing Homes	3
Town and City Halls	16
Water Intakes	0
Total County Exposed Facilities	31

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	174
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	13.02
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	13.02

7.35 Grundy County Profile

Overview	
Total County Area (square miles)	501.86
Estimated Linear Miles of Railroad	3.01*
Percent Total County in the Buffer Zone	0.6%

*There are no crude oil or ethanol railroads operating in Grundy County, but parts of the county are within ½ mile of an operating crude oil or ethanol railroad in a neighboring county.

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	12,375
Estimated Exposed Population	10
Percent Total County Population Exposed	0.08%
Total County Housing Units (2014)	5,549
Estimated Exposed Housing Units	4
Percent Total County Exposed Housing Units	0.08%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	0
Courthouses, Prisons, and Public Safety	0
K-12 Schools	0
Childcare Centers	0
Hospital Facilities	0
Nursing Homes	0
Town and City Halls	0
Water Intakes	0
Total County Exposed Facilities	0

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	0
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	0
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	0

7.36 Guthrie County Profile

Overview	
Total County Area (square miles)	590.62
Estimated Linear Miles of Railroad	25.76
Percent Total County in the Buffer Zone	4.36%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	10,772
Estimated Exposed Population	2,218
Percent Total County Population Exposed	20.59%
Total County Housing Units (2014)	5,749
Estimated Exposed Housing Units	1,076
Percent Total County Exposed Housing Units	18.72%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	4
K-12 Schools	3
Childcare Centers	0
Hospital Facilities	2
Nursing Homes	1
Town and City Halls	4
Water Intakes	0
Total County Exposed Facilities	16

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	185
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	10.00
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	10.00

7.37 Hamilton County Profile

Overview	
Total County Area (square miles)	576.75
Estimated Linear Miles of Railroad	51.03
Percent Total County in the Buffer Zone	8.85%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	15,117
Estimated Exposed Population	7,598
Percent Total County Population Exposed	50.26%
Total County Housing Units (2014)	7,184
Estimated Exposed Housing Units	3,609
Percent Total County Exposed Housing Units	50.23%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	4
Courthouses, Prisons, and Public Safety	9
K-12 Schools	8
Childcare Centers	2
Hospital Facilities	5
Nursing Homes	0
Town and City Halls	25
Water Intakes	0
Total County Exposed Facilities	53

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	597
Significant Public Lakes (acres)	35.58
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	28.94
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	64.52
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	21.54
Protected Streams (length in miles)	2.80
Total Exposed Length of Streams (length in miles)	24.34

7.38 Hancock County Profile

Overview	
Total County Area (square miles)	571.01
Estimated Linear Miles of Railroad	24.30
Percent Total County in the Buffer Zone	4.26%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	11,027
Estimated Exposed Population	3,508
Percent Total County Population Exposed	31.81%
Total County Housing Units (2014)	5,308
Estimated Exposed Housing Units	1,599
Percent Total County Exposed Housing Units	30.12%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	3
K-12 Schools	2
Childcare Centers	1
Hospital Facilities	7
Nursing Homes	2
Town and City Halls	14
Water Intakes	0
Total County Exposed Facilities	31

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	359
Significant Public Lakes (acres)	26.02
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	972.66
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	998.69
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	1.01
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	1.01

7.39 Hardin County Profile

Overview	
Total County Area (square miles)	569.31
Estimated Linear Miles of Railroad	58.09
Percent Total County in the Buffer Zone	10.20%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	17,311
Estimated Exposed Population	4,804
Percent Total County Population Exposed	27.75%
Total County Housing Units (2014)	8,175
Estimated Exposed Housing Units	2,390
Percent Total County Exposed Housing Units	29.23%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	4
Courthouses, Prisons, and Public Safety	4
K-12 Schools	2
Childcare Centers	3
Hospital Facilities	8
Nursing Homes	3
Town and City Halls	8
Water Intakes	0
Total County Exposed Facilities	32

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	86
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	6.94
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	0

7.40 Harrison County Profile

Overview	
Total County Area (square miles)	696.85
Estimated Linear Miles of Railroad	130.16
Percent Total County in the Buffer Zone	18.68%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	14,324
Estimated Exposed Population	6,706
Percent Total County Population Exposed	46.82%
Total County Housing Units (2014)	6,747
Estimated Exposed Housing Units	3,173
Percent Total County Exposed Housing Units	47.04%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	4
Courthouses, Prisons, and Public Safety	13
K-12 Schools	13
Childcare Centers	4
Hospital Facilities	9
Nursing Homes	3
Town and City Halls	23
Water Intakes	0
Total County Exposed Facilities	69

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	340
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	1,039.27
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	1,039.27
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	41.53
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	41.53

7.41 Henry County Profile

Overview	
Total County Area (square miles)	434.33
Estimated Linear Miles of Railroad	38.72
Percent Total County in the Buffer Zone	8.91%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	20,217
Estimated Exposed Population	7,135
Percent Total County Population Exposed	35.29%
Total County Housing Units (2014)	8,274
Estimated Exposed Housing Units	2,894
Percent Total County Exposed Housing Units	34.97%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	1
Courthouses, Prisons, and Public Safety	9
K-12 Schools	7
Childcare Centers	5
Hospital Facilities	6
Nursing Homes	8
Town and City Halls	18
Water Intakes	0
Total County Exposed Facilities	54

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	259
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	3.94
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	3.94

7.42 Humboldt County Profile

Overview	
Total County Area (square miles)	434.35
Estimated Linear Miles of Railroad	31.36
Percent Total County in the Buffer Zone	7.22%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	9,640
Estimated Exposed Population	1,199
Percent Total County Population Exposed	12.44%
Total County Housing Units (2014)	4,684
Estimated Exposed Housing Units	636
Percent Total County Exposed Housing Units	13.57%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	0
Courthouses, Prisons, and Public Safety	0
K-12 Schools	4
Childcare Centers	0
Hospital Facilities	0
Nursing Homes	0
Town and City Halls	4
Water Intakes	0
Total County Exposed Facilities	8

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	52
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	9.31
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	9.31

7.43 Ida County Profile

Overview	
Total County Area (square miles)	431.51
Estimated Linear Miles of Railroad	8.92
Percent Total County in the Buffer Zone	2.07%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	7,042
Estimated Exposed Population	1,892
Percent Total County Population Exposed	26.87%
Total County Housing Units (2014)	3,430
Estimated Exposed Housing Units	960
Percent Total County Exposed Housing Units	28.00%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	3
K-12 Schools	5
Childcare Centers	1
Hospital Facilities	2
Nursing Homes	1
Town and City Halls	9
Water Intakes	0
Total County Exposed Facilities	23

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	45
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	11.96
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	11.96

7.44 Iowa County Profile

Overview	
Total County Area (square miles)	586.46
Estimated Linear Miles of Railroad	34.03
Percent Total County in the Buffer Zone	5.80%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	16,375
Estimated Exposed Population	4,017
Percent Total County Population Exposed	24.53%
Total County Housing Units (2014)	7,267
Estimated Exposed Housing Units	1,863
Percent Total County Exposed Housing Units	25.64%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	7
K-12 Schools	3
Childcare Centers	2
Hospital Facilities	1
Nursing Homes	2
Town and City Halls	12
Water Intakes	0
Total County Exposed Facilities	29

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	26
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	23.09
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	23.09

7.45 Jackson County Profile

Overview	
Total County Area (square miles)	636.04
Estimated Linear Miles of Railroad	32.96
Percent Total County in the Buffer Zone	5.18%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	19,482
Estimated Exposed Population	2,602
Percent Total County Population Exposed	13.36%
Total County Housing Units (2014)	9,458
Estimated Exposed Housing Units	1,445
Percent Total County Exposed Housing Units	15.28%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	3
K-12 Schools	3
Childcare Centers	0
Hospital Facilities	1
Nursing Homes	1
Town and City Halls	7
Water Intakes	0
Total County Exposed Facilities	17

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	7,564
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	4.16
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	4.16

7.46 Jasper County Profile

Overview	
Total County Area (square miles)	730.42
Estimated Linear Miles of Railroad	38.22
Percent Total County in the Buffer Zone	5.23%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	36,872
Estimated Exposed Population	8,870
Percent Total County Population Exposed	24.06%
Total County Housing Units (2014)	16,160
Estimated Exposed Housing Units	4,282
Percent Total County Exposed Housing Units	26.50%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	3
Courthouses, Prisons, and Public Safety	9
K-12 Schools	6
Childcare Centers	7
Hospital Facilities	8
Nursing Homes	4
Town and City Halls	17
Water Intakes	0
Total County Exposed Facilities	54

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	1,284
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	13.74
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	13.74

7.47 Jefferson County Profile

Overview	
Total County Area (square miles)	435.51
Estimated Linear Miles of Railroad	53.19
Percent Total County in the Buffer Zone	12.21%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	17,325
Estimated Exposed Population	5,212
Percent Total County Population Exposed	30.08%
Total County Housing Units (2014)	7,542
Estimated Exposed Housing Units	2,628
Percent Total County Exposed Housing Units	34.84%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	9
K-12 Schools	8
Childcare Centers	0
Hospital Facilities	7
Nursing Homes	5
Town and City Halls	19
Water Intakes	1
Total County Exposed Facilities	50

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	0
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	6.98
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	6.98

7.48 Johnson County Profile

Overview	
Total County Area (square miles)	614.04
Estimated Linear Miles of Railroad	27.20
Percent Total County in the Buffer Zone	4.43%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	142,287
Estimated Exposed Population	32,980
Percent Total County Population Exposed	23.18%
Total County Housing Units (2014)	58,783
Estimated Exposed Housing Units	15,514
Percent Total County Exposed Housing Units	26.39%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	8
Courthouses, Prisons, and Public Safety	15
K-12 Schools	11
Childcare Centers	23
Hospital Facilities	31
Nursing Homes	3
Town and City Halls	46
Water Intakes	1
Total County Exposed Facilities	138

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	1,552
Significant Public Lakes (acres)	11.89
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	11.89
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	22.97
Protected Streams (length in miles)	9
Total Exposed Length of Streams (length in miles)	22.97

7.49 Keokuk County Profile

Overview	
Total County Area (square miles)	579.18
Estimated Linear Miles of Railroad	9.40
Percent Total County in the Buffer Zone	1.62%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	10,231
Estimated Exposed Population	81
Percent Total County Population Exposed	0.79%
Total County Housing Units (2014)	4,886
Estimated Exposed Housing Units	40
Percent Total County Exposed Housing Units	0.82%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	0
Courthouses, Prisons, and Public Safety	0
K-12 Schools	0
Childcare Centers	0
Hospital Facilities	0
Nursing Homes	0
Town and City Halls	0
Water Intakes	0
Total County Exposed Facilities	0

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	54
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	3.11
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	3.11

7.50 Kossuth County Profile

Overview	
Total County Area (square miles)	972.72
Estimated Linear Miles of Railroad	54.51
Percent Total County in the Buffer Zone	5.60%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	15,222
Estimated Exposed Population	5,093
Percent Total County Population Exposed	33.46%
Total County Housing Units (2014)	7,481
Estimated Exposed Housing Units	2,562
Percent Total County Exposed Housing Units	34.25%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	4
Courthouses, Prisons, and Public Safety	8
K-12 Schools	8
Childcare Centers	1
Hospital Facilities	2
Nursing Homes	1
Town and City Halls	18
Water Intakes	0
Total County Exposed Facilities	42

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	78
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	7.51
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	7.51

7.51 Lee County Profile

Overview	
Total County Area (square miles)	517.52
Estimated Linear Miles of Railroad	79.03
Percent Total County in the Buffer Zone	15.27%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	35,286
Estimated Exposed Population	14,750
Percent Total County Population Exposed	41.80%
Total County Housing Units (2014)	16,173
Estimated Exposed Housing Units	6,695
Percent Total County Exposed Housing Units	41.39%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	4
Courthouses, Prisons, and Public Safety	14
K-12 Schools	8
Childcare Centers	6
Hospital Facilities	1
Nursing Homes	7
Town and City Halls	19
Water Intakes	2
Total County Exposed Facilities	61

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	5,618
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	11.34
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	11.34

7.52 Linn County Profile

Overview	
Total County Area (square miles)	716.88
Estimated Linear Miles of Railroad	118.32
Percent Total County in the Buffer Zone	16.50%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	217,751
Estimated Exposed Population	45,876
Percent Total County Population Exposed	21.07%
Total County Housing Units (2014)	94,663
Estimated Exposed Housing Units	20,325
Percent Total County Exposed Housing Units	21.47%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	15
Courthouses, Prisons, and Public Safety	33
K-12 Schools	16
Childcare Centers	26
Hospital Facilities	29
Nursing Homes	12
Town and City Halls	58
Water Intakes	1
Total County Exposed Facilities	190

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	2,329
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	43.78
Protected Streams (length in miles)	2.44
Total Exposed Length of Streams (length in miles)	46.22

7.53 Louisa County Profile

Overview	
Total County Area (square miles)	401.77
Estimated Linear Miles of Railroad	19.01
Percent Total County in the Buffer Zone	4.73%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	11,161
Estimated Exposed Population	2,030
Percent Total County Population Exposed	18.18%
Total County Housing Units (2014)	5,006
Estimated Exposed Housing Units	818
Percent Total County Exposed Housing Units	16.25%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	0
Courthouses, Prisons, and Public Safety	2
K-12 Schools	2
Childcare Centers	2
Hospital Facilities	1
Nursing Homes	0
Town and City Halls	2
Water Intakes	0
Total County Exposed Facilities	9

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	8
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	1.04
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	1.04

7.54 Lucas County Profile

Overview	
Total County Area (square miles)	430.59
Estimated Linear Miles of Railroad	73.65
Percent Total County in the Buffer Zone	17.10%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	8,701
Estimated Exposed Population	5,327
Percent Total County Population Exposed	61.22%
Total County Housing Units (2014)	4,204
Estimated Exposed Housing Units	2,592
Percent Total County Exposed Housing Units	61.66%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	3
Courthouses, Prisons, and Public Safety	4
K-12 Schools	7
Childcare Centers	3
Hospital Facilities	4
Nursing Homes	2
Town and City Halls	17
Water Intakes	1
Total County Exposed Facilities	41

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	1,436
Significant Public Lakes (acres)	0.26
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	13.14
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	13.40
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	17.25
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	17.25

7.55 Lyon County Profile

Overview	
Total County Area (square miles)	587.65
Estimated Linear Miles of Railroad	18.49
Percent Total County in the Buffer Zone	3.15%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	11,683
Estimated Exposed Population	1,092
Percent Total County Population Exposed	9.34%
Total County Housing Units (2014)	4,965
Estimated Exposed Housing Units	416
Percent Total County Exposed Housing Units	8.37%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	1
K-12 Schools	2
Childcare Centers	0
Hospital Facilities	0
Nursing Homes	0
Town and City Halls	6
Water Intakes	0
Total County Exposed Facilities	11

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	0
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	2.73
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	2.73

7.56 Madison County Profile

Overview	
Total County Area (square miles)	354.00
Estimated Linear Miles of Railroad	8.54
Percent Total County in the Buffer Zone	2.41%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	15,609
Estimated Exposed Population	1,450
Percent Total County Population Exposed	9.29%
Total County Housing Units (2014)	6,684
Estimated Exposed Housing Units	570
Percent Total County Exposed Housing Units	8.52%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	1
Courthouses, Prisons, and Public Safety	0
K-12 Schools	3
Childcare Centers	1
Hospital Facilities	1
Nursing Homes	0
Town and City Halls	3
Water Intakes	0
Total County Exposed Facilities	9

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	0
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	0
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	0

7.57 Mahaska County Profile

Overview	
Total County Area (square miles)	570.86
Estimated Linear Miles of Railroad	25.31
Percent Total County in the Buffer Zone	4.43%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	22,370
Estimated Exposed Population	7,614
Percent Total County Population Exposed	34.04%
Total County Housing Units (2014)	9,726
Estimated Exposed Housing Units	3,326
Percent Total County Exposed Housing Units	34.20%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	1
Courthouses, Prisons, and Public Safety	5
K-12 Schools	8
Childcare Centers	10
Hospital Facilities	2
Nursing Homes	5
Town and City Halls	14
Water Intakes	0
Total County Exposed Facilities	45

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	109
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	19.15
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	19.15

7.58 Marion County Profile

Overview	
Total County Area (square miles)	554.53
Estimated Linear Miles of Railroad	16.35
Percent Total County in the Buffer Zone	2.95%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	33,365
Estimated Exposed Population	1,425
Percent Total County Population Exposed	4.27%
Total County Housing Units (2014)	13,984
Estimated Exposed Housing Units	650
Percent Total County Exposed Housing Units	4.65%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	1
Courthouses, Prisons, and Public Safety	1
K-12 Schools	3
Childcare Centers	0
Hospital Facilities	1
Nursing Homes	0
Town and City Halls	3
Water Intakes	0
Total County Exposed Facilities	9

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	23
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	3.73
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	3.73

7.59 Marshall County Profile

Overview	
Total County Area (square miles)	572.50
Estimated Linear Miles of Railroad	67.55
Percent Total County in the Buffer Zone	11.80%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	40,866
Estimated Exposed Population	10,076
Percent Total County Population Exposed	24.66%
Total County Housing Units (2014)	16,718
Estimated Exposed Housing Units	4,256
Percent Total County Exposed Housing Units	25.45%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	4
Courthouses, Prisons, and Public Safety	10
K-12 Schools	8
Childcare Centers	6
Hospital Facilities	8
Nursing Homes	1
Town and City Halls	19
Water Intakes	0
Total County Exposed Facilities	56

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	196
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	19.39
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	19.39

7.60 Mills County Profile

Overview	
Total County Area (square miles)	437.44
Estimated Linear Miles of Railroad	66.50
Percent Total County in the Buffer Zone	15.20%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	14,831
Estimated Exposed Population	4,063
Percent Total County Population Exposed	27.39%
Total County Housing Units (2014)	6,088
Estimated Exposed Housing Units	1,644
Percent Total County Exposed Housing Units	27.01%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	4
Courthouses, Prisons, and Public Safety	8
K-12 Schools	4
Childcare Centers	3
Hospital Facilities	3
Nursing Homes	9
Town and City Halls	19
Water Intakes	0
Total County Exposed Facilities	50

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	1,164
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	9.00
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	9.00

7.61 Mitchell County Profile

Overview	
Total County Area (square miles)	469.13
Estimated Linear Miles of Railroad	30.45
Percent Total County in the Buffer Zone	6.49

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	10,779
Estimated Exposed Population	4,121
Percent Total County Population Exposed	38.23%
Total County Housing Units (2014)	4,916
Estimated Exposed Housing Units	1,912
Percent Total County Exposed Housing Units	38.89%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	1
Courthouses, Prisons, and Public Safety	8
K-12 Schools	6
Childcare Centers	1
Hospital Facilities	2
Nursing Homes	5
Town and City Halls	12
Water Intakes	0
Total County Exposed Facilities	35

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	236
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	2.60
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	2.60

7.62 Monona County Profile

Overview	
Total County Area (square miles)	694.07
Estimated Linear Miles of Railroad	25.71
Percent Total County in the Buffer Zone	3.70%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	8,996
Estimated Exposed Population	3,648
Percent Total County Population Exposed	40.56%
Total County Housing Units (2014)	4,715
Estimated Exposed Housing Units	1,817
Percent Total County Exposed Housing Units	38.53%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	1
Courthouses, Prisons, and Public Safety	6
K-12 Schools	4
Childcare Centers	1
Hospital Facilities	0
Nursing Homes	3
Town and City Halls	13
Water Intakes	0
Total County Exposed Facilities	28

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	0
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	11.07
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	11.07

7.63 Monroe County Profile

Overview	
Total County Area (square miles)	433.72
Estimated Linear Miles of Railroad	72.19
Percent Total County in the Buffer Zone	16.65%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	8,001
Estimated Exposed Population	4,207
Percent Total County Population Exposed	52.58%
Total County Housing Units (2014)	3,892
Estimated Exposed Housing Units	1,974
Percent Total County Exposed Housing Units	50.72%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	4
K-12 Schools	5
Childcare Centers	3
Hospital Facilities	5
Nursing Homes	8
Town and City Halls	8
Water Intakes	0
Total County Exposed Facilities	35

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	200
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	16.04
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	16.04

7.64 Montgomery County Profile

Overview	
Total County Area (square miles)	424.10
Estimated Linear Miles of Railroad	46.89
Percent Total County in the Buffer Zone	11.06%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	10,421
Estimated Exposed Population	4,724
Percent Total County Population Exposed	45.33%
Total County Housing Units (2014)	5,200
Estimated Exposed Housing Units	2,368
Percent Total County Exposed Housing Units	45.53%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	7
K-12 Schools	5
Childcare Centers	2
Hospital Facilities	2
Nursing Homes	4
Town and City Halls	18
Water Intakes	0
Total County Exposed Facilities	40

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	352
Significant Public Lakes (acres)	7.64
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	7.64
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	11.39
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	11.39

7.65 Muscatine County Profile

Overview	
Total County Area (square miles)	437.47
Estimated Linear Miles of Railroad	50.35
Percent Total County in the Buffer Zone	11.51%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	42,903
Estimated Exposed Population	16,641
Percent Total County Population Exposed	38.79%
Total County Housing Units (2014)	17,996
Estimated Exposed Housing Units	7,003
Percent Total County Exposed Housing Units	38.92%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	5
Courthouses, Prisons, and Public Safety	13
K-12 Schools	6
Childcare Centers	5
Hospital Facilities	3
Nursing Homes	1
Town and City Halls	19
Water Intakes	0
Total County Exposed Facilities	52

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	3,534
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	8.73
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	8.73
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	29.17
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	29.17

