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MEMORANDUM

TO: Story County Board of Supervisors
FROM: Amelia Schoeneman, Planning and Development Director
RE: Ordinance 306, Amending Chapter 85, General Provisions and Definitions, and Chapter 86, District Requirements, of the Story County Code of Ordinances – Land Development Regulations to Establish Setback Requirements for Hazardous Materials Pipelines

MEETING DATE: October 18, 2022

The Story County Land Development Regulations currently exempts certain utility appurtenances (e.g. distribution lines, water lines) from zoning and permitting requirements, including setbacks. The intent of this exemption was likely to exempt rural water, natural gas, electric, and other public utility providers' distribution lines that provide needed services to homes and businesses in Story County. Recently, pipelines transporting hazardous liquids and gases between states have been proposed, and constructed, with routes through Story County. Because these pipelines do not provide essential services, and create greater risks in the event of a spill or rupture, the Story County Land Development Regulations are proposed to be amended to require setbacks from dwellings and other uses that pose evacuation challenges. The ability to enforce setback requirements on pipelines that are also regulated by the state and federal governments, and a summary of the proposed regulations, is included in the following memo.

Background

County Home Rule Authority

The 10th Amendment to the U.S. Constitution grants powers to the states that are otherwise not reserved for the federal government: "The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people. (Constitution Annotated, n.d.)"

In turn, the states grant powers not expressly or impliedly reserved for themselves to local governments. Iowa Code Chapter 331 grants this power to counties in section 331.301:

A county may, except as expressly limited by the Constitution of the State of Iowa, and if not inconsistent with the laws of the general assembly, exercise any power and perform any function it deems appropriate to protect and preserve the rights, privileges, and property of the county or of its residents, and to preserve and improve the peace, safety, health, welfare