7.66 O'Brien County Profile

Overview	
Total County Area (square miles)	573.04
Estimated Linear Miles of Railroad	12.75
Percent Total County in the Buffer Zone	2.23%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	14,056
Estimated Exposed Population	3,673
Percent Total County Population Exposed	26.13%
Total County Housing Units (2014)	6,635
Estimated Exposed Housing Units	1,783
Percent Total County Exposed Housing Units	26.88%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	3
Courthouses, Prisons, and Public Safety	2
K-12 Schools	3
Childcare Centers	2
Hospital Facilities	6
Nursing Homes	4
Town and City Halls	12
Water Intakes	0
Total County Exposed Facilities	32

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	0
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	9.03
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	9.03

7.67 Osceola County Profile

Overview	
Total County Area (square miles)	398.68
Estimated Linear Miles of Railroad	18.00
Percent Total County in the Buffer Zone	4.51%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	6,218
Estimated Exposed Population	2,285
Percent Total County Population Exposed	36.75%
Total County Housing Units (2014)	2,968
Estimated Exposed Housing Units	1,047
Percent Total County Exposed Housing Units	35.27%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	1
Courthouses, Prisons, and Public Safety	3
K-12 Schools	0
Childcare Centers	0
Hospital Facilities	1
Nursing Homes	4
Town and City Halls	13
Water Intakes	0
Total County Exposed Facilities	22

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	139
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	7.60
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	7.60

7.68 Page County Profile

Overview	
Total County Area (square miles)	534.94
Estimated Linear Miles of Railroad	11.83
Percent Total County in the Buffer Zone	2.21%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	15,496
Estimated Exposed Population	3,263
Percent Total County Population Exposed	21.06%
Total County Housing Units (2014)	7,186
Estimated Exposed Housing Units	1,677
Percent Total County Exposed Housing Units	23.34%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	1
Courthouses, Prisons, and Public Safety	4
K-12 Schools	5
Childcare Centers	2
Hospital Facilities	0
Nursing Homes	3
Town and City Halls	4
Water Intakes	0
Total County Exposed Facilities	19

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	199
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	2.99
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	2.99

7.69 Palo Alto County Profile

Overview	
Total County Area (square miles)	563.84
Estimated Linear Miles of Railroad	51.61
Percent Total County in the Buffer Zone	9.15%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	9,099
Estimated Exposed Population	5,701
Percent Total County Population Exposed	62.66%
Total County Housing Units (2014)	4,617
Estimated Exposed Housing Units	2,820
Percent Total County Exposed Housing Units	61.08%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	0
Courthouses, Prisons, and Public Safety	10
K-12 Schools	12
Childcare Centers	5
Hospital Facilities	5
Nursing Homes	9
Town and City Halls	25
Water Intakes	0
Total County Exposed Facilities	66

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	1,187
Significant Public Lakes (acres)	252.59
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	252.59
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	2.66
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	2.66

7.70 Plymouth County Profile

Overview	
Total County Area (square miles)	862.89
Estimated Linear Miles of Railroad	84.80
Percent Total County in the Buffer Zone	9.83%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	24,874
Estimated Exposed Population	10,627
Percent Total County Population Exposed	42.72%
Total County Housing Units (2014)	10,668
Estimated Exposed Housing Units	4,672
Percent Total County Exposed Housing Units	43.80%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	4
Courthouses, Prisons, and Public Safety	13
K-12 Schools	15
Childcare Centers	5
Hospital Facilities	8
Nursing Homes	8
Town and City Halls	26
Water Intakes	0
Total County Exposed Facilities	79

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	142
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	72.42
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	72.42

7.71 Pocahontas County Profile

Overview	
Total County Area (square miles)	577.24
Estimated Linear Miles of Railroad	36.87
Percent Total County in the Buffer Zone	6.39%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	7,138
Estimated Exposed Population	2,882
Percent Total County Population Exposed	40.37%
Total County Housing Units (2014)	3,771
Estimated Exposed Housing Units	1,536
Percent Total County Exposed Housing Units	40.74%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	5
K-12 Schools	8
Childcare Centers	1
Hospital Facilities	0
Nursing Homes	4
Town and City Halls	8
Water Intakes	0
Total County Exposed Facilities	28

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	90
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	1.16
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	1.16

7.72 Polk County Profile

Overview	
Total County Area (square miles)	573.80
Estimated Linear Miles of Railroad	56.62
Percent Total County in the Buffer Zone	9.87%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	459,862
Estimated Exposed Population	41,180
Percent Total County Population Exposed	8.95%
Total County Housing Units (2014)	192,980
Estimated Exposed Housing Units	18,136
Percent Total County Exposed Housing Units	9.40%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	5
Courthouses, Prisons, and Public Safety	59
K-12 Schools	12
Childcare Centers	19
Hospital Facilities	31
Nursing Homes	16
Town and City Halls	128
Water Intakes	2
Total County Exposed Facilities	272

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	2,917
Significant Public Lakes (acres)	67.56
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	180.35
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	247.92
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	25.52
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	25.52

7.73 Pottawattamie County Profile

Overview	
Total County Area (square miles)	950.28
Estimated Linear Miles of Railroad	126.60
Percent Total County in the Buffer Zone	13.32%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	93,128
Estimated Exposed Population	29,784
Percent Total County Population Exposed	31.98%
Total County Housing Units (2014)	39,589
Estimated Exposed Housing Units	12,529
Percent Total County Exposed Housing Units	31.65%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	5
Courthouses, Prisons, and Public Safety	20
K-12 Schools	17
Childcare Centers	17
Hospital Facilities	16
Nursing Homes	10
Town and City Halls	31
Water Intakes	0
Total County Exposed Facilities	116

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	771
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	36.44
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	36.44

7.74 Poweshiek County Profile

Overview	
Total County Area (square miles)	584.93
Estimated Linear Miles of Railroad	48.63
Percent Total County in the Buffer Zone	8.31%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	18,668
Estimated Exposed Population	9,641
Percent Total County Population Exposed	51.64%
Total County Housing Units (2014)	8,953
Estimated Exposed Housing Units	4,097
Percent Total County Exposed Housing Units	45.76%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	3
Courthouses, Prisons, and Public Safety	5
K-12 Schools	5
Childcare Centers	1
Hospital Facilities	6
Nursing Homes	3
Town and City Halls	13
Water Intakes	1
Total County Exposed Facilities	37

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	312
Significant Public Lakes (acres)	6.44
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	6.44
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	26.75
Protected Streams (length in miles)	0.00
Total Exposed Length of Streams (length in miles)	26.75

7.75 Sac County Profile

Overview	
Total County Area (square miles)	575.01
Estimated Linear Miles of Railroad	35.05
Percent Total County in the Buffer Zone	6.09%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	10,035
Estimated Exposed Population	1,768
Percent Total County Population Exposed	17.62%
Total County Housing Units (2014)	5,407
Estimated Exposed Housing Units	867
Percent Total County Exposed Housing Units	16.04%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	1
Courthouses, Prisons, and Public Safety	3
K-12 Schools	4
Childcare Centers	0
Hospital Facilities	1
Nursing Homes	2
Town and City Halls	9
Water Intakes	0
Total County Exposed Facilities	20

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	621
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	1094.30
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	1094.30
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	20.46
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	20.46

7.76 Scott County Profile

Overview	
Total County Area (square miles)	458.09
Estimated Linear Miles of Railroad	62.49
Percent Total County in the Buffer Zone	13.64%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	171,387
Estimated Exposed Population	38,248
Percent Total County Population Exposed	22.32%
Total County Housing Units (2014)	73,040
Estimated Exposed Housing Units	17,511
Percent Total County Exposed Housing Units	23.97%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	5
Courthouses, Prisons, and Public Safety	14
K-12 Schools	20
Childcare Centers	13
Hospital Facilities	11
Nursing Homes	6
Town and City Halls	31
Water Intakes	1
Total County Exposed Facilities	101

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	5,698
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	16.15
Protected Streams (length in miles)	1.55
Total Exposed Length of Streams (length in miles)	17.70

7.77 Shelby County Profile

Overview	
Total County Area (square miles)	590.78
Estimated Linear Miles of Railroad	24.16
Percent Total County in the Buffer Zone	4.09%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	11,948
Estimated Exposed Population	1,304
Percent Total County Population Exposed	10.91%
Total County Housing Units (2014)	5,561
Estimated Exposed Housing Units	587
Percent Total County Exposed Housing Units	10.55%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	4
Courthouses, Prisons, and Public Safety	5
K-12 Schools	3
Childcare Centers	0
Hospital Facilities	0
Nursing Homes	2
Town and City Halls	3
Water Intakes	0
Total County Exposed Facilities	17

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	12
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	19.40
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	19.40

7.78 Sioux County Profile

Overview	
Total County Area (square miles)	768.33
Estimated Linear Miles of Railroad	59.56
Percent Total County in the Buffer Zone	7.75%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	34,681
Estimated Exposed Population	7,824
Percent Total County Population Exposed	22.56%
Total County Housing Units (2014)	12,582
Estimated Exposed Housing Units	3,135
Percent Total County Exposed Housing Units	24.92%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	4
Courthouses, Prisons, and Public Safety	3
K-12 Schools	8
Childcare Centers	2
Hospital Facilities	10
Nursing Homes	5
Town and City Halls	11
Water Intakes	0
Total County Exposed Facilities	43

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	0
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	58.41
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	58.41

7.79 Story County Profile

Overview	
Total County Area (square miles)	572.82
Estimated Linear Miles of Railroad	90.94
Percent Total County in the Buffer Zone	15.88%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	94,073
Estimated Exposed Population	34,614
Percent Total County Population Exposed	36.79%
Total County Housing Units (2014)	38,103
Estimated Exposed Housing Units	14,280
Percent Total County Exposed Housing Units	37.48%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	7
Courthouses, Prisons, and Public Safety	16
K-12 Schools	14
Childcare Centers	6
Hospital Facilities	11
Nursing Homes	6
Town and City Halls	37
Water Intakes	0
Total County Exposed Facilities	97

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	743
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	10.70
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	10.70

7.80 Tama County Profile

Overview	
Total County Area (square miles)	721.01
Estimated Linear Miles of Railroad	50.75
Percent Total County in the Buffer Zone	7.04%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	17,451
Estimated Exposed Population	2,678
Percent Total County Population Exposed	15.35%
Total County Housing Units (2014)	7,753
Estimated Exposed Housing Units	1,125
Percent Total County Exposed Housing Units	14.52%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	4
K-12 Schools	5
Childcare Centers	0
Hospital Facilities	0
Nursing Homes	0
Town and City Halls	7
Water Intakes	0
Total County Exposed Facilities	18

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	2,943
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	2,565.67
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	2,565.67
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	19.48
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	19.48

7.81 Union County Profile

Overview	
Total County Area (square miles)	423.65
Estimated Linear Miles of Railroad	44.23
Percent Total County in the Buffer Zone	10.44%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	12,516
Estimated Exposed Population	6,067
Percent Total County Population Exposed	48.48%
Total County Housing Units (2014)	5,907
Estimated Exposed Housing Units	2,933
Percent Total County Exposed Housing Units	49.65%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	7
K-12 Schools	8
Childcare Centers	4
Hospital Facilities	2
Nursing Homes	5
Town and City Halls	13
Water Intakes	1
Total County Exposed Facilities	42

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	491
Significant Public Lakes (acres)	12.41
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	12.41
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	10.05
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	10.05

7.82 Wapello County Profile

Overview	
Total County Area (square miles)	421.83
Estimated Linear Miles of Railroad	84.24
Percent Total County in the Buffer Zone	19.97%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	35,212
Estimated Exposed Population	10,088
Percent Total County Population Exposed	28.65%
Total County Housing Units (2014)	16,019
Estimated Exposed Housing Units	4,536
Percent Total County Exposed Housing Units	28.32%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	10
K-12 Schools	8
Childcare Centers	2
Hospital Facilities	9
Nursing Homes	3
Town and City Halls	22
Water Intakes	5
Total County Exposed Facilities	63

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	68
Significant Public Lakes (acres)	12.64
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	12.64
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	25.07
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	25.07

7.83 Warren County Profile

Overview	
Total County Area (square miles)	569.83
Estimated Linear Miles of Railroad	14.04
Percent Total County in the Buffer Zone	2.46%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	47,956
Estimated Exposed Population	2,447
Percent Total County Population Exposed	5.10%
Total County Housing Units (2014)	19,162
Estimated Exposed Housing Units	1,000
Percent Total County Exposed Housing Units	5.22%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	2
K-12 Schools	3
Childcare Centers	2
Hospital Facilities	0
Nursing Homes	0
Town and City Halls	1
Water Intakes	0
Total County Exposed Facilities	10

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	884
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	5.77
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	5.77

7.84 Washington County Profile

Overview	
Total County Area (square miles)	568.84
Estimated Linear Miles of Railroad	25.62
Percent Total County in the Buffer Zone	4.50%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	22,070
Estimated Exposed Population	4,773
Percent Total County Population Exposed	21.63%
Total County Housing Units (2014)	9,540
Estimated Exposed Housing Units	2,127
Percent Total County Exposed Housing Units	22.30%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	1
Courthouses, Prisons, and Public Safety	7
K-12 Schools	4
Childcare Centers	2
Hospital Facilities	2
Nursing Homes	2
Town and City Halls	13
Water Intakes	0
Total County Exposed Facilities	31

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	341
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	8.81
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	8.81

7.85 Wayne County Profile

Overview	
Total County Area (square miles)	525.44
Estimated Linear Miles of Railroad	43.00
Percent Total County in the Buffer Zone	8.18%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	6,395
Estimated Exposed Population	2,591
Percent Total County Population Exposed	40.52%
Total County Housing Units (2014)	3,181
Estimated Exposed Housing Units	1,358
Percent Total County Exposed Housing Units	42.71%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	3
Courthouses, Prisons, and Public Safety	7
K-12 Schools	7
Childcare Centers	1
Hospital Facilities	6
Nursing Homes	2
Town and City Halls	9
Water Intakes	1
Total County Exposed Facilities	36

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	222
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	1.48
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	1.48

7.86 Webster County Profile

Overview	
Total County Area (square miles)	715.62
Estimated Linear Miles of Railroad	86.74
Percent Total County in the Buffer Zone	12.12%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	36,955
Estimated Exposed Population	18,314
Percent Total County Population Exposed	49.56%
Total County Housing Units (2014)	17,035
Estimated Exposed Housing Units	7,901
Percent Total County Exposed Housing Units	46.38%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	7
Courthouses, Prisons, and Public Safety	22
K-12 Schools	15
Childcare Centers	9
Hospital Facilities	15
Nursing Homes	9
Town and City Halls	49
Water Intakes	0
Total County Exposed Facilities	126

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	33
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	17.23
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	17.23

7.87 Winnebago County Profile

Overview	
Total County Area (square miles)	400.49
Estimated Linear Miles of Railroad	16.32
Percent Total County in the Buffer Zone	4.08%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	10,559
Estimated Exposed Population	2,188
Percent Total County Population Exposed	20.72%
Total County Housing Units (2014)	5,183
Estimated Exposed Housing Units	1,112
Percent Total County Exposed Housing Units	21.46%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	2
Courthouses, Prisons, and Public Safety	3
K-12 Schools	5
Childcare Centers	2
Hospital Facilities	2
Nursing Homes	2
Town and City Halls	8
Water Intakes	0
Total County Exposed Facilities	24

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	626
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	867.51
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	867.51
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	3.77
Protected Streams (length in miles)	0

7.88 Winneshiek County Profile

Overview	
Total County Area (square miles)	689.87
Estimated Linear Miles of Railroad	29.71
Percent Total County in the Buffer Zone	4.31%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	20,768
Estimated Exposed Population	2,708
Percent Total County Population Exposed	13.04%
Total County Housing Units (2014)	8,813
Estimated Exposed Housing Units	1,238
Percent Total County Exposed Housing Units	14.05%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	3
Courthouses, Prisons, and Public Safety	4
K-12 Schools	7
Childcare Centers	2
Hospital Facilities	3
Nursing Homes	0
Town and City Halls	8
Water Intakes	0
Total County Exposed Facilities	27

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	202
Significant Public Lakes (acres)	26.77
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	26.77
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	6.50
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	6.50

7.89 Woodbury County Profile

Overview	
Total County Area (square miles)	872.83
Estimated Linear Miles of Railroad	41.16
Percent Total County in the Buffer Zone	4.72%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	102,271
Estimated Exposed Population	31,035
Percent Total County Population Exposed	30.35%
Total County Housing Units (2014)	41,510
Estimated Exposed Housing Units	12,231
Percent Total County Exposed Housing Units	29.46%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	4
Courthouses, Prisons, and Public Safety	22
K-12 Schools	23
Childcare Centers	22
Hospital Facilities	24
Nursing Homes	8
Town and City Halls	46
Water Intakes	1
Total County Exposed Facilities	150

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	1,292
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	9.30
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	9.30

7.90 Worth County Profile

Overview	
Total County Area (square miles)	400.12
Estimated Linear Miles of Railroad	45.33
Percent Total County in the Buffer Zone	11.33%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	7,624
Estimated Exposed Population	4,022
Percent Total County Population Exposed	52.75%
Total County Housing Units (2014)	3,523
Estimated Exposed Housing Units	1,928
Percent Total County Exposed Housing Units	54.73%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	6
Courthouses, Prisons, and Public Safety	12
K-12 Schools	6
Childcare Centers	3
Hospital Facilities	2
Nursing Homes	4
Town and City Halls	14
Water Intakes	0
Total County Exposed Facilities	47

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	1,348
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	5.80
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	5.80

7.91 Wright County Profile

Overview	
Total County Area (square miles)	580.42
Estimated Linear Miles of Railroad	21.63
Percent Total County in the Buffer Zone	3.73%

Railroad Incident Exposures Exposed Population Data (Populations in the Buffer Zone)	
Total County Population (2014 Census Estimate)	12,840
Estimated Exposed Population	3,843
Percent Total County Population Exposed	29.93%
Total County Housing Units (2014)	6,494
Estimated Exposed Housing Units	1,801
Percent Total County Exposed Housing Units	27.73%

Railroad Incident Exposures Exposed Facilities (Facilities in the Buffer Zone)	
Fire and EMS	1
Courthouses, Prisons, and Public Safety	3
K-12 Schools	3
Childcare Centers	2
Hospital Facilities	2
Nursing Homes	2
Town and City Halls	3
Water Intakes	0
Total County Exposed Facilities	16

Vulnerable Environmental Areas (Areas in the Buffer Zone)	
Total Exposed Conservation and Recreation Lands (acres)	60
Significant Public Lakes (acres)	0
Federal Reservoirs (acres)	0
Protected Wetlands and Setbacks (acres)	0
Total Exposed Lakes, Reservoirs, & Wetlands (acres)	0
Outstanding Streams (length in miles)	0
Designated Streams (length in miles)	10.14
Protected Streams (length in miles)	0
Total Exposed Length of Streams (length in miles)	10.14

8.0 Appendix H - Local Survey Responses (Online Survey)

#1

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, November 25, 2015 2:47:54 PM
Last Modified: Wednesday, November 25, 2015 2:57:10 PM
Time Spent: 00:09:16
IP Address: 165.206.58.37

PAGE 2: General Questions

Q1: What is your role in your community?	Emergency Manager

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	David Johnston
Department/Agency:	Iowa HSEMD
Address:	7900 Hickman Road
City/Town:	Windsor Heights
ZIP:	50324
Email Address:	david.johnston@iowa.gov
Phone Number:	515-725-3295

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

HSEMD writes statewide plans: response, recovery, mitigation, etc. HSEMD provides training across all disciplines, to include HAZMAT and transportation/rail. HSEMD conducts exercises to test plans and training across multiple hazards.

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	Yes
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	Yes

Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?

As much as possible

Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	No
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	I don't know
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*
Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?	*Respondent skipped this question*
Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*
Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

ESFs, and yes up to date

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	Yes
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	No
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

Yes, yes it's active. Multiple disciplines.

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	No
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

There are several systems. Alert Iowa is a primary one, as is the Duty Officer on call.

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

IMAC covers much of this.

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

HSEMD works with first responders, but those responders coordinate their comms.

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

Coordination is ongoing and is something that everyone at all levels need to continue to work on.

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	Would have to look up my contacts.

Q29: If you have regular contact with the railroads, which ones?

Much of our knowledge of railroad contacts comes from local EMA and Iowa DOT

Q30: Have any railroads contacted you to offer training, planning, or exercises?	Yes

Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?

Contacted HSEMD through our HMEP grants person.

Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

Across Iowa shelters are managed and coordinated by various entities.

Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Other (please specify) Iowa HSEMD would assist in a mass casualty event, the definition will be different in different jurisdictions.

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

Across the state distance to hospitals, medical services, and burn units will vary.

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

Doing real world exercises and improving coordination and communication between EMA, rail, and responders.

#2

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, November 25, 2015 3:11:12 PM
Last Modified: Wednesday, November 25, 2015 3:12:37 PM
Time Spent: 00:01:24
IP Address: 97.121.113.88

PAGE 2: General Questions

Q1: **What is your role in your community?**	Emergency Manager
Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.	*Respondent skipped this question*
Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?	*Respondent skipped this question*

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	*Respondent skipped this question*
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	*Respondent skipped this question*
Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?	*Respondent skipped this question*
Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	*Respondent skipped this question*
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*
Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	*Respondent skipped this question*
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*
Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?	*Respondent skipped this question*

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*
Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?	*Respondent skipped this question*
Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	*Respondent skipped this question*
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	*Respondent skipped this question*
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	*Respondent skipped this question*
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	*Respondent skipped this question*
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*
Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?	*Respondent skipped this question*
Q22: Regarding public education/outreach:	*Respondent skipped this question*
Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).	*Respondent skipped this question*

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:	*Respondent skipped this question*
Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?	*Respondent skipped this question*
Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.	*Respondent skipped this question*
Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?	*Respondent skipped this question*
Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	*Respondent skipped this question*
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	*Respondent skipped this question*
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*
Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	*Respondent skipped this question*
Q33: Who manages the shelters, feeding, and related needs?	*Respondent skipped this question*
Q34: Do you have the capability to manage a mass-casualty incident?	*Respondent skipped this question*
Q35: How do you define a mass-casualty incident (how many patients)?	*Respondent skipped this question*
Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?	*Respondent skipped this question*
Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?	*Respondent skipped this question*

#3

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, November 25, 2015 3:14:10 PM
Last Modified: Wednesday, November 25, 2015 3:27:19 PM
Time Spent: 00:13:08
IP Address: 66.43.193.125

PAGE 2: General Questions

Q1: **What is your role in your community?**	Emergency Manager

Q2: **Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.**

Name:	Keith Morgan
Department/Agency:	Story Co EMA
Address:	900 6th St
City/Town:	Nevada
ZIP:	50201
Email Address:	kmorgan@storycountyiowa.gov
Phone Number:	515-38207315

Q3: **What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?**

I am the county coordinator responsible for ESF 10 and I am also the LEPC Chair.

PAGE 3: Risk and Vulnerability Questions

Q4: **Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?**	Yes
Q5: **Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?**	Yes

Q6: **How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?**

I have attended their training and we have gotten a commodity flow from them through a fire chief.

Q7: **Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?**	No
Q8: **If yes, to whom did you provide assistance?**	*Respondent skipped this question*

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*

Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?

None

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?

N/A

Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?

We have a major rail line that runs through the county and two ethanol producers so we have a large amount of product. It is difficult for volunteer fire departments to find the time to train on this issue give all the other training they need to do.

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

It is up to date with a small group of active members.

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	Yes
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	Yes

Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.

My deputy and I have both had training on rail car incidents and other training at the Homeland Security Conference and HAZMAT symposium.

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

It is up to date with a small group of active members.

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	Yes
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

We have WENS and we have developed prepared notifications for HAZMAT incidents in general.

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

We have a 28 E with Des Moines HAZMAT to contract for response services.

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

The EMA has bridging units and a few spare radios to link non-Story Co agencies into our trunked 800 MHZ system.

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

We have a moderate level of preparedness for HAZMAT in general, little specific preparedness for rail events. Rail events would be handled like other large scale events.

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	Regular contacts

Q29: If you have regular contact with the railroads, which ones?

Union Pacific

Q30: Have any railroads contacted you to offer training, planning, or exercises?	Yes
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*
Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

Per ESFs and dependent on location.

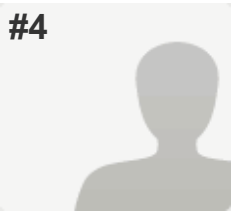
Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Other (please specify) Not procedurally defined for Story Co

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

Level II is Mary Greeley, Level 1 is Des Moines.

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

A derailment and subsequent fire in Ames.



#4

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, November 25, 2015 3:32:44 PM
Last Modified: Wednesday, November 25, 2015 3:38:43 PM
Time Spent: 00:05:59
IP Address: 69.66.250.145

PAGE 2: General Questions

Q1: What is your role in your community?	Emergency Manager

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	Dave C Wilson
Department/Agency:	Johnson County EMA
Address:	4529 Melrose Avenue
City/Town:	Iowa City
ZIP:	52246
Email Address:	dave.wilson@jecc-ema.org
Phone Number:	3193566761

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

We are the emergency management agency and coordinator for resources needed in support of an operation.

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	No
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	Yes

Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?

We work with anyone that calls and wants to work together.

Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	No
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*
Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?	*Respondent skipped this question*
Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*
Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

yes

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	Yes
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	Yes

Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?

ethanol exercises

Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	Yes

Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.

awareness level

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

yes

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	Yes
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

Reverse 911,

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes
Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?	*Respondent skipped this question*
Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.	*Respondent skipped this question*
Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?	*Respondent skipped this question*
Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	We've talked in the past, but I don't remember who I've talked to.
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	Yes

Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?

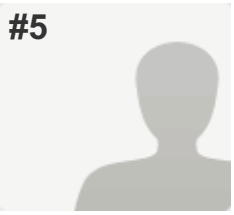
CRANDIC BNSF Transcar

Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

Red Cross and Salvation Army

Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Six or more
Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?	*Respondent skipped this question*
Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?	*Respondent skipped this question*



#5

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, November 25, 2015 3:43:06 PM
Last Modified: Wednesday, November 25, 2015 4:01:43 PM
Time Spent: 00:18:36
IP Address: 70.198.6.117

PAGE 2: General Questions

Q1: What is your role in your community?	Emergency Manager

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	Doug Reed
Department/Agency:	Pottawattamie Co Emergency Mgmt
Address:	227 So 6th St, Ste 23B
City/Town:	Council Bluffs
ZIP:	51501
Email Address:	doug.reed@pottcounty-ia.gov
Phone Number:	7123285777

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

We are the agency statutorily required to establish a means of direction, control and coordination of disastervand emergency response and recovery operations per Iowa Code 29C and Admin Code 605--7.3(4)

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	Yes
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	No

Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?

planning, training, exercise & request an assigned rep to our EOC

Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	No

Q8: If yes, to whom did you provide assistance?

na

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations? No

Q10: Please describe the incident(s) in detail.

na

Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?

none

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?

na

Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?

intelligence and information sharing between rail companies and emergency management

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

ESF and hazard specific, yes

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place? Yes

Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.) No

Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents? No

Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?

na

Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents? No

Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.

na

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

yes, not active - in process of establishing a multicounty group

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	Yes
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

outdoor sirens, alert iowa, eas, social media, emergency media releases

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

fire-rescue
emergency managers
imac

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

cell phone
provide a local radios to assigned rail crews

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

weak at this point but with high optomism to change that status

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	My contact list may need to be updated.
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	No

Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*
Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

red cross but they are not that functional, that relationship needs modified

Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Other (please specify) any # of patients that exceed the immediate response capability

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

council bluffs and omaha -no burn units

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

lack of plannining/response coordination and the historic unwillingness of the rail industry to provide emergency management requested data

#6

INCOMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, November 25, 2015 4:01:31 PM
Last Modified: Wednesday, November 25, 2015 4:02:35 PM
Time Spent: 00:01:04
IP Address: 216.51.175.221

PAGE 2: General Questions

Q1: **What is your role in your community?**	Emergency Manager
Q2: **Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.**	*Respondent skipped this question*

Q3: **What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?**

We are a support function for incident command should anything happen.

PAGE 3: Risk and Vulnerability Questions

Q4: **Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?**	*Respondent skipped this question*
Q5: **Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?**	*Respondent skipped this question*
Q6: **How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?**	*Respondent skipped this question*
Q7: **Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?**	*Respondent skipped this question*
Q8: **If yes, to whom did you provide assistance?**	*Respondent skipped this question*
Q9: **Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?**	*Respondent skipped this question*
Q10: **Please describe the incident(s) in detail.**	*Respondent skipped this question*
Q11: **What hazardous materials rail incident After Action Reports are available for review/consideration?**	*Respondent skipped this question*

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*
Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?	*Respondent skipped this question*
Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	*Respondent skipped this question*
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	*Respondent skipped this question*
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	*Respondent skipped this question*
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	*Respondent skipped this question*
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*
Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?	*Respondent skipped this question*
Q22: Regarding public education/outreach:	*Respondent skipped this question*
Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).	*Respondent skipped this question*

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:	*Respondent skipped this question*
Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?	*Respondent skipped this question*
Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.	*Respondent skipped this question*
Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?	*Respondent skipped this question*
Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	*Respondent skipped this question*
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	*Respondent skipped this question*
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*
Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	*Respondent skipped this question*
Q33: Who manages the shelters, feeding, and related needs?	*Respondent skipped this question*
Q34: Do you have the capability to manage a mass-casualty incident?	*Respondent skipped this question*
Q35: How do you define a mass-casualty incident (how many patients)?	*Respondent skipped this question*
Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?	*Respondent skipped this question*
Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?	*Respondent skipped this question*

#7

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, November 25, 2015 4:35:34 PM
Last Modified: Wednesday, November 25, 2015 4:44:22 PM
Time Spent: 00:08:47
IP Address: 216.81.211.9

PAGE 2: General Questions

Q1: What is your role in your community?	Emergency Manager

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	Barry Halling
Department/Agency:	Dallas County EMA
Address:	121 N.9th St.
City/Town:	Adel, Iowa
ZIP:	50003
Email Address:	Barry.Halling@dallascountyiowa.gov
Phone Number:	515-993-2134

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

Planning, response, coordination and recovery efforts.

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	Yes
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	Yes

Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?

They will be part of the planning, response and recovery effort.

Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	No
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*
Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?	*Respondent skipped this question*
Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*
Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

ESF's and is current

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	Yes
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	No
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

not active.

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	No
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).	*Respondent skipped this question*

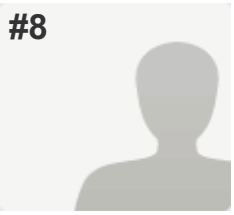
PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	No

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?	*Respondent skipped this question*
Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.	*Respondent skipped this question*
Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?	*Respondent skipped this question*
Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	We've talked in the past, but I don't remember who I've talked to.
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	No
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*

Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	No
Q33: Who manages the shelters, feeding, and related needs?	*Respondent skipped this question*
Q34: Do you have the capability to manage a mass-casualty incident?	No
Q35: How do you define a mass-casualty incident (how many patients)?	Five or more
Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?	*Respondent skipped this question*
Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?	*Respondent skipped this question*



INCOMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, November 25, 2015 4:50:47 PM
Last Modified: Wednesday, November 25, 2015 4:52:13 PM
Time Spent: 00:01:26
IP Address: 74.34.160.121

PAGE 2: General Questions

Q1: What is your role in your community?	Emergency Manager

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	Scott Forbes
Department/Agency:	Webster County Emergency Management
Address:	723 1st Ave South
City/Town:	Fort Dodge
ZIP:	50501
Email Address:	ema@webstercountyia.org
Phone Number:	5155703885

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

Work with the railroad and facilities that ship via rail.

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	*Respondent skipped this question*
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	*Respondent skipped this question*
Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?	*Respondent skipped this question*
Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	*Respondent skipped this question*
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*
Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	*Respondent skipped this question*

Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*
Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?	*Respondent skipped this question*
Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*
Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?	*Respondent skipped this question*
Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	*Respondent skipped this question*
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	*Respondent skipped this question*
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	*Respondent skipped this question*
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	*Respondent skipped this question*
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*
Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?	*Respondent skipped this question*
Q22: Regarding public education/outreach:	*Respondent skipped this question*

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).	*Respondent skipped this question*

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:	*Respondent skipped this question*
Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?	*Respondent skipped this question*
Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.	*Respondent skipped this question*
Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?	*Respondent skipped this question*
Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	*Respondent skipped this question*
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	*Respondent skipped this question*
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*
Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	*Respondent skipped this question*
Q33: Who manages the shelters, feeding, and related needs?	*Respondent skipped this question*
Q34: Do you have the capability to manage a mass-casualty incident?	*Respondent skipped this question*
Q35: How do you define a mass-casualty incident (how many patients)?	*Respondent skipped this question*
Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?	*Respondent skipped this question*
Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?	*Respondent skipped this question*

#9

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, November 25, 2015 4:42:10 PM
Last Modified: Wednesday, November 25, 2015 5:00:54 PM
Time Spent: 00:18:43
IP Address: 69.63.3.71

PAGE 2: General Questions

Q1: What is your role in your community?	Fire Service

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	Eugene Beard
Department/Agency:	Jefferson-Monroe Fire Department, Inc.
Address:	2559 120th St NW
Address 2:	PO Box 246
City/Town:	Swisher
ZIP:	52338
Email Address:	jmfd@southslope.net
Phone Number:	3198574756

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

Unsure. Would provide emergency response, command structure and notification.

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	Yes
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	Yes

Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?

Include them in command structure and facilitate using thier resources in mitigating incident.

Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	No
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*
Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?	*Respondent skipped this question*
Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*
Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

Johnson County EMA coordinates and continually updates the plan.

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	No
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	*Respondent skipped this question*
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	Yes

Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.

Yes, several members have attended railroad safety classes provided by the Iowa Fire Service Training Bureau. Primarily increased our awareness of the availability of personnel and resources.

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

Yes, and it is active under JCEMA. Unsure of all entities that participate but our agency does not.

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	No
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	No
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

Reverse 911

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

Approximately 22 Law Enforcement, EMA, Fire, Rescue and EMS agencies in Johnson, Linn, Iowa, Cedar, Muscatine and Washington Counties.

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

Would communicate thru our local PSAP.

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

No opinion

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	We've talked in the past, but I don't remember who I've talked to.
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	No
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*

Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	No
Q33: Who manages the shelters, feeding, and related needs?	*Respondent skipped this question*
Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Three or more

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

Iowa City, Iowa Yes on burn unit

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

Size of incident, assembling sufficient resources and impact on community.

#10

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, November 25, 2015 8:01:26 PM
Last Modified: Wednesday, November 25, 2015 8:16:24 PM
Time Spent: 00:14:58
IP Address: 208.79.0.198

PAGE 2: General Questions

Q1: **What is your role in your community?**	Emergency Manager
Q2: **Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.**	*Respondent skipped this question*

Q3: **What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?**

Assist with railroad officials and hazmat team if an incident happens. Work with local responders in preparations of an incident.

PAGE 3: Risk and Vulnerability Questions

Q4: **Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?**	Yes
Q5: **Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?**	Yes

Q6: **How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?**

Union Pacific is very aggressive when an event occurs. Will work to secure perimeter and evacuations if needed.

Q7: **Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?**	No
Q8: **If yes, to whom did you provide assistance?**	*Respondent skipped this question*
Q9: **Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?**	No
Q10: **Please describe the incident(s) in detail.**	*Respondent skipped this question*
Q11: **What hazardous materials rail incident After Action Reports are available for review/consideration?**	*Respondent skipped this question*

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*
Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

Yes

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	No
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	No
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

Yes. Cities, County, Fire/Rescue, Hazmat

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	Yes
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

Outdoor sirens, Everbridge [mass notification], social media

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

schools, contiguous counties

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

Unsure if RR's have Vhf frequencies which is what the county responders use.

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

Grade C

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	We've talked in the past, but I don't remember who I've talked to.

Q29: If you have regular contact with the railroads, which ones?

the regular contact is the RR 800 phone number

Q30: Have any railroads contacted you to offer training, planning, or exercises?	Yes

Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?

Union Pacific

Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

City civic center

Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Other (please specify) could be any of the above dependent upon type of event

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

County hospital is level 4, next closest is metro area level 1. burn center 100 miles

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

hazardous materials shipped in rail cars and in close proximity to each other. Also ethanol, crude oil, and other unknowns

#11

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, November 25, 2015 9:30:57 PM
Last Modified: Wednesday, November 25, 2015 9:52:58 PM
Time Spent: 00:22:00
IP Address: 71.34.180.119

PAGE 2: General Questions

Q1: What is your role in your community?	Emergency Manager

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	AJ Mumm
Department/Agency:	Polk County Emergency Management Agency
Address:	1907 Carpenter Ave.
City/Town:	Des Moines
ZIP:	50314
Email Address:	aj.mumm@polkcountyiowa.gov
Phone Number:	515-286-2107

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

preparedness, response, recovery, mitigation

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	Yes
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	Yes

Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?

unified command

Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	No
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*

Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?

none

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*
Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

Emergency Support Functions and it is up to date

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	Yes
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	No
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

Yes. Active. Response agencies and private sector fixed hazmat facilities.

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	Yes
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

sirens, automated notification system (code red and alert iowa), media notification, social media

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

statewide (IMAC), countywide fire service

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

face to face/unified command; share radios, national interop channels

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?	*Respondent skipped this question*
Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	Would have to look up my contacts.

Q29: If you have regular contact with the railroads, which ones?

Union Pacific

Q30: Have any railroads contacted you to offer training, planning, or exercises?	Yes

Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?

Union Pacific and BNSF

Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

Polk County Emergency Management with staffing support from American Red Cross

Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Other (please specify) 10 total patients or 5 critical patients

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

2 trauma centers in Des Moines, no burn unit

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?	*Respondent skipped this question*

#12

INCOMPLETE

Collector: Web Link 1 (Web Link)
Started: Thursday, November 26, 2015 9:46:46 AM
Last Modified: Thursday, November 26, 2015 9:52:09 AM
Time Spent: 00:05:23
IP Address: 74.42.101.157

PAGE 2: General Questions

Q1: **What is your role in your community?**	Emergency Manager

Q2: **Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.**

Name:	Gregory MILLER
Department/Agency:	Crawford County EMA
Address:	Please October Box 473
City/Town:	Denison
ZIP:	51442
Email Address:	mlrlyte@frontiernet.net

Q3: **What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?**

Lead Agency along with local Fire Departments and Law Enforcement and EMS

PAGE 3: Risk and Vulnerability Questions

Q4: **Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?**	Yes
Q5: **Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?**	Yes
Q6: **How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?**	*Respondent skipped this question*
Q7: **Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?**	Yes
Q8: **If yes, to whom did you provide assistance?**	*Respondent skipped this question*
Q9: **Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?**	Yes

Q10: Please describe the incident(s) in detail.

Leaking gasoline at local ethanol plant

Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?	*Respondent skipped this question*

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?

Many responding agencies. Good communication and control of incident

Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

Up to date

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	*Respondent skipped this question*
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	I don't know
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

Not active

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	No
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).	*Respondent skipped this question*

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:	*Respondent skipped this question*
Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?	*Respondent skipped this question*
Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.	*Respondent skipped this question*
Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?	*Respondent skipped this question*
Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	*Respondent skipped this question*
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	*Respondent skipped this question*
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*
Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	*Respondent skipped this question*
Q33: Who manages the shelters, feeding, and related needs?	*Respondent skipped this question*
Q34: Do you have the capability to manage a mass-casualty incident?	*Respondent skipped this question*

Q35: How do you define a mass-casualty incident (how many patients)?	*Respondent skipped this question*
Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?	*Respondent skipped this question*
Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?	*Respondent skipped this question*

#13

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Thursday, November 26, 2015 4:22:50 PM
Last Modified: Thursday, November 26, 2015 4:32:11 PM
Time Spent: 00:09:21
IP Address: 208.126.92.169

PAGE 2: General Questions

Q1: **What is your role in your community?**	Emergency Manager

Q2: **Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.**

Name:	Kimberly Elder
Department/Agency:	Emergency Management Coordinator
Address:	2369 Jessup Avenue
Address 2:	Floor 3 Admin Bldg
City/Town:	Marshalltown
ZIP:	50158
Email Address:	kelder@co.marshall.ia.us
Phone Number:	641-754-6385

Q3: **What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?**

Logistics

PAGE 3: Risk and Vulnerability Questions

Q4: **Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?**	Yes
Q5: **Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?**	Yes

Q6: **How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?**

We have been working with and including the railroad in planning for many years, they are included with our LEPC although they haven't attended in approximately 2 years.

Q7: **Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?**	No
Q8: **If yes, to whom did you provide assistance?**	*Respondent skipped this question*

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*

Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?

n/a

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?

n/a

Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?

Training and proper safety equipment are needed by all responders in my county.

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

ESFs, yes.

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	No
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No

Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?

N/A

Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	Yes

Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.

During HazMat symposium, specialized training brought to us by Ethanol plant and also through Homeland Security training. We need much more information.

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

yes, yes. Many entities.

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	Yes
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

Sirens only for tornado warnings, Alert Iowa not fully implemented yet but in the works, reverse 911 not available due to cost.

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

MANY

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

Radio from communications dispatch, cell phone calls.

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

If there is a good relationship and training the more we work together the better the response will be.

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	Would have to look up my contacts.

Q29: If you have regular contact with the railroads, which ones?

Union Pacific

Q30: Have any railroads contacted you to offer training, planning, or exercises?	No

Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*
Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

Fire departments and volunteers.

Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Other (please specify) More than the agency/hospital can handle, could be more than 2.

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

2 hours for burn unit, 1 hour for trauma service hospital

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

cities that the train runs through

#14

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Saturday, November 28, 2015 2:08:15 PM
Last Modified: Saturday, November 28, 2015 2:16:29 PM
Time Spent: 00:08:13
IP Address: 67.55.239.97

PAGE 2: General Questions

Q1: What is your role in your community?	Emergency Manager

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	Thomas A Craighton
Department/Agency:	Franklin County Emergency Management
Address:	105 5th Street SW, PO BOX 57
City/Town:	Hampton
ZIP:	50441
Email Address:	tcraighton@co.franklin.ia.us
Phone Number:	641-512-8717

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

Coordination, training and planning

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	Yes
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	Yes

Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?

having them come in and do training

Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	No
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*
Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?	*Respondent skipped this question*
Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*
Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

ESF

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	No
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	*Respondent skipped this question*
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	No
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

yes, active we are in an 18 county region in north central iowa. Mason City Haz Mat

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	No
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

Alert Iowa, Code Red and outdoor warning sirens, facebook

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

all county fire departments, neighboring EMA

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

There would have to be a computer setup to marry the radios for frequency on vhf

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

fair

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	Would have to look up my contacts.
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	No
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*

Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

Red Cross, county

Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Four or more

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

30 miles, closest burn unit 130 minutes out

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

Adequate evacuation and then containment

#15

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, November 30, 2015 7:24:38 AM
Last Modified: Monday, November 30, 2015 7:33:57 AM
Time Spent: 00:09:19
IP Address: 64.22.202.189

PAGE 2: General Questions

Q1: **What is your role in your community?**	Emergency Manager

Q2: **Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.**

Name:	Thomas Berger
Department/Agency:	Dubuque County EMA
Address:	14928 Public Safety Way
City/Town:	Dubuque
ZIP:	52002
Email Address:	tom.berger@dbqcoema.com
Phone Number:	563-589-4170

Q3: **What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?**

Logistics and assist emergency responders, activate EOC if needed, Planning and training prior to the event

PAGE 3: Risk and Vulnerability Questions

Q4: **Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?**	Yes
Q5: **Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?**	Yes

Q6: **How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?**

Dubuque CAER group and through our LEPC

Q7: **Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?**	Yes

Q8: **If yes, to whom did you provide assistance?**

Phone call assistance to JoDaviess Co IL, my assistance was very limited tho

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?

Yes

Q10: Please describe the incident(s) in detail.

CP Ethanol Derailment at Sherrill, IA on 2-4-2015

Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?

We have a powerpoint that was presented at the 2015 Hazmat Symposium

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?

Communications was the main thing.

Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?

If the derailment occurs in a populated area, evacuation

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

ESFs and yes

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?

No

Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)

No

Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?

Yes

Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?

Tomorrow we are having one at the Dubuque National Guard Armory led by the DOT

Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?

No

Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.

I am the only one in the office

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

Yes - Dubuque County

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	No
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

Outdoor warning sirens, CodeRed emergency Notification, cable TV override

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

All of the Dubuque County public safety agencies and we would use the Iowa Mutual Aid Compact

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

We are on the Racom 800 MHz system and do have a mobile ACU1000 that can be programmed for incoming resources

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

Pretty well prepared, we can always be better

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	Regular contacts

Q29: If you have regular contact with the railroads, which ones?

CP and BNSF although that is across the Mississippi River

Q30: Have any railroads contacted you to offer training, planning, or exercises?	Yes

Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?

CP and BNSF

Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

American Red Cross with assistance from local EOC

Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Six or more

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

Two trauma facilities in Dubuque (Mercy and Unity Point Finley) - closest burn facility is the U of I

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

Evacuations

#16

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, November 30, 2015 8:17:14 AM
Last Modified: Monday, November 30, 2015 8:23:55 AM
Time Spent: 00:06:41
IP Address: 216.248.99.68

PAGE 2: General Questions

Q1: What is your role in your community?	Emergency Manager

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	Robert Kempf
Department/Agency:	Adair & Guthrie County EMAs
Address:	200 North 5th Street #10
City/Town:	Guthrie Center
ZIP:	50115
Email Address:	agcema@guthriecounty.us
Phone Number:	6413323030

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

Providing preparedness information and resource contact for response and recovery.

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	Yes
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	Yes

Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?

Keep in contact via email and phone.

Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	No
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*
Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?	*Respondent skipped this question*
Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*
Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

ESFs

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	No
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	No
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

Yes, active

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	Yes
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	Yes

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

Outdoor sirens
Social Media
Mobile App
CodeRED (switching to Alert Iowa 02-01-16)

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?	*Respondent skipped this question*

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

Phone

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

Good

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	Would have to look up my contacts.
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	No

Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*
Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

Local Jurisdictions

Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Four or more

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

Des Moines
Burn units are in Iowa City & Omaha

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?	*Respondent skipped this question*

#17

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, November 30, 2015 8:18:57 AM
Last Modified: Monday, November 30, 2015 8:26:41 AM
Time Spent: 00:07:44
IP Address: 108.161.81.154

PAGE 2: General Questions

Q1: **What is your role in your community?**	Emergency Manager

Q2: **Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.**

Name:	Kip Ladage
Department/Agency:	Bremer County EMA
Address:	Bremer-Waverly LEC
Address 2:	111 4th St NE
City/Town:	Waverly
ZIP:	50677
Email Address:	kladage@co.bremer.ia.us
Phone Number:	319-352-0133

Q3: **What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?**

Would assist as permitted with the response. To date, have little or no communications with rail going through Bremer County.

PAGE 3: Risk and Vulnerability Questions

Q4: **Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?**	I don't know
Q5: **Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?**	Yes

Q6: **How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?**

I would gladly include them in our planning processes, but have not had communications with them. When asked for info for our ESF-10, we had no response.

Q7: **Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?**	No

Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*
Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*

Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?

None

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*

Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?

Lines of communications between rail and local officials should be as good as the communications between locals and pipeline operators.

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

ESF

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	No
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	No

Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

Yes - a regional LEPC

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	Yes
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

Outdoor warning systems, Alert Iowa, Social Media

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

28E with our hazmat response team

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

We do not know what system the rail uses, so we do not know about communications interoperability.

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

Virtually non-existent

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	I don't have any contacts with the railroads.
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*

Q30: Have any railroads contacted you to offer training, planning, or exercises?	No
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*
Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

Bremer County CERT and/or American Red Cross

Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Other (please specify) Dependent on situation and availability of resources

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

Waterloo/No

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

Do we have it going through the county, who are our contacts if there is an emergency

#18

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, November 30, 2015 8:36:23 AM
Last Modified: Monday, November 30, 2015 8:51:37 AM
Time Spent: 00:15:13
IP Address: 96.31.31.233

PAGE 2: General Questions

Q1: What is your role in your community?	Emergency Manager

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	Nate Huizenga
Department/Agency:	Sioux County EMA
Address:	4363 Ironwood Ave
City/Town:	Orange City
ZIP:	51041
Email Address:	nateh@siouxcounty.org
Phone Number:	712-737-4010

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

Planning, Training, and Exercise

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	Yes
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	Yes
Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?	*Respondent skipped this question*
Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	No
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*
Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	Yes

Q10: Please describe the incident(s) in detail.

Sioux Center had a rail car explosion during while transferring to a semi. Explosion killed the driver of the truck and started a large fire that had to be contained. This occurred in 2008.

Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?

Not sure. This occurred before I was EMA. I have some information and reports but not an actuall AAR.

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?

The transferring of ethanol is no longer done in the middle of Sioux Center, they are now transferring the product in a rural area.

Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?

Evacuation, getting help for clean up etc.

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

They are organized by ESF format and they are up to date.

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	*Respondent skipped this question*
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	Yes

Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?

We had a TransCaer Training this summer. We are also planning a large ethanol incident full scale exercise to be performed this summer.

Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	Yes

Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.

Attended rail class in Des Moines through DOT this summer. Also attended the TransCaer Training this summer.

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

Yes, NW Iowa LEPC and it is active. It covers the NW corner of Counties in Iowa including; Sioux, Obrien, Osceola, Lyon, Clay, Dickinson, Buena Vista,

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	No
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	No
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

The Sioux County Sheriff's Office uses NIXLE which is similar to Alert Iowa. This alerting and message system has been in place for five years.

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

Inter county fire departments as well as some in South Dakota and neighboring that have fire district in our county.

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.	*Respondent skipped this question*

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

We have been improving that relationship over the last couple of years with the classes we have had and also with the planning for our exercise.

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	Regular contacts

Q29: If you have regular contact with the railroads, which ones?

BNSF, UP
Craig Johnson was the contact I used for UP. Now have been in contact with Derek Lampkin from BNSF.

Q30: Have any railroads contacted you to offer training, planning, or exercises?	No

Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*
Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

Red Criss

Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Four or more

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

Sioux City

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

Evacuation and time people would be away from their homes.

A large incident in a town is my biggest concern.

#19

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, November 30, 2015 8:56:15 AM
Last Modified: Monday, November 30, 2015 9:08:06 AM
Time Spent: 00:11:50
IP Address: 66.43.244.209

PAGE 2: General Questions

Q1: What is your role in your community?	Emergency Manager

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	Terry Reekers
Department/Agency:	Emergency Management
Address:	114 North 6th Street Ste. 3
City/Town:	Estherville
ZIP:	51334
Email Address:	ema@emmetcountyia.com
Phone Number:	7123625702

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

Emergency Planning and Response.

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	Yes
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	Yes

Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?

We need to establish a contact person and invite them to participate in our planning and training.

Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	No
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*
Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?	*Respondent skipped this question*
Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*
Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

ESF and is currently approved and up to date

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	No
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	No
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

Yes Local Responders, County Government and Regional Hazmat team.

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	Yes
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	I don't know

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

Alert Iowa, outdoor warning sirens, indoor warning system, NOAA Weather Radio

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

State of Iowa

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

Phone

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

Needs help.

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	Would have to look up my contacts.

Q29: If you have regular contact with the railroads, which ones?

U P

Q30: Have any railroads contacted you to offer training, planning, or exercises?	No
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*

Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

Emergency Management and American Red Cross

Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Six or more

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

Avera Holy Family Hospital No burn unit.

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

Major spill and damage to the environment.

#20

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, November 30, 2015 8:35:57 AM
Last Modified: Monday, November 30, 2015 9:29:43 AM
Time Spent: 00:53:45
IP Address: 70.198.7.98

PAGE 2: General Questions

Q1: What is your role in your community?	Emergency Manager

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	Stefani Hanson
Department/Agency:	Emergency Management Coordinator
Address:	2300 Superior Street
City/Town:	Webster City
ZIP:	50595
Email Address:	shanson@hamiltoncounty.org
Phone Number:	5158329518

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

Currently, there is not any crude oil transport through Hamilton County rail systems. Responses to Ethanol spills/fires are managed by Region V Hazmat and supported by local county fire departments. All local fire departments are scheduled for further training in ethanol spill response in 2016.

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	Yes
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	Yes

Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?

Using ICS/NIMS

Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	I don't know
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	I don't know
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*

Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?

None known

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*

Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?

Ongoing training for ethanol spill response is needed and additional foam carts are needed for the county.

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

Yes

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	I don't know
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	*Respondent skipped this question*
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	I don't know
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

Yes, it is active and meets quarterly. Region V represents multiple local counties.

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	I don't know
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	I don't know

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

Recent membership to Alert Iowa, weekly outdoor warning sirens, investigating usage of "I am Responding".

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	I don't know
Are they written agreements?	I don't know

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?	*Respondent skipped this question*
Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.	*Respondent skipped this question*
Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?	*Respondent skipped this question*
Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	My contact list may need to be updated.
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	I don't know
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*

Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	I don't know
Q33: Who manages the shelters, feeding, and related needs?	*Respondent skipped this question*
Q34: Do you have the capability to manage a mass-casualty incident?	I don't know
Q35: How do you define a mass-casualty incident (how many patients)?	Six or more

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

Van Diest Medical Center

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

Spills occurring in town in semi-residential areas and close to Boone river.

#21

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, November 30, 2015 9:07:16 AM
Last Modified: Monday, November 30, 2015 9:35:29 AM
Time Spent: 00:28:12
IP Address: 69.66.198.64

PAGE 2: General Questions

Q1: What is your role in your community?	Emergency Manager

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	Steve O'Connor
Department/Agency:	Calhoun County EMA
Address:	3rd Floor Courthouse
City/Town:	Rockwell City
Email Address:	soconnor@calhouncountyiowa.com
Phone Number:	712-297-8619

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

Prepare - ESF 10
Response - Hazmat Op's trainer to all fire/ems personnel

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	Yes
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	Yes

Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?

Planning - ESF 10 written with info provided by RR
Response - attends training provided by RR

Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	Yes

Q8: If yes, to whom did you provide assistance?

multiple counties providing them Hazard Analysis Summaries including RR

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No

Q10: Please describe the incident(s) in detail.

but responded to numerous RR incidents involving other hazardous materials or involving over the road vehicles

Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?

none on file

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?

Attended an after action report provided by the Ia. Fire's Hazmat Symposium on the crude oil derailment/fire in Dubuque County.

Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?

Notification in the event of rerouting of crude oil due to a derailment on primary routes through our county

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

ESF 10 - last reviewed 7-2015

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	Yes
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	Yes

Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.

This year 3 classes on RR incidents involving crude/ethanol

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

yes, Region V Hazmat Response, multiple counties

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	No
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	No
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

WENS/Alert Iowa, EAS, indoor/outdoor warnings

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

County Fire Mutual Aid, Bylaws of the Region V Hazardous materials response includes Calhoun County.

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

County fire channel, state fire, state law, state ems, state ema channels

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

appropriate

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	Would have to look up my contacts.
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*

Q30: Have any railroads contacted you to offer training, planning, or exercises?	No
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*
Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

Red Cross, Rubicon, EMA, Public Health

Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Five or more

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

Stewart Memorial - Lake City
Burn unit - Omaha or Iowa City

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

We are a small county and not currently a transportation route for crude oil. Would want notification with this were to change.

#22

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, November 30, 2015 9:15:32 AM
Last Modified: Monday, November 30, 2015 9:37:59 AM
Time Spent: 00:22:26
IP Address: 173.19.115.197

PAGE 2: General Questions

Q1: What is your role in your community?	Emergency Manager, Fire Service

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	Don Willett
Department/Agency:	Adams County EMA
Address:	809 7th Street
City/Town:	Corning Iowa
ZIP:	50841
Phone Number:	641-322-3623

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?	*Respondent skipped this question*

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	Yes
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	Yes

Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?

It is very difficult in the past cases they take over and release your personel

Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	Yes

Q8: If yes, to whom did you provide assistance?

Union County Iowa

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*

Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?

No recent ones

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*
Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

Emergency Support Functions and yes

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	*Respondent skipped this question*
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	No
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

Yes and Yes Corning Fire Dept. , Adams County Sheriffs, Corning Hospital, Adams Co. Ambulance, Adams Co. Public Health

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	No
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	No
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

Alert Iowa

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

The Counties around us

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

Very poor

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

poor

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	We've talked in the past, but I don't remember who I've talked to. , Would have to look up my contacts. , My contact list may need to be updated.
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	No

Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*
Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	I don't know
Q33: Who manages the shelters, feeding, and related needs?	*Respondent skipped this question*
Q34: Do you have the capability to manage a mass-casualty incident?	I don't know
Q35: How do you define a mass-casualty incident (how many patients)?	Five or more

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

100 miles and no

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

The rail road goes right through three towns Corning, Nodaway, and Prescott

#23

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, November 30, 2015 10:00:01 AM
Last Modified: Monday, November 30, 2015 10:20:38 AM
Time Spent: 00:20:37
IP Address: 40.139.38.26

PAGE 2: General Questions

Q1: **What is your role in your community?**	Emergency Manager

Q2: **Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.**

Name:	Allan Mathias
Department/Agency:	Clarke County Emergency Management
Address:	100 S Main
City/Town:	Osceola
ZIP:	50213
Email Address:	clarkees1@iowatelecom.net
Phone Number:	6413426654

Q3: **What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?**	*Respondent skipped this question*

PAGE 3: Risk and Vulnerability Questions

Q4: **Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?**	Yes
Q5: **Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?**	Yes

Q6: **How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?**

notification information

Q7: **Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?**	No
Q8: **If yes, to whom did you provide assistance?**	*Respondent skipped this question*

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No

Q10: Please describe the incident(s) in detail.

None that I am aware of.

Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?

None that I know of.

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?

None to compare.

Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?

Getting in contact with railroad staff.

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

ESF's and is up to date.

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	*Respondent skipped this question*
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	No
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

A Regional LEPC which is active and includes Clarke, Decatur, Ringgold, Van Buren, Wapello, Mahaska, Keokuk, and Jefferson

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	Yes
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

Outdoor warning sirens, Alert Iowa, and Nixle

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	I don't know
Are they written agreements?	I don't know

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?	*Respondent skipped this question*
Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.	*Respondent skipped this question*
Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?	*Respondent skipped this question*
Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	Would have to look up my contacts.

Q29: If you have regular contact with the railroads, which ones?

BNSF

Q30: Have any railroads contacted you to offer training, planning, or exercises?	No
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*

Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

volunteers

Q34: Do you have the capability to manage a mass-casualty incident?	I don't know
Q35: How do you define a mass-casualty incident (how many patients)?	Five or more

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

hospital in Osceola but otherwise Des Moines

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

a wreck in a city

#24

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, November 30, 2015 11:12:35 AM
Last Modified: Monday, November 30, 2015 11:26:07 AM
Time Spent: 00:13:31
IP Address: 167.142.22.161

PAGE 2: General Questions

Q1: What is your role in your community?	Emergency Manager

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	Steve O'Neil
Department/Agency:	Cerro Gordo County Emergency Management
Address:	78 S. Georgia Avenue
City/Town:	Mason City
ZIP:	50401
Email Address:	soneil@co.cerro-gordo.ia.us
Phone Number:	641-421-3665

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

Coordination

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	Yes
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	Yes

Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?

I work under the direction of the incident scene commander.

Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	No
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No

Q10: Please describe the incident(s) in detail.

NA

Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?

NA

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?

NA

Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?

Would like to see continued outreach training and planning by railroads.

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

Emergency Support Functions

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	No
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	Yes

Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?

Tabletop and functional exercises regarding ethanol being transported by a regional railraod.

Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	No
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

We belong to a 10 county regional EPC with members from emergency management, private sector, emergency response, public health, law enforccement, DNR, hospital.

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	Yes
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

We utilize Code Red, outdoor warning sirens, EAS, NOAA radio.

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

All public agencies through IMAC, and written with local private sector.

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

VHF and 800 mghz radios, cell phones

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

In beginning stages, needs to continue to grow and build.

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	Regular contacts

Q29: If you have regular contact with the railroads, which ones?

Iowa Northern, Traction RR,

Q30: Have any railroads contacted you to offer training, planning, or exercises?	Yes

Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?

Iowa Northern

Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

Emergency Management/Public Health

Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Four or more

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

North Iowa Mercy Medical Center-Mason City. No burn unit.

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?	*Respondent skipped this question*

#25

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, November 30, 2015 11:14:49 AM
Last Modified: Monday, November 30, 2015 11:41:17 AM
Time Spent: 00:26:27
IP Address: 208.95.1.17

PAGE 2: General Questions

Q1: **What is your role in your community?**	Emergency Manager
Q2: **Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.**	*Respondent skipped this question*

Q3: **What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?**

We develop plans for mitigation, response and recovery from such an incident. We also coordinate the response and recovery efforts.

PAGE 3: Risk and Vulnerability Questions

Q4: **Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?**	Yes
Q5: **Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?**	Yes

Q6: **How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?**

They should be included and likely will be the "in charge" agency if an incident occurs.

Q7: **Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?**	Yes

Q8: **If yes, to whom did you provide assistance?**

Railroad

Q9: **Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?**	Yes

Q10: Please describe the incident(s) in detail.

A rail car had a valve failure and started leaking at an unknown location but was found leaking as it sat in our rail yard. Local responders, Haz Mat from Des Moines, Law enforcement, EMS, EMA, Railroad Haz Mat and other railroad personnel responded. The spill in the yard was held to a fairly low quantity and due to weather conditions and size of the spill, no evacuations were needed and no waterways were affected. The incident took several hours.

Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?

None

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?

none

Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?

I think local responders need more training on how the system works with the railroad and the amount of time that it could take to mitigate the incident. I also would like to see a system in place that would require the railroad to secure the area and release local personnel after the initial response is completed so they can go back to their jobs instead of sitting around waiting for a clean-up crew to arrive from the railroad.

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

ESFs and yes it is up to date

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	Yes
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	No

Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

not an active one

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	Yes
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

outdoor warning sirens, Alert Iowa, email lists, face book, twitter

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	No
Are they written agreements?	No

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?	*Respondent skipped this question*

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

VHF radios, cell phones and face to face

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

I think it is handled well

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	We've talked in the past, but I don't remember who I've talked to.
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	No

Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*
Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

Red Cross

Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Six or more

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

Des Moines and yes

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

Rapid notification and execution of an evacuation area.

#26

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, November 30, 2015 12:00:42 PM
Last Modified: Monday, November 30, 2015 12:12:17 PM
Time Spent: 00:11:35
IP Address: 208.87.237.201

PAGE 2: General Questions

Q1: What is your role in your community?	Emergency Manager

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	Dave Donovan
Department/Agency:	Scott County EMA
Email Address:	david.donovan@scottcountyiowa.com
Phone Number:	563-505-6992

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

Local planning agency

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	Yes
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	Yes

Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?

By including them in planning for the Transportation and HazMat ESF's within our plan

Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	No
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*
Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*

Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?	*Respondent skipped this question*
Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*

Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?

It seems that there is a certain shroud of secrecy regarding the types of loads going through our communities. I would favor a mandated annual meeting with the LEPC by each company with rail operations in the county, where they outline the types and quantities of loads, response resources available from the railroad and to develop a training and exercise plan for first responders.

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

ESF; it is up to date, but we have initiated a re-write process for our entire plan over the next 18 months or so.

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	I don't know
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	*Respondent skipped this question*
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	No
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

Yes. Local fire, police, EMA, health, EMS

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	No
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	No
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

Outdoor warning sirens and Alert Iowa. Our Alert Iowa is in the infancy period with a low number of persons signed up. Not sure if we have the 911 database loaded yet.

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	I don't know

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

All fire and LE within County. Fire and LE in neighboring counties.

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

We are on the Racom EDACS network with very limited VHF capability

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

I would describe it as limited as best. There does not seem to be a coordinated effort.

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	Would have to look up my contacts. , My contact list may need to be updated.
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	Yes

Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?

CP

Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

American Red Cross and Salvation Army

Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Five or more

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

Unity Point / Trinity and Genesis both operate trauma centers in our county. Not sure what their burn capabilities are.

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

The fact that these loads are traveling through population centers and crossing major thoroughfares and highways.

#27

INCOMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, November 30, 2015 12:33:04 PM
Last Modified: Monday, November 30, 2015 12:33:34 PM
Time Spent: 00:00:30
IP Address: 72.35.175.130

PAGE 2: General Questions

Q1: **What is your role in your community?**	Emergency Manager
Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.	*Respondent skipped this question*
Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?	*Respondent skipped this question*

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	*Respondent skipped this question*
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	*Respondent skipped this question*
Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?	*Respondent skipped this question*
Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	*Respondent skipped this question*
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*
Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	*Respondent skipped this question*
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*
Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?	*Respondent skipped this question*

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*
Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?	*Respondent skipped this question*
Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	*Respondent skipped this question*
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	*Respondent skipped this question*
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	*Respondent skipped this question*
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	*Respondent skipped this question*
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*
Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?	*Respondent skipped this question*
Q22: Regarding public education/outreach:	*Respondent skipped this question*
Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).	*Respondent skipped this question*

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:	*Respondent skipped this question*
Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?	*Respondent skipped this question*
Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.	*Respondent skipped this question*
Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?	*Respondent skipped this question*
Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	*Respondent skipped this question*
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	*Respondent skipped this question*
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*
Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	*Respondent skipped this question*
Q33: Who manages the shelters, feeding, and related needs?	*Respondent skipped this question*
Q34: Do you have the capability to manage a mass-casualty incident?	*Respondent skipped this question*
Q35: How do you define a mass-casualty incident (how many patients)?	*Respondent skipped this question*
Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?	*Respondent skipped this question*
Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?	*Respondent skipped this question*

#28

INCOMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, November 30, 2015 2:18:18 PM
Last Modified: Monday, November 30, 2015 2:18:35 PM
Time Spent: 00:00:17
IP Address: 96.63.178.61

PAGE 2: General Questions

Q1: **What is your role in your community?**	Emergency Manager
Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.	*Respondent skipped this question*
Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?	*Respondent skipped this question*

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	*Respondent skipped this question*
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	*Respondent skipped this question*
Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?	*Respondent skipped this question*
Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	*Respondent skipped this question*
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*
Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	*Respondent skipped this question*
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*
Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?	*Respondent skipped this question*

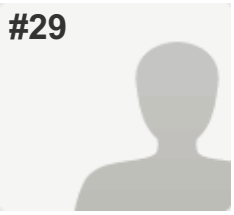
Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*
Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?	*Respondent skipped this question*
Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	*Respondent skipped this question*
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	*Respondent skipped this question*
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	*Respondent skipped this question*
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	*Respondent skipped this question*
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*
Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?	*Respondent skipped this question*
Q22: Regarding public education/outreach:	*Respondent skipped this question*
Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).	*Respondent skipped this question*

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:	*Respondent skipped this question*
Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?	*Respondent skipped this question*
Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.	*Respondent skipped this question*
Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?	*Respondent skipped this question*
Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	*Respondent skipped this question*
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	*Respondent skipped this question*
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*
Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	*Respondent skipped this question*
Q33: Who manages the shelters, feeding, and related needs?	*Respondent skipped this question*
Q34: Do you have the capability to manage a mass-casualty incident?	*Respondent skipped this question*
Q35: How do you define a mass-casualty incident (how many patients)?	*Respondent skipped this question*
Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?	*Respondent skipped this question*
Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?	*Respondent skipped this question*



#29

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, November 30, 2015 2:35:25 PM
Last Modified: Monday, November 30, 2015 2:41:17 PM
Time Spent: 00:05:51
IP Address: 184.10.85.100

PAGE 2: General Questions

Q1: **What is your role in your community?**	Emergency Manager
Q2: **Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.**	*Respondent skipped this question*

Q3: **What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?**

Response, recovery and mitigation
Emergency management
Iowa Code 29C

PAGE 3: Risk and Vulnerability Questions

Q4: **Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?**	Yes
Q5: **Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?**	Yes

Q6: **How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?**

make their representative a member of Unified Command

Q7: **Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?**	No
Q8: **If yes, to whom did you provide assistance?**	*Respondent skipped this question*
Q9: **Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?**	No
Q10: **Please describe the incident(s) in detail.**	*Respondent skipped this question*

Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?	*Respondent skipped this question*
Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*

Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?

Not enough hard resources available in rural areas

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

ESF, Yes

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	No
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	Yes

Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?

Ethanol, tank car training and use of AFFF foam in fire suppression

Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	No
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

Yes, 7 counties in western iowa

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	Yes
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

OWS,

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

surrounding counties, state of SD

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

limited to none

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

minimally prepared

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	We've talked in the past, but I don't remember who I've talked to. , Would have to look up my contacts.
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	Yes

Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?

BNSF

Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

private

Q34: Do you have the capability to manage a mass-casualty incident?	I don't know
Q35: How do you define a mass-casualty incident (how many patients)?	Six or more

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

Sioux City, Yes

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

lack of training by local fire departments

#30

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, November 30, 2015 6:00:23 PM
Last Modified: Monday, November 30, 2015 6:15:48 PM
Time Spent: 00:15:25
IP Address: 108.160.230.14

PAGE 2: General Questions

Q1: What is your role in your community?	Fire Service

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	Eric Vandewater
Department/Agency:	North Liberty Fire Department
Address:	P.O. Box 77
City/Town:	North LIBERTY
ZIP:	52317
Email Address:	evandewater@northlibertyiowa.org
Phone Number:	3196265717

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

Hazardous Material Awareness Level training with some Operations Level Staff and assistance from the Johnson County Hazardous Material Team.

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	Yes
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	Yes

Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?

Yes, We will most likely have to utilize their expertise and resources to effectively mitigate the incident.

Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	No
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*
Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?	*Respondent skipped this question*
Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*

Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?

All of the above. From what I have read and seen of these types of incidents they can be long time consuming incidents which tax a departments resources and the community.

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

Unknown-so I would say no on our part. However due to your survey I will be looking in to it in the near future.

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	No
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	*Respondent skipped this question*
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	Yes

Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?

Yes, but the training needs to be undated as it was done several years ago by a Cedar Rapids Firefighter.

Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	No
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?	*Respondent skipped this question*

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	No
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	No
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

All of the above.

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

All Johnson County Fire Departments

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

Unknown

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

Unknown

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	I don't have any contacts with the railroads.
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	No
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*

Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes
Q33: Who manages the shelters, feeding, and related needs?	*Respondent skipped this question*
Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Six or more, Other (please specify) or more patient to providers

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

University of Iowa

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

Evacuation of the city.

#31

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Tuesday, December 01, 2015 9:27:48 AM
Last Modified: Tuesday, December 01, 2015 9:44:40 AM
Time Spent: 00:16:52
IP Address: 69.66.69.253

PAGE 2: General Questions

Q1: What is your role in your community?	Emergency Manager

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	Mike Lamb
Department/Agency:	ADLM Emergency Management
Address:	PO Box 399
City/Town:	Moravia
ZIP:	52571
Email Address:	adlmema@iowatelecom.net
Phone Number:	641-724-3223

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

Planning, Training, and Recovery

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	Yes
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	Yes

Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?

Unknown on prepairdness as they will not offer seperate crude training but rather support only Transcar courses.

Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	No
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*

Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?

unknown if any

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*

Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?

lack of resources in rural areas to mount a response. Time delay for mutial aid and speciality responders.

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

ESF, Yes

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	Yes
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	No
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

Yes, and its active, local government, law enforcement, first responders, and businesses

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	Yes
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

Outdoor warning sirens are in use in about half the municipalities I cover, Alert Iowa is active in all four counties as well as reverse 911. Scattered limited usage of private notification systems such as Code Red.

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

Each county has stand alone mutual aid agreements with surrounding entities. list varies depending on location across Appanoose Davis Lucas and Monroe counties.

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

would be limited to cell phone

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?	*Respondent skipped this question*
Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	Would have to look up my contacts. , My contact list may need to be updated.
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	Yes

Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?

BNSF

Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

Red Cross

Q34: Do you have the capability to manage a mass-casualty incident?	No
Q35: How do you define a mass-casualty incident (how many patients)?	Five or more

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

Iowa City or Des Moines, Yes

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

aged rail car fleet / rails location to populated areas

#32

INCOMPLETE

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Started: Wednesday, December 02, 2015 12:06:30 PM
Last Modified: Wednesday, December 02, 2015 12:08:41 PM
Time Spent: 00:02:10
IP Address: 108.161.54.37

PAGE 2: General Questions

Q1: **What is your role in your community?**	Emergency Manager
Q2: **Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.**	*Respondent skipped this question*

Q3: **What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?**

Planner

PAGE 3: Risk and Vulnerability Questions

Q4: **Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?**	*Respondent skipped this question*
Q5: **Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?**	*Respondent skipped this question*
Q6: **How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?**	*Respondent skipped this question*
Q7: **Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?**	*Respondent skipped this question*
Q8: **If yes, to whom did you provide assistance?**	*Respondent skipped this question*
Q9: **Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?**	*Respondent skipped this question*
Q10: **Please describe the incident(s) in detail.**	*Respondent skipped this question*
Q11: **What hazardous materials rail incident After Action Reports are available for review/consideration?**	*Respondent skipped this question*

Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*
Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?	*Respondent skipped this question*
Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	*Respondent skipped this question*
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	*Respondent skipped this question*
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	*Respondent skipped this question*
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	*Respondent skipped this question*
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*
Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?	*Respondent skipped this question*
Q22: Regarding public education/outreach:	*Respondent skipped this question*
Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).	*Respondent skipped this question*

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:	*Respondent skipped this question*
Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?	*Respondent skipped this question*
Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.	*Respondent skipped this question*
Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?	*Respondent skipped this question*
Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	*Respondent skipped this question*
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	*Respondent skipped this question*
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*
Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	*Respondent skipped this question*
Q33: Who manages the shelters, feeding, and related needs?	*Respondent skipped this question*
Q34: Do you have the capability to manage a mass-casualty incident?	*Respondent skipped this question*
Q35: How do you define a mass-casualty incident (how many patients)?	*Respondent skipped this question*
Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?	*Respondent skipped this question*
Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?	*Respondent skipped this question*

#33

COMPLETE

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IP Address: 69.18.52.34

PAGE 2: General Questions

Q1: What is your role in your community?

Emergency Manager

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	Jeff Anderson
Department/Agency:	Marion County Emergency Management Agency
Address:	214 E. Main St.
City/Town:	Knoxville
ZIP:	50138
Email Address:	janderson@co.marion.ia.us
Phone Number:	6418282256

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

Our local emergency management commission has governing authority over the emergency planning for Marion County, and over the Marion County Hazardous Materials Team.

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?

I don't know

Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?

Yes

Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?

attempt to host rail sponsored/presented trainings locally

Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?

No

Q8: If yes, to whom did you provide assistance?

Respondent skipped this question

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*
Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?	*Respondent skipped this question*
Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*
Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

Emergency Support Functions, yes 20% of the overall plan is updated annually. WIthin that, ESF 10, Hazmat is updated annually.

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	No
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	No
Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?	*Respondent skipped this question*
Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	No
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

Yes, the Marion County LEPC. Most fire, ems, law enforcement agencies in addition to most of the largest employers in the County.

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	Yes
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	Yes
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

Alert Iowa, and some outdoor warning sirens in incorporated areas.

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

All fire, ems, law enforcement agencies in Marion County. Marion County has an agreement with Jasper County.

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.

VHF radio system with local repeaters. Swap radios available as is a portable VHF repeater for remote/on-site use.

Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?

Lacking.

Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	Would have to look up my contacts.
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	No
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*

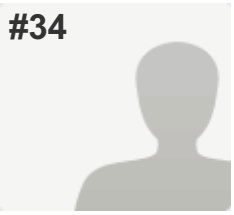
Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	No
Q33: Who manages the shelters, feeding, and related needs?	*Respondent skipped this question*
Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Six or more

Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

Des Moines, nearest burn unit is in Iowa City.

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?

lack of training and transparency of shipments.



#34

COMPLETE

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Time Spent: 00:13:07
IP Address: 67.22.192.141

PAGE 2: General Questions

Q1: What is your role in your community?	Emergency Manager

Q2: Are you willing to share your name and contact information so that we may be able to follow-up with you for the purposes of this report? If so, please provide your information below, otherwise your responses will remain anonymous.

Name:	Arden Kopischke
Department/Agency:	Lyon County Emergency Management
Address:	410 South Boone St
City/Town:	Rock Rapids
ZIP:	51246
Email Address:	lyonema@lyoncountyiowa.com
Phone Number:	712-472-8330

Q3: What is your agency/department's role, responsibility, and authority in preparedness and response efforts to crude oil/ethanol rail transportation incidents in Iowa?

Make sure emergency responders are trained and if there is an incident make sure Incident Command is in place.

PAGE 3: Risk and Vulnerability Questions

Q4: Is your jurisdiction at risk from a crude oil/ethanol by rail transportation incident?	Yes
Q5: Do you know how to contact the railroad(s) that crosses your community/county for assistance in an event?	Yes

Q6: How do you intend to work with/integrate the railroad personnel within your preparedness or response efforts?

Incident command will be established and everyone will report to IC.

Q7: Have you ever provided aid or support to another jurisdiction for a crude oil/ethanol by rail transportation incident?	No
Q8: If yes, to whom did you provide assistance?	*Respondent skipped this question*

Q9: Have you ever had any crude oil/ethanol by rail transportation incidents in your jurisdiction that required first responder operations?	No
Q10: Please describe the incident(s) in detail.	*Respondent skipped this question*
Q11: What hazardous materials rail incident After Action Reports are available for review/consideration?	*Respondent skipped this question*
Q12: In relation to crude oil/ethanol by rail transportation incidents, what successes and areas for improvement were observed during the incident response(s)?	*Respondent skipped this question*
Q13: What additional concerns do you have regarding response planning, personnel, equipment/resources, and/or training related to crude oil/ethanol by rail transportation incident prevention, preparedness, or response?	*Respondent skipped this question*

PAGE 4: Existing Capabilities and Resources for Preparedness and Response

Q14: How is your Local Emergency Operations Plan organized (functionally, Emergency Support Functions, or hazards)? Is it up to date?

It is reviewed annually

Q15: Do you have hazardous materials response plans/SOPs/SOGs or other procedural documents in place?	Yes
Q16: If yes, would you be willing to provide a copy of the plans/SOPs/SOGs to inform the findings and recommendations that will be developed for this report? (Please provide your contact information in Question 2 so that we can reach you.)	No
Q17: Have you conducted or participated in any exercise focused on a crude oil/ethanol by rail transportation incidents?	Yes

Q18: If you answered yes to the previous question, describe the crude oil exercise(s) in which you have participated (i.e. what kind of exercise and when it occurred)?

Table top train derailment

Q19: Does your staff receive any specialized training to respond to crude oil/ethanol by rail transportation incidents?	No
Q20: If your staff has received training, describe the training (i.e. what type of training and when did it occur) and indicate if the training improved your capability to manage or respond to a crude oil transportation incident.	*Respondent skipped this question*

Q21: Is there an LEPC in your jurisdiction? If so, is it active? What entities are represented?

We have a Regional LEPC that meets every month.

Q22: Regarding public education/outreach:

Do you conduct public education/outreach efforts related to general preparedness?	No
Do you conduct public education/outreach efforts related to hazardous materials (HAZMAT) incidents?	No
Do you conduct public education/outreach efforts specifically related to crude oil/ethanol by rail transportation incidents?	No

Q23: Describe your warning and notification capabilities (outdoor warning sirens, Alert Iowa, reverse 911, etc.).

Alert Iowa

PAGE 5: Interagency Coordination Questions

Q24: Regarding Mutual/Automatic Aid Agreements or Memoranda of Agreement:

Do you have Mutual/Automatic Aid Agreements or Memoranda of Agreement?	Yes
Are they written agreements?	Yes

Q25: If you have Mutual/Automatic Aid Agreements or Memoranda of Agreement, with whom do you have the agreements?

Contract with Sioux City IA Haz Mat

Q26: Please describe the communication system and capabilities for first responders to communicate with oil/ethanol transportation representatives operating in your jurisdiction.	*Respondent skipped this question*
Q27: How would you describe the preparedness and response coordination between the state, local government, tribal government (if applicable), responding private sector resources, the oil/ethanol companies, and the rail carriers?	*Respondent skipped this question*
Q28: How would you characterize your familiarity with railroads in your jurisdiction? Please select the response that best applies:	Would have to look up my contacts.
Q29: If you have regular contact with the railroads, which ones?	*Respondent skipped this question*
Q30: Have any railroads contacted you to offer training, planning, or exercises?	Yes
Q31: If you have been contacted by railroads about training, planning, or exercise, which ones contacted you?	*Respondent skipped this question*

Q32: Do you have any identified emergency shelter facilities in your jurisdiction?	Yes

Q33: Who manages the shelters, feeding, and related needs?

Public Health and Red Cross

Q34: Do you have the capability to manage a mass-casualty incident?	Yes
Q35: How do you define a mass-casualty incident (how many patients)?	Six or more

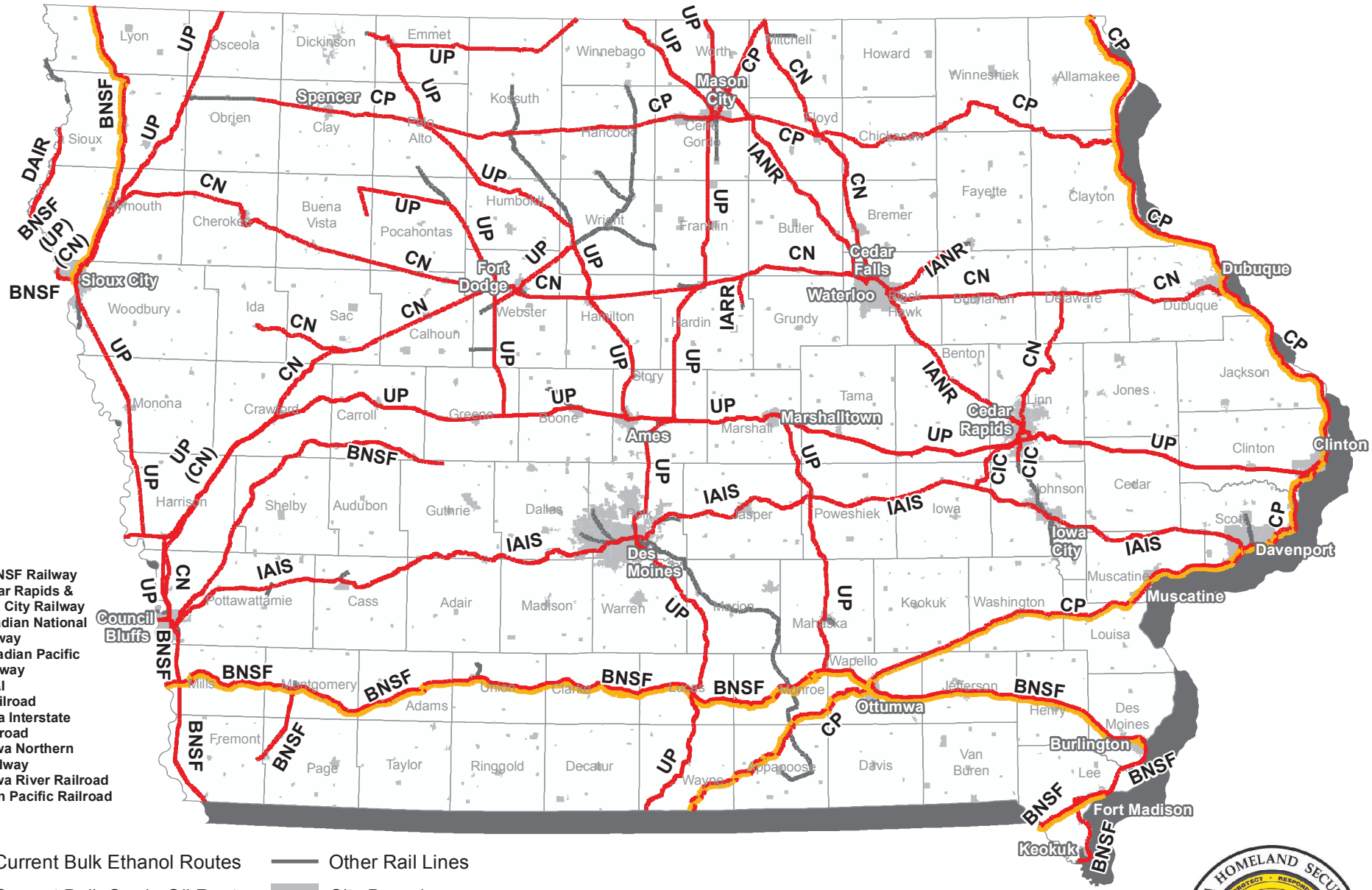
Q36: Where is the closest trauma service hospital to your jurisdiction? Do they have a burn unit?

Sioux Falls SD

Q37: With regard to crude oil/ethanol by rail transportation incidents, what concerns you the most?	*Respondent skipped this question*

9.0 Appendix I - Maps

IOWA ETHANOL AND CRUDE OIL RAIL ROUTES



KEY

BNSF - BNSF Railway
CIC - Cedar Rapids & Iowa City Railway
CN - Canadian National Railway
CP - Canadian Pacific Railway
DAIR - D&I Railroad
IAIS - Iowa Interstate Railroad
IANR - Iowa Northern Railway
IARR - Iowa River Railroad
UP - Union Pacific Railroad

LEGEND

- Current Bulk Ethanol Routes
- Current Bulk Crude Oil Routes
- Other Rail Lines
- City Boundary
- County Boundary

0 Miles 40

IOWA HOMELAND SECURITY AND EMERGENCY MANAGEMENT

IOWADOT

HDR

PATH: Z:\PROJECTS\IDOT\263221_IADOT_CRUDE_BIOFUEL_TRANS_STUDY\MAP_DOCS\FINAL\FIG_8X11_ETHANOL_CRUDE_OIL_ROUTES_V2.MXD - USER: TTALBITZ - DATE: 1/27/2016

IOWA

Biodiesel Ethanol Map

Prepared by

IOWADOT

Phone (515) 239 - 1664

In Cooperation with
United States
Department of Transportation
July 1, 2015

Miles 0 10 20 30 40 50

Kilometers 0 10 20 30 40 50

N W E S

Iowa Plants for Biodiesel and Ethanol

- Under Construction
- In Operation
- 30 Annual Capacity in Millions of Gallons 65

Iowa Road Network

- Interstates
- Designated Routes
- Pending Routes

Railroad Operators

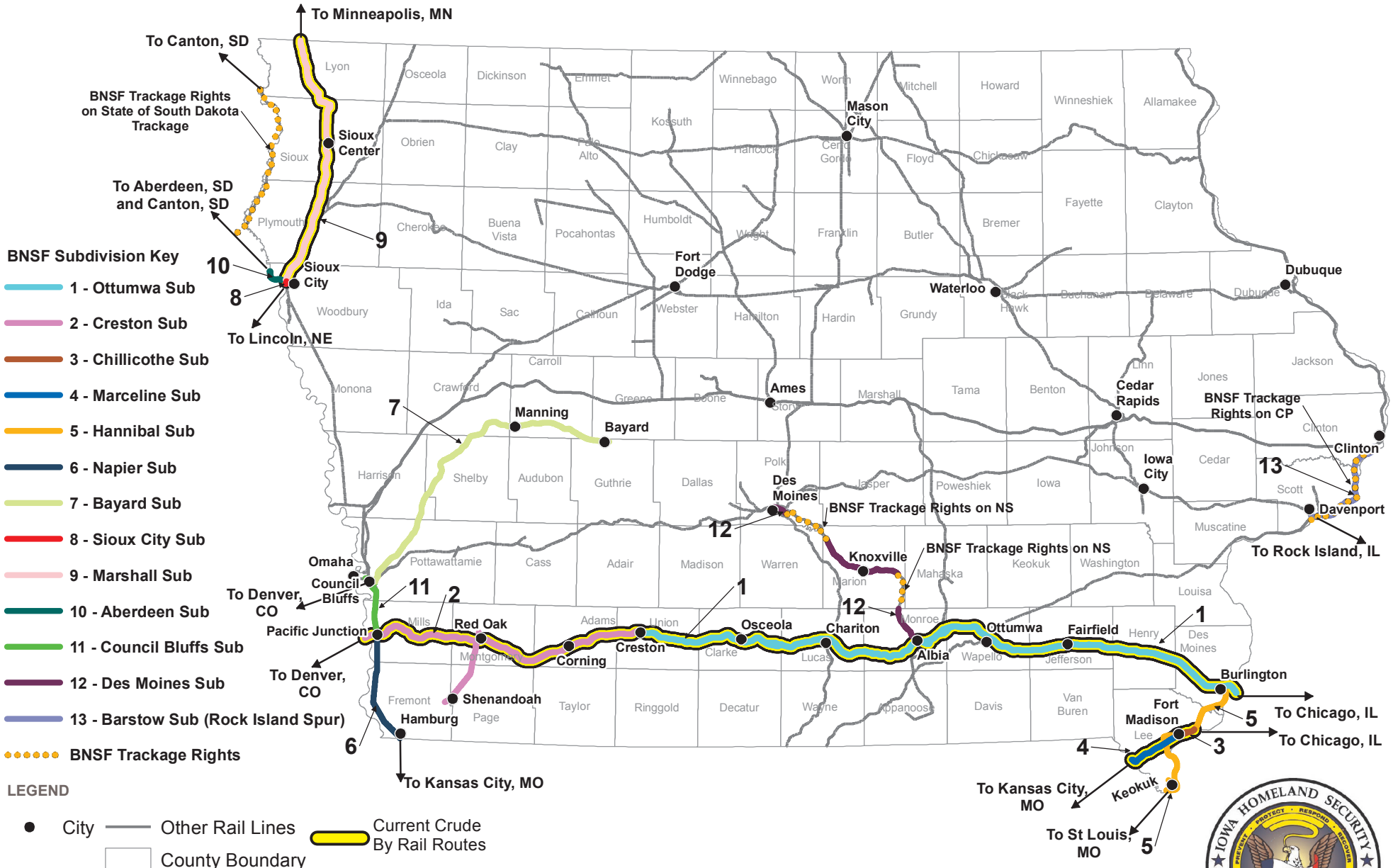
Amtrak	AMTK
Appanoose County Community R.R. Co.	APNC
Boone Scenic Valley R.R.	BSV
Burlington Junction Ry. Co.	BJRY
BNSF Railway Co.	BNSF
Cedar Rapids and Iowa City Ry. Co.	CIC
Cedar River Railroad Co.	CEDR
Chicago, Central & Pacific Railroad	CC
D & I Railroad Co.	DAIR
Dakota, Minnesota and Eastern R.R. Co.	DME
Iowa Interstate R.R. Ltd.	IAIS
Iowa Northern Ry. Co.	IANR
Iowa River Railroad Co.	IARR
Iowa Traction R.R. Co.	IATR
Keokuk Junction Ry.	KJRY
Norfolk and Southern Railway Co.	NS
Soo Line	SOO
Union Pacific Railroad	UP
Private Track – Cargill Alliance	CGAQ

Railroad Owners Non-Operators

Canadian National Railway Co.	CN
Canadian Pacific Railroad	CP
CBEC Railway Co.	CBRX
D & W Railroad Inc.	DWRV
North Central Iowa Rail Corridor	NCIRC
Pioneer Rail Corp.	PNRC
Progressive Rail	PGR
State of South Dakota	SD
Trackage Rights Only	( )
Primary Operator	(<>)

8-24-2015

BNSF NETWORK SUBDIVISIONS CURRENTLY CARRYING BULK CRUDE OIL IN IOWA



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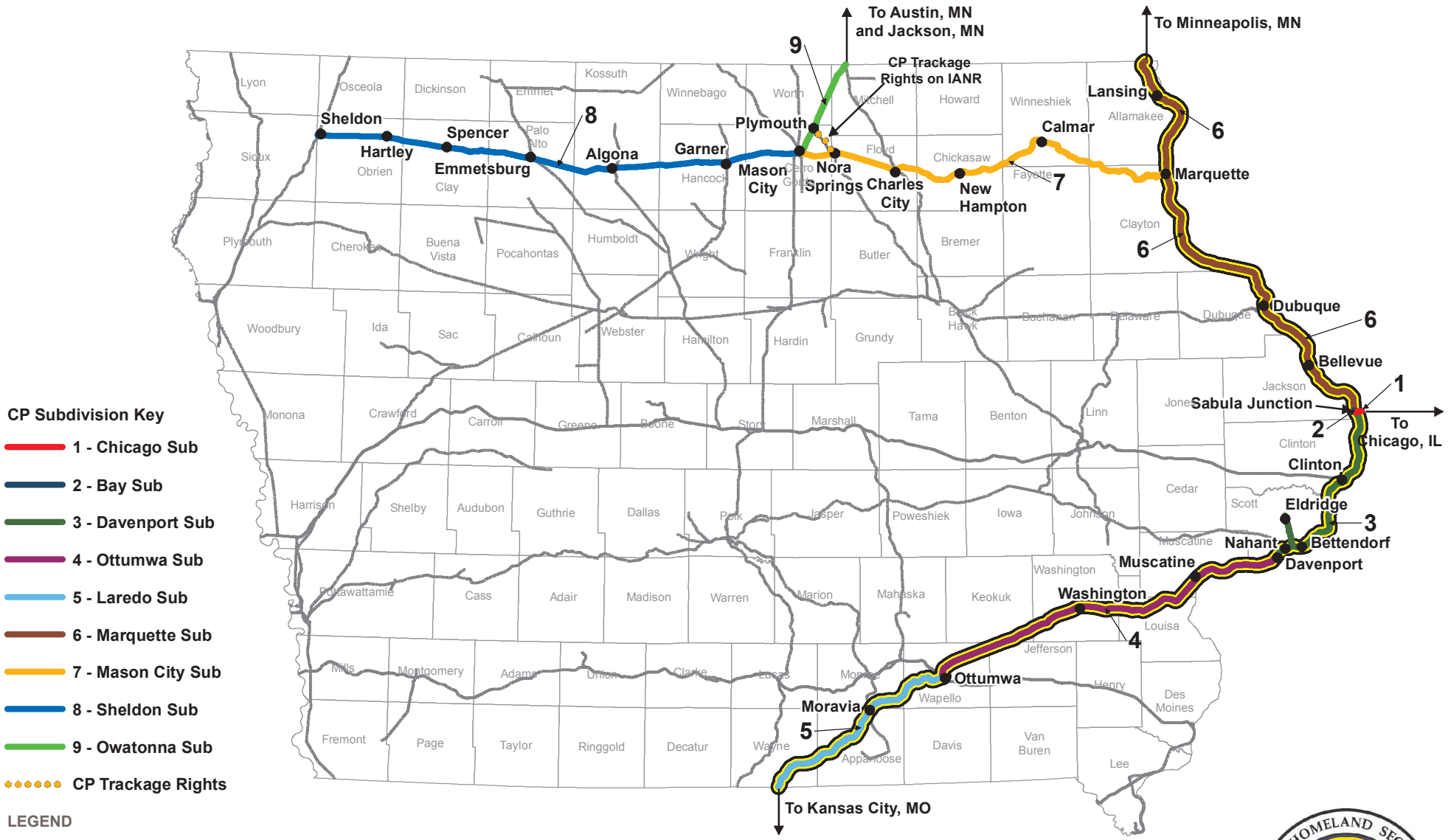
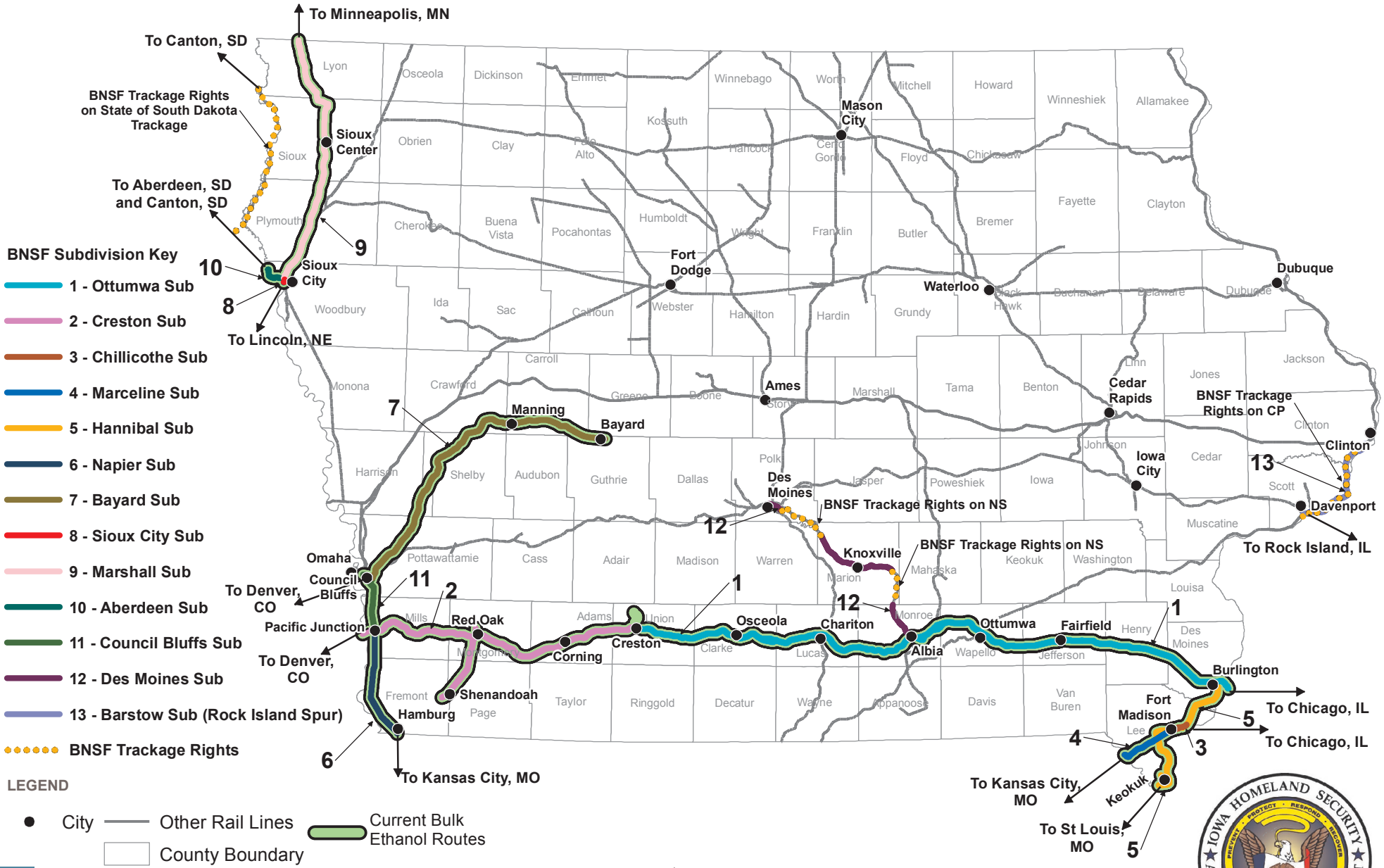
CANADIAN PACIFIC NETWORK SUBDIVISIONS CURRENTLY CARRYING BULK CRUDE OIL IN IOWA



BNSF NETWORK SUBDIVISIONS CURRENTLY CARRYING BULK ETHANOL IN IOWA



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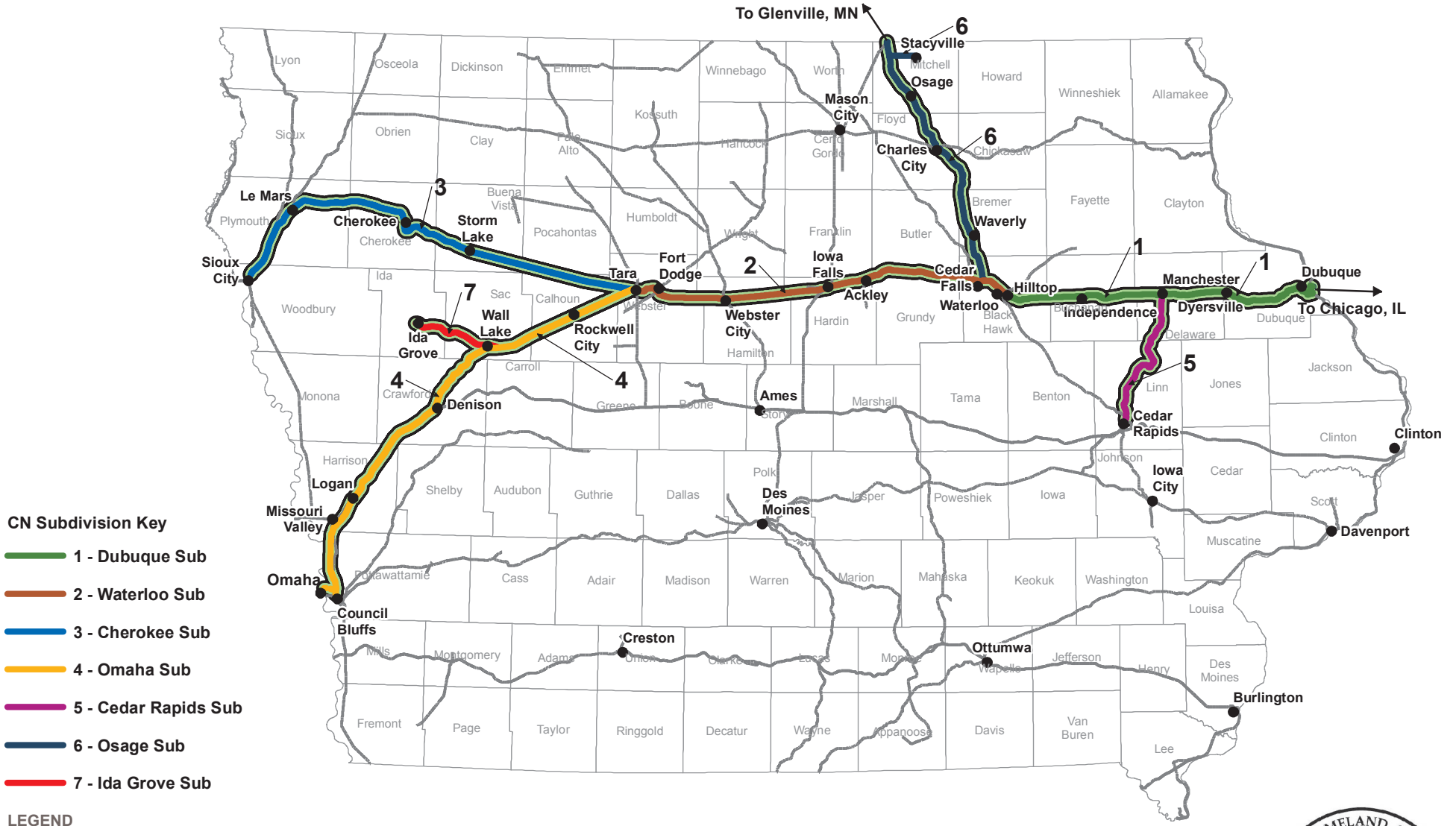
CANADIAN NATIONAL NETWORK SUBDIVISIONS CURRENTLY CARRYING BULK ETHANOL IN IOWA



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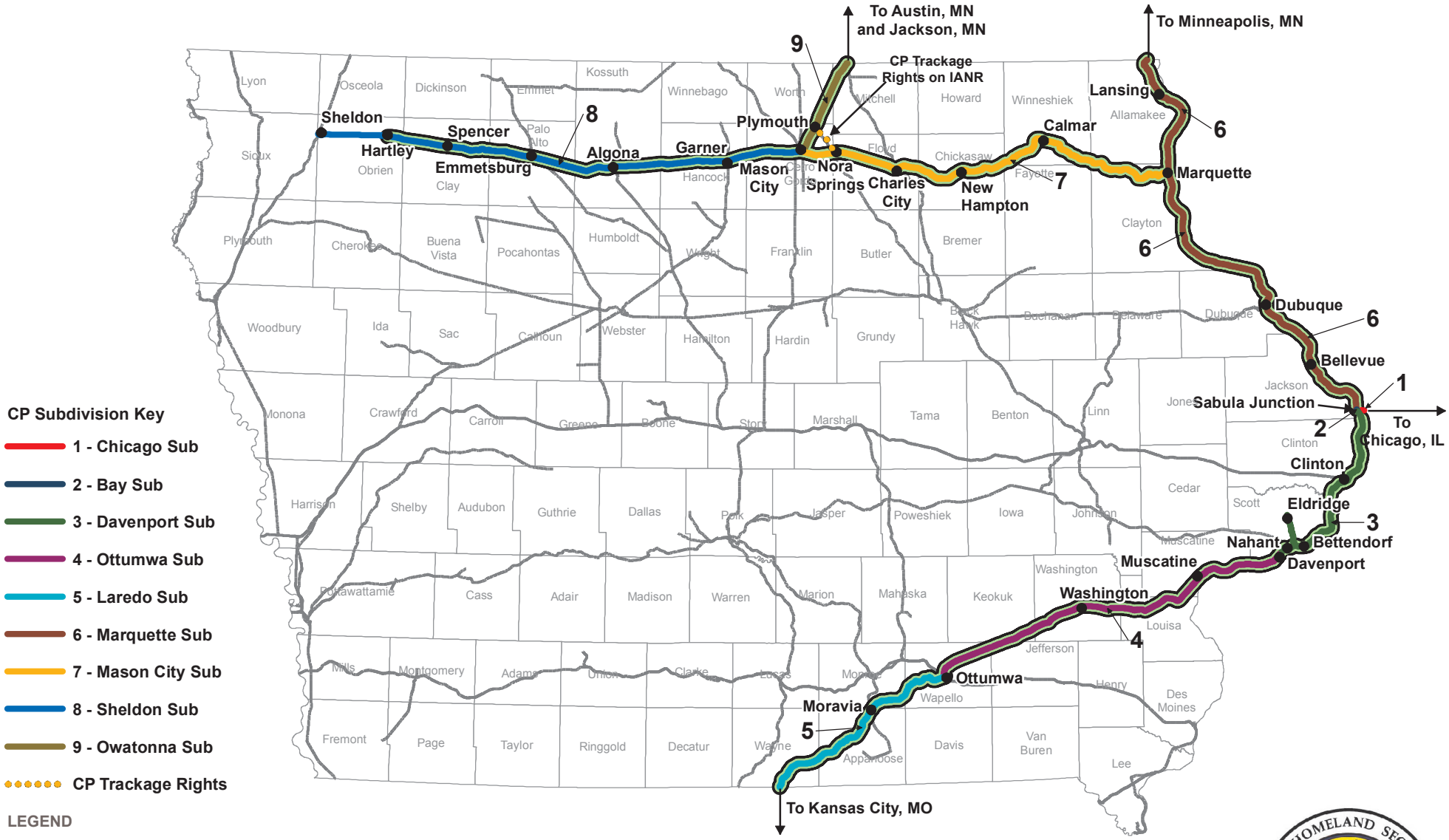
CANADIAN PACIFIC NETWORK SUBDIVISIONS CURRENTLY CARRYING BULK ETHANOL IN IOWA



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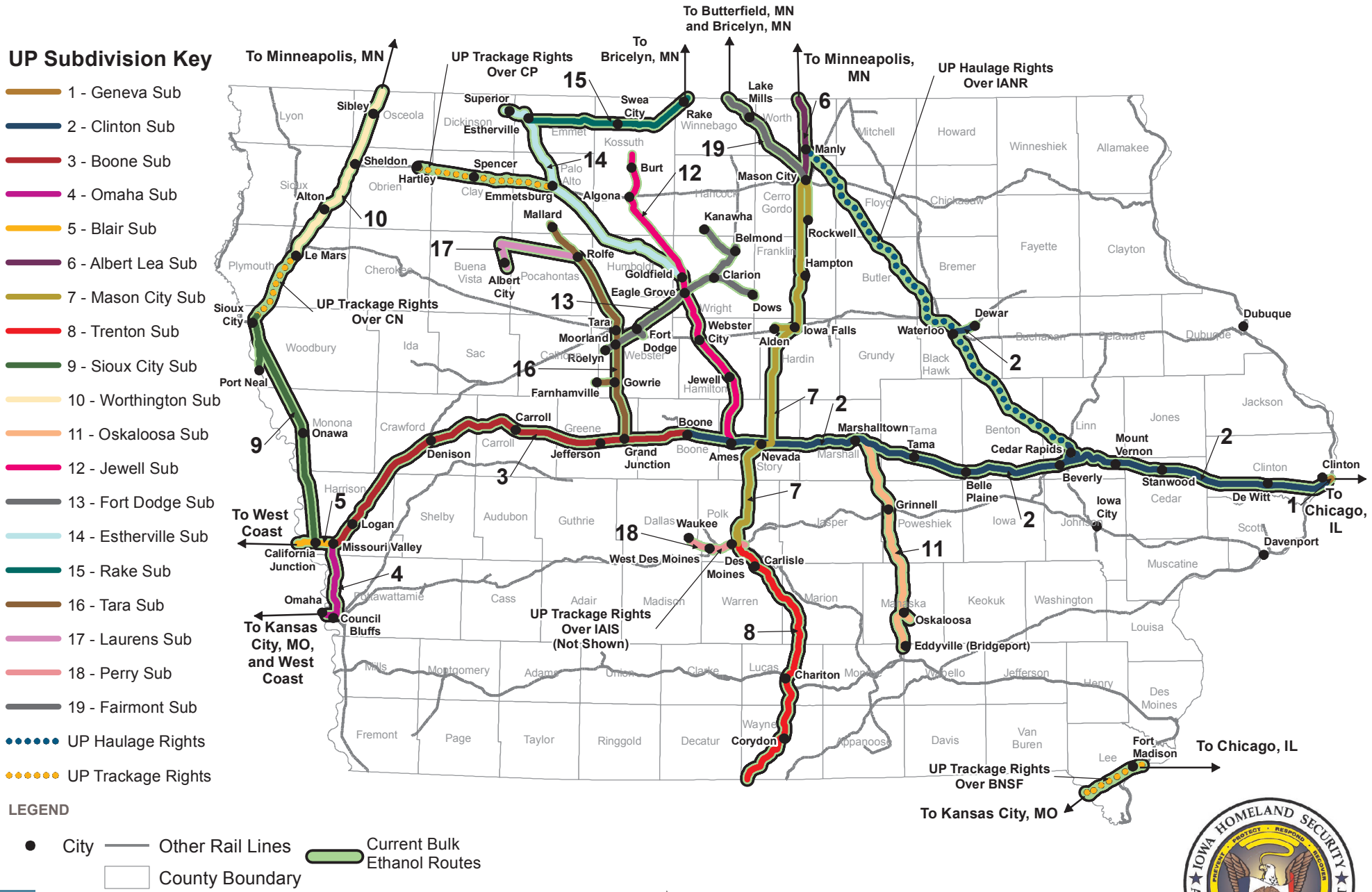
UNION PACIFIC NETWORK SUBDIVISIONS CURRENTLY CARRYING BULK ETHANOL IN IOWA



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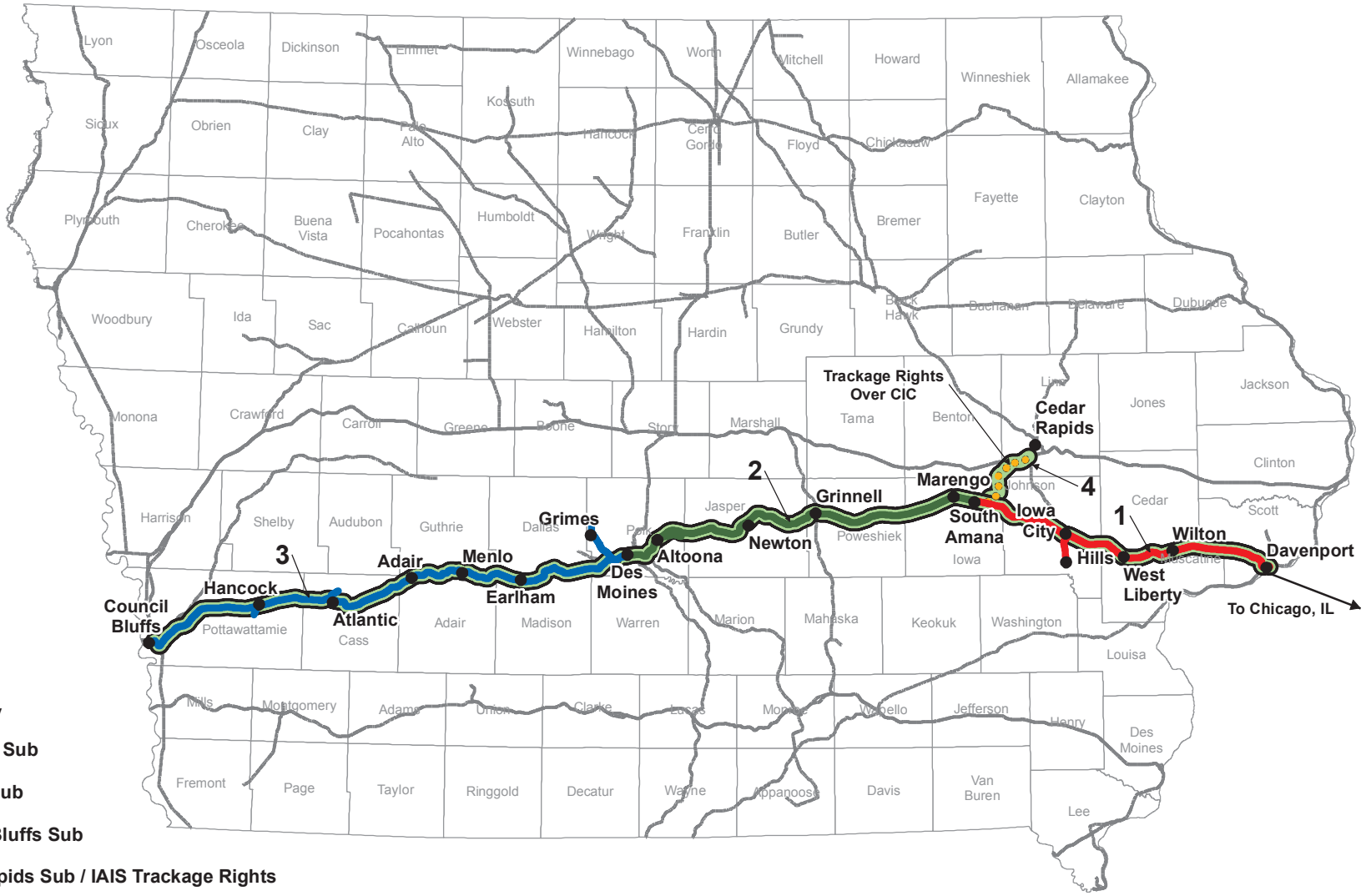
IOWA INTERSTATE NETWORK SUBDIVISIONS CURRENTLY CARRYING BULK ETHANOL IN IOWA



IAIS Subdivision Key

- 1 - Iowa City Sub
- 2 - Newton Sub
- 3 - Council Bluffs Sub
- 4 - Cedar Rapids Sub / IAIS Trackage Rights

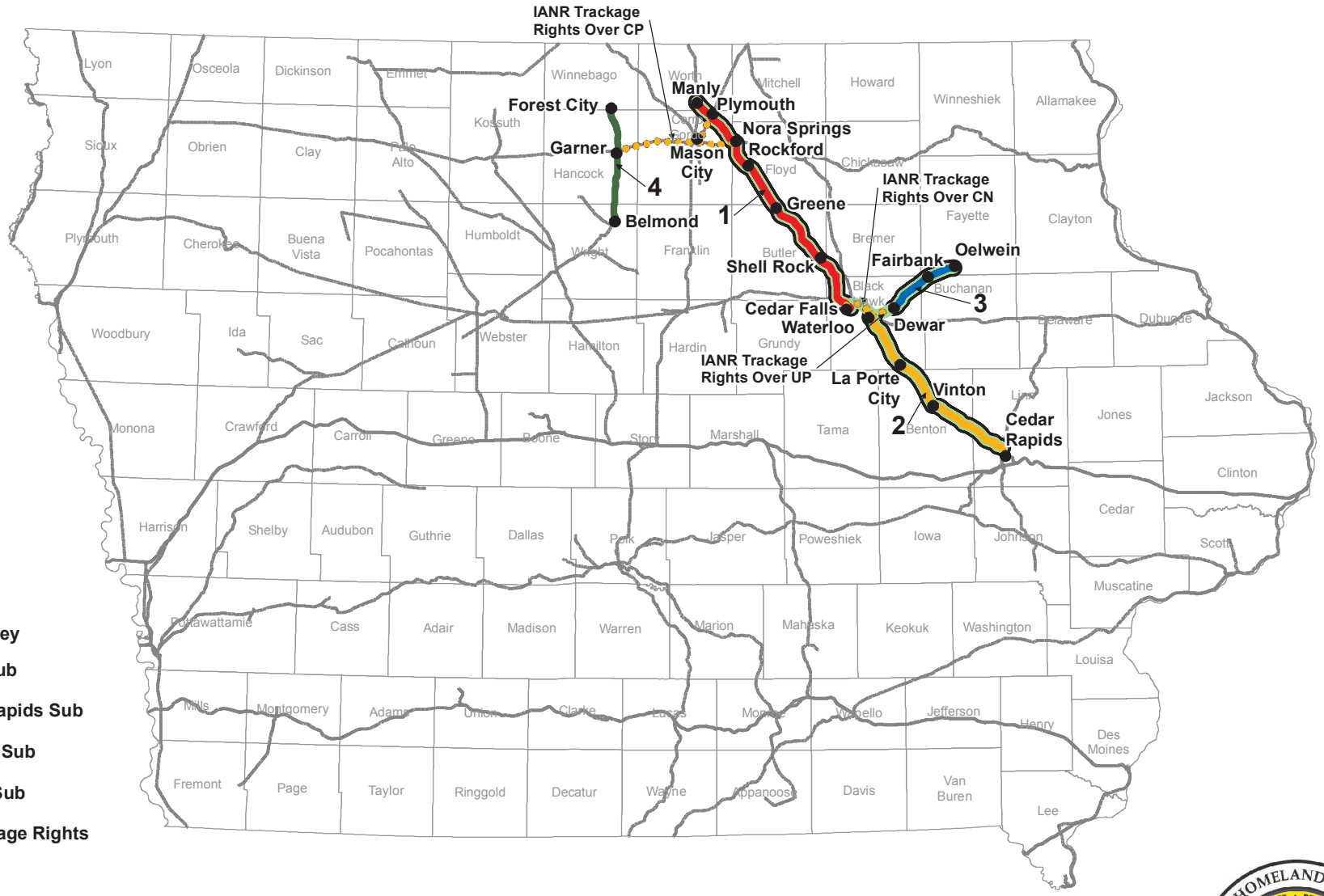
LEGEND

City | Other Rail Lines | Current Bulk Ethanol Routes | County Boundary

0 Miles 40

PATH: Z:\PROJECTS\IDOT\2566691_IOWARAILNETWORKMAPPING\MAP_DOCS\FINAL\FIG_8X11_IAIS_NETWORK_EBR.MXD - USER: TTALBITZ - DATE: 1/28/2016

IOWA NORTHERN NETWORK SUBDIVISIONS CURRENTLY CARRYING BULK ETHANOL IN IOWA



IANR Subdivision Key

- 1 - Manly Sub
- 2 - Cedar Rapids Sub
- 3 - Oelwein Sub
- 4 - Garner Sub
- IANR Trackage Rights

LEGEND

- City
- Other Rail Lines
- Current Bulk Ethanol Routes
- County Boundary

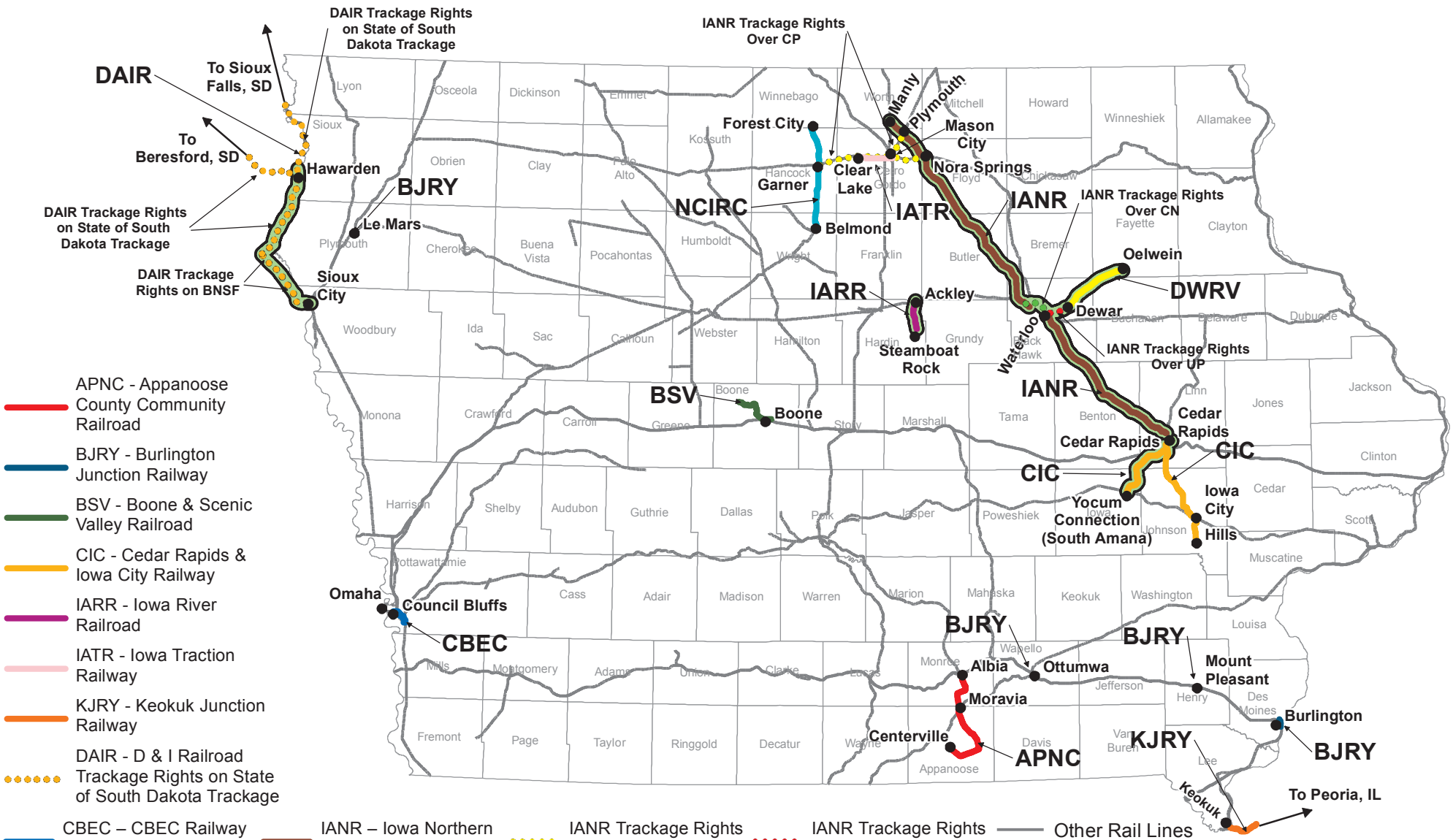
0 Miles 40

IOWA DOT

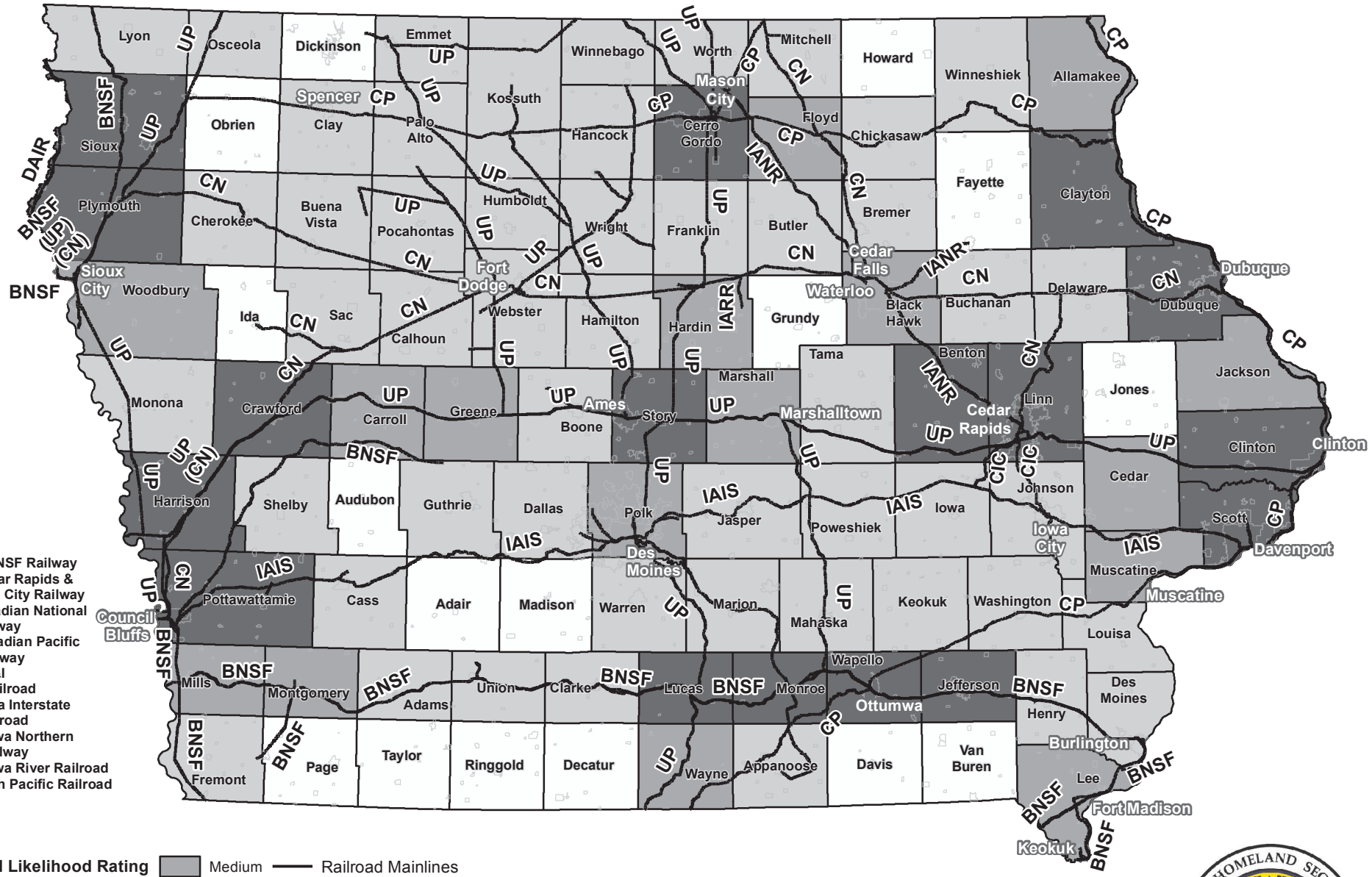
IOWA HOMELAND SECURITY AND EMERGENCY MANAGEMENT

PATH: Z:\PROJECTS\IDOT\2566691_IOWARAILNETWORKMAPPING\MAP_DOCS\FINAL\FIG_8X11_IANR_NETWORK_EBR.MXD - USER: TTALBITZ - DATE: 1/28/2016

IOWA SRP: CLASS III RAILROADS AND NON-OPERATING RAILROAD OWNERS



RAILROAD LIKELIHOOD RATING



KEY

BNSF - BNSF Railway
CIC - Cedar Rapids & Iowa City Railway
CN - Canadian National Railway
CP - Canadian Pacific Railway
DAIR - D&I Railroad
IAIS - Iowa Interstate Railroad
IANR - Iowa Northern Railway
IARR - Iowa River Railroad
UP - Union Pacific Railroad

LEGEND

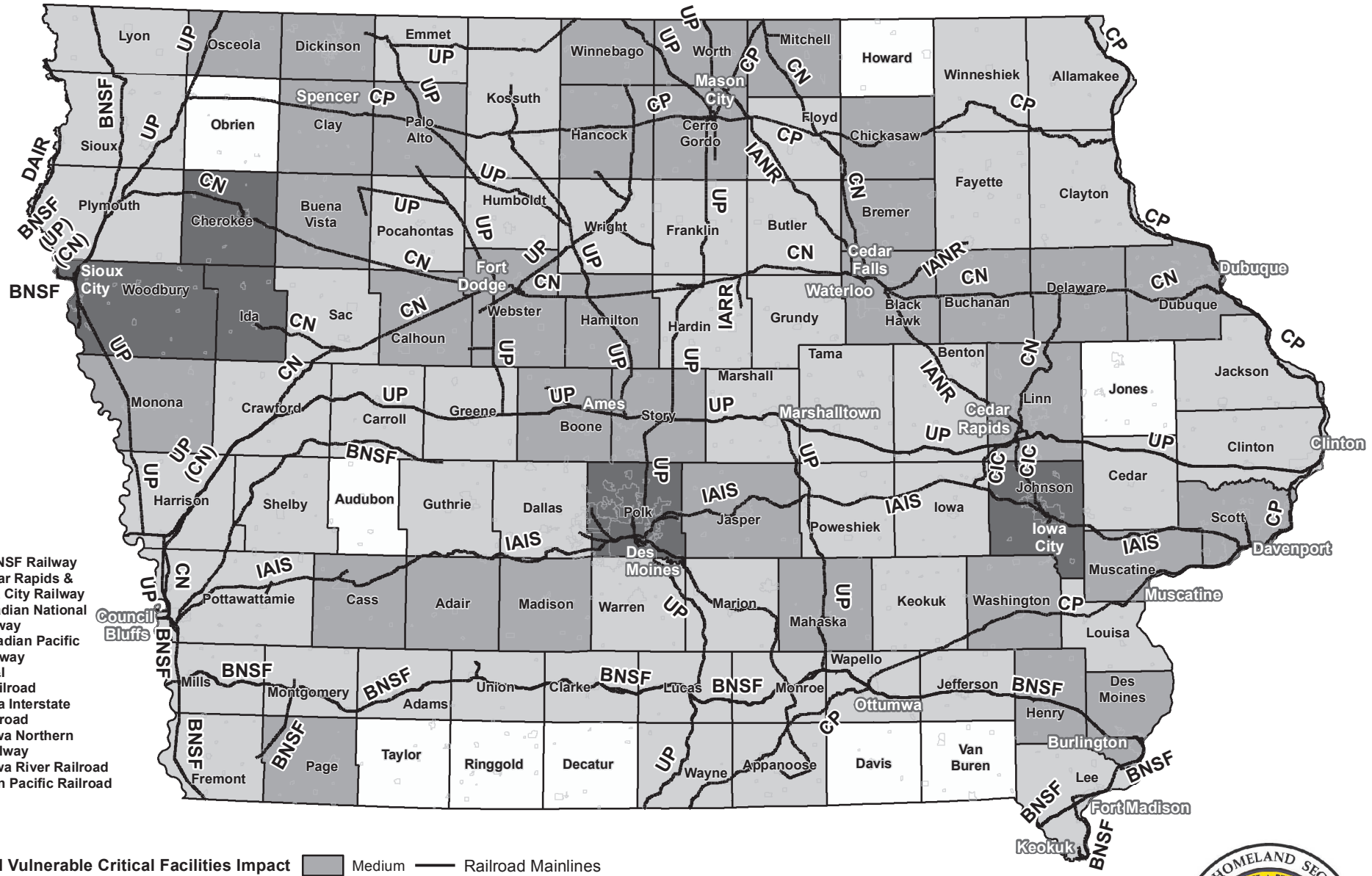
Railroad Likelihood Rating

- None
- Low
- Medium
- High
- Railroad Mainlines
- City Boundary
- County Boundary

0 Miles 40

PATH: Z:\PROJECTS\IDOT\263221_IADOT_CRUDE_BIOFUEL_TRANS_STUDY\MAP_DOCS\FINAL\FIG_8X11_RAILROAD_LIKELIHOOD_RATING.MXD - USER: TTALBITZ - DATE: 4/4/2016

RAILROAD VULNERABLE CRITICAL FACILITIES IMPACT



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- IANR - Iowa Northern Railway
- IARR - Iowa River Railroad
- UP - Union Pacific Railroad

LEGEND

Railroad Vulnerable Critical Facilities Impact

- None
- Low
- Medium
- High

- Railroad Mainlines
- City Boundary
- County Boundary

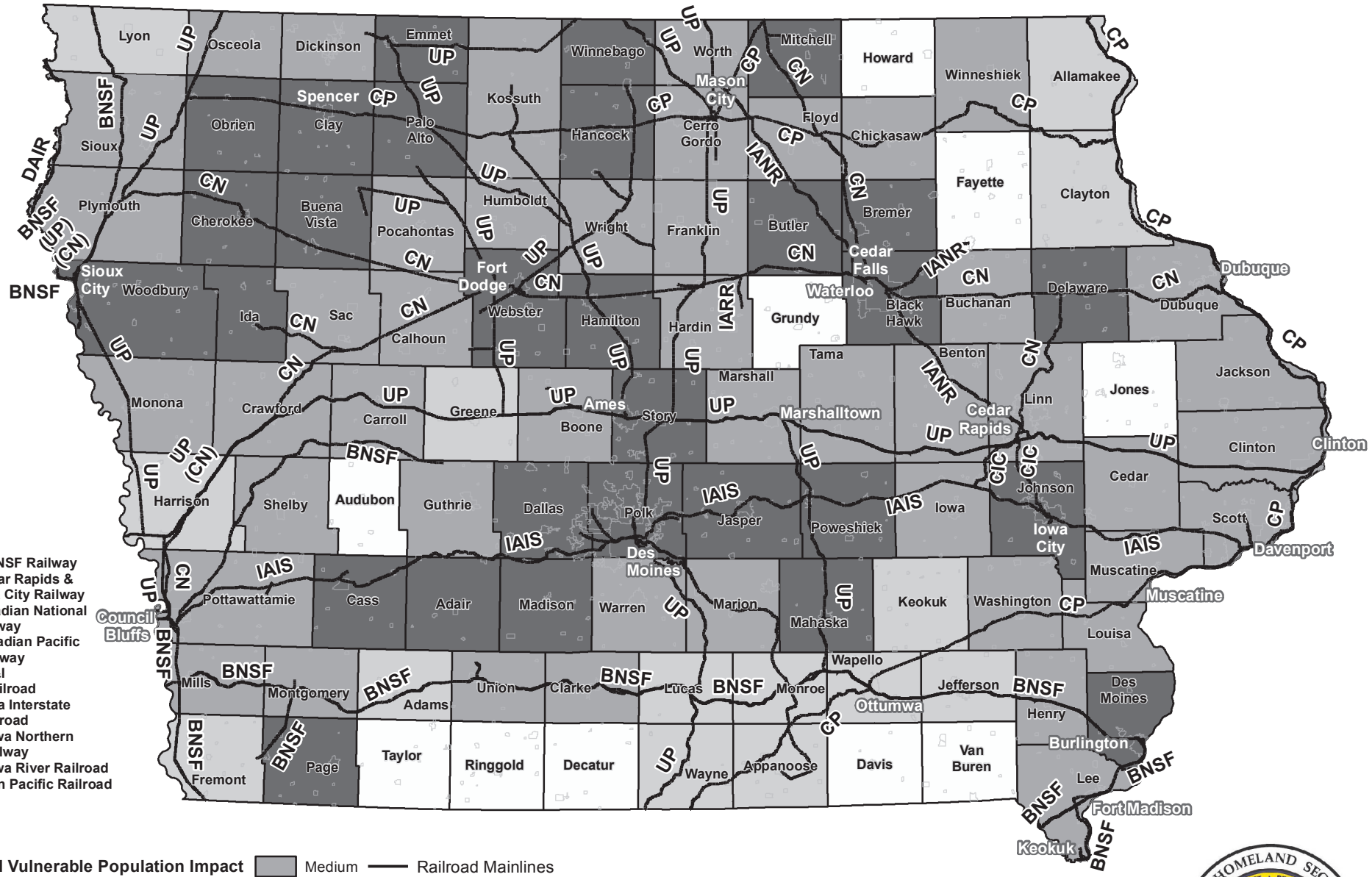
0 Miles 40

IOWADOT

IOWA HOMELAND SECURITY AND EMERGENCY MANAGEMENT

PATH: Z:\PROJECTS\IDOT\263221_IADOT_CRUDE_BIOFUEL_TRANS_STUDY\MAP_DOCS\FINAL\FIG_8X11_VULNERABLE_CRITICAL_FACILITY_IMPACT.MXD - USER: TTALBITZ - DATE: 4/4/2016

RAILROAD VULNERABLE POPULATION IMPACT



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LEGEND

Railroad Vulnerable Population Impact

- None
- Low
- Medium
- High
- Railroad Mainlines
- City Boundary
- County Boundary

0 Miles 40

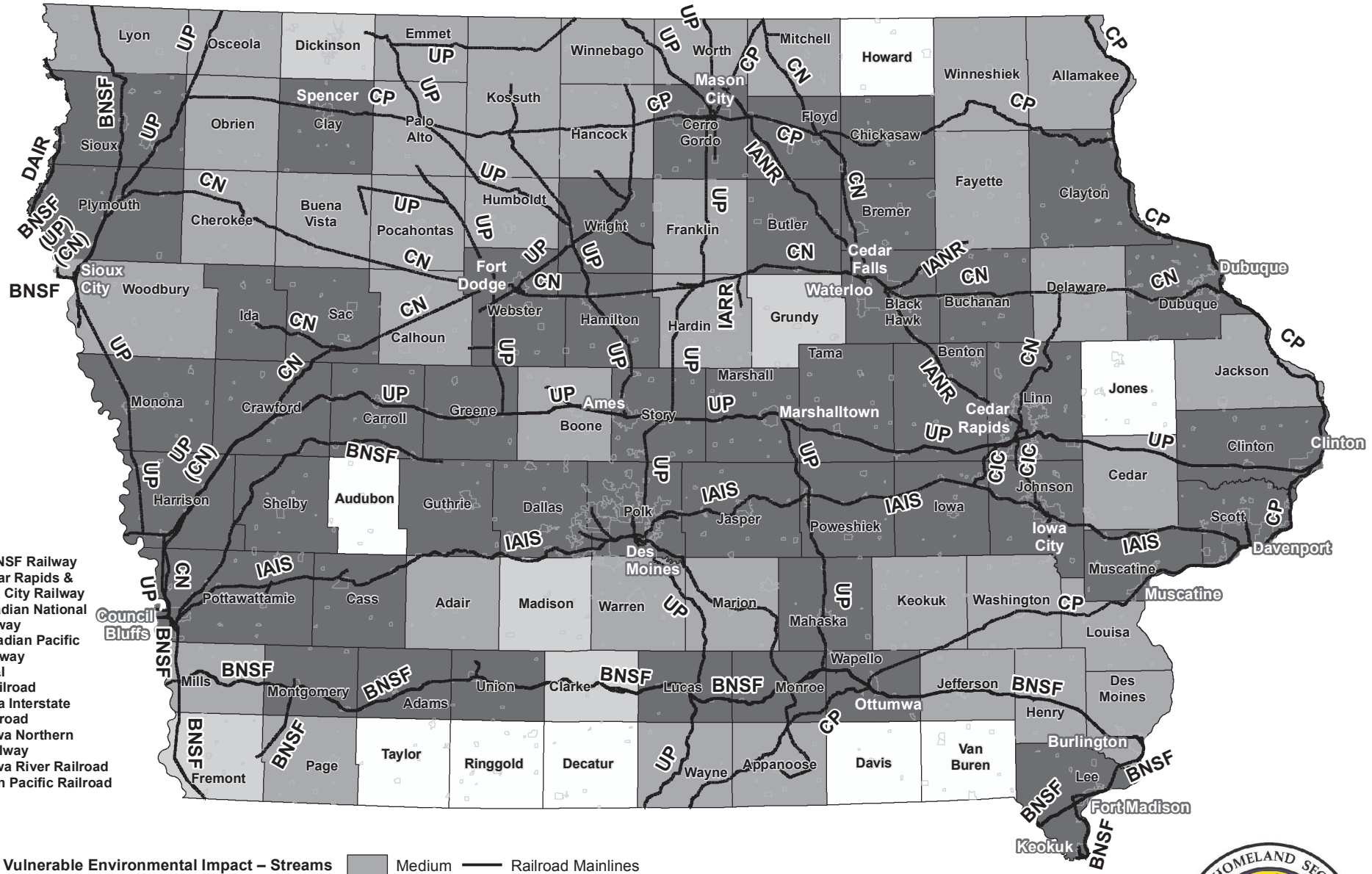
HDR

IOWA DOT

IOWA HOMELAND SECURITY AND EMERGENCY MANAGEMENT

PATH: Z:\PROJECTS\IDOT\263221_IADOT_CRUDE_BIOFUEL_TRANS_STUDY\MAP_DOCS\FINAL\FIG_8X11_VULNERABLE_POPULATION_IMPACT.MXD - USER: TTALBITZ - DATE: 3/25/2016

RAILROAD VULNERABLE ENVIRONMENTAL IMPACT – STREAMS



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IARR - Iowa River Railroad
UP - Union Pacific Railroad

LEGEND

Railroad Vulnerable Environmental Impact – Streams

- None
- Low
- Medium
- High
- Railroad Mainlines
- City Boundary
- County Boundary

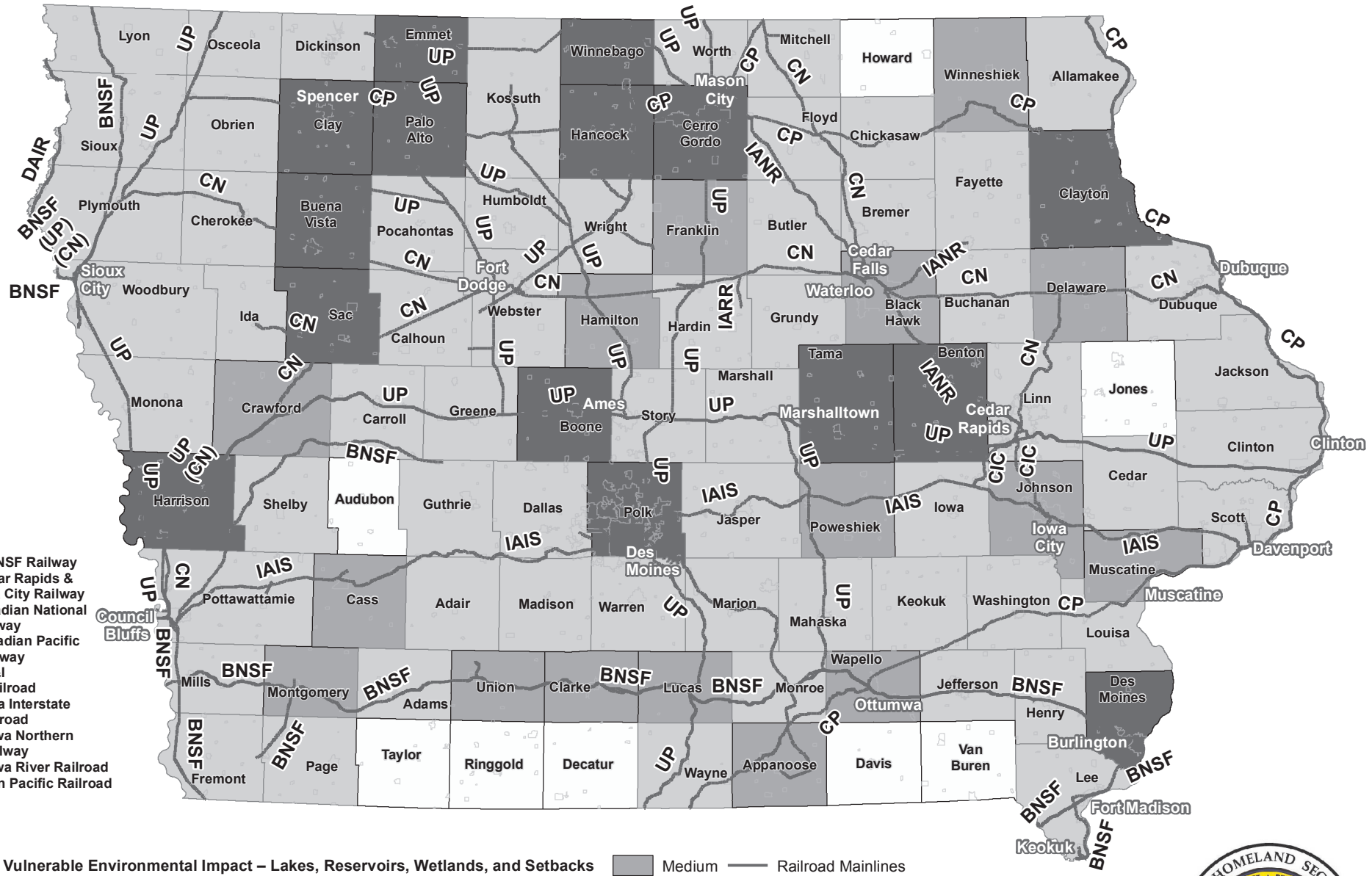
0 Miles 40

IOWADOT

IOWA HOMELAND SECURITY AND EMERGENCY MANAGEMENT

PATH: Z:\PROJECTS\IDOT\263221_IADOT_CRUDE_BIOFUEL_TRANS_STUDY\MAP_DOCS\FINAL\FIG_8X11_STREAMS_IMPACTS.MXD - USER: TTALBITZ - DATE: 3/25/2016

RAILROAD VULNERABLE ENVIRONMENTAL IMPACT – LAKES, RESERVOIRS, WETLANDS, AND SETBACKS



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UP - Union Pacific Railroad

LEGEND

Railroad Vulnerable Environmental Impact – Lakes, Reservoirs, Wetlands, and Setbacks

- None
- Low
- Medium
- High
- Railroad Mainlines
- City Boundary
- County Boundary

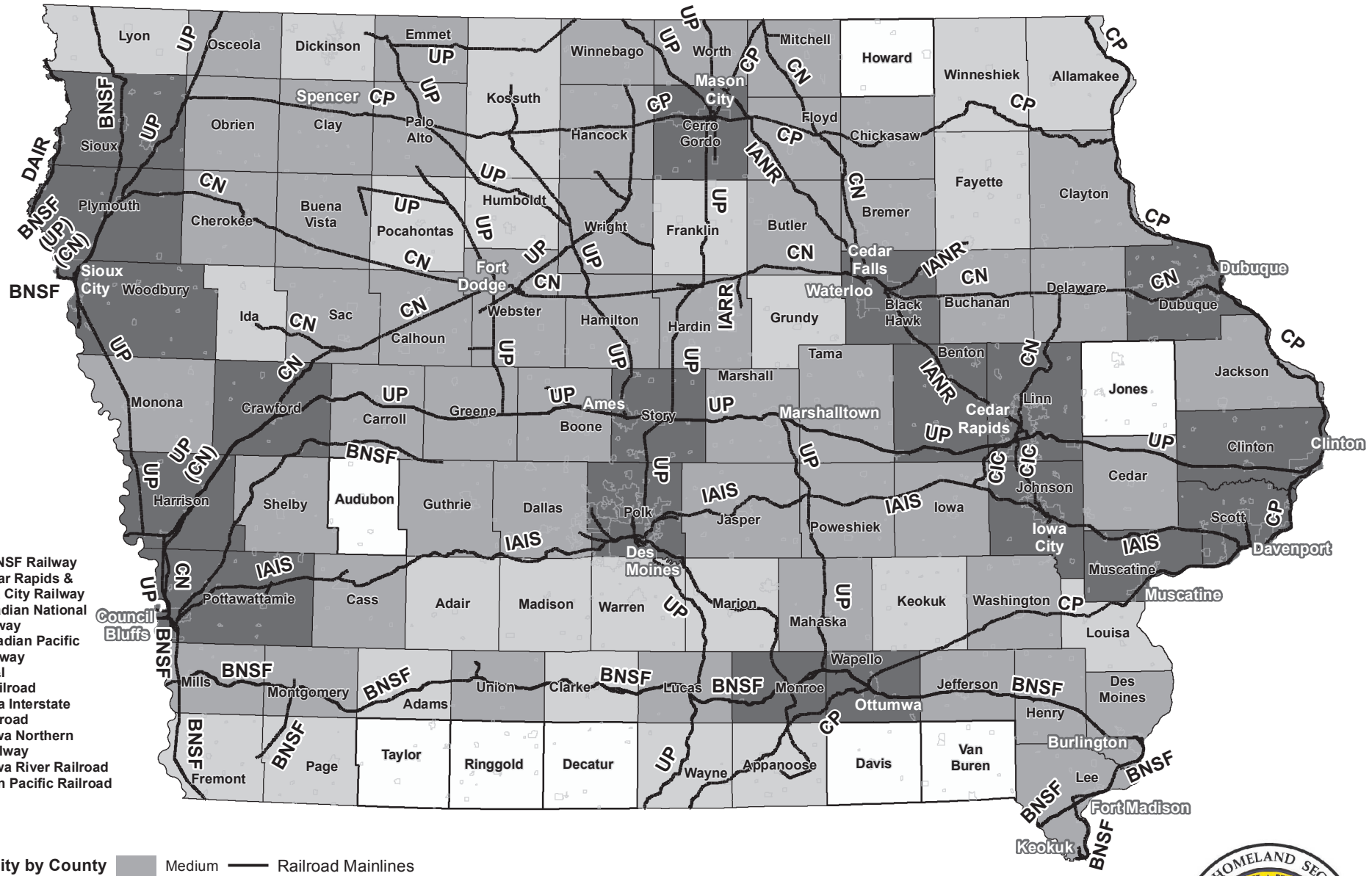
0 Miles 40

IOWA HOMELAND SECURITY AND EMERGENCY MANAGEMENT

IOWADOT

PATH: Z:\PROJECTS\IDOT\263221_IADOT_CRUDE_BIOFUEL_TRANS_STUDY\MAP_DOCS\FINAL\FIG_8X11_WATERBODY_WETLAND_IMPACTS.MXD - USER: TTALBITZ - DATE: 3/25/2016

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



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LEGEND

Sensitivity by County

- None
- Low
- Medium
- High

- Railroad Mainlines
- City Boundary
- County Boundary

0 Miles 40

IOWA DOT

IOWA HOMELAND SECURITY AND EMERGENCY MANAGEMENT

PATH: Z:\PROJECTS\IDOT\263221_IADOT_CRUDE_BIOFUEL_TRANS_STUDY\MAP_DOCS\FINAL\FIG_8X11_RAILROAD_RISK.MXD - USER: TTALBITZ - DATE: 3/24/2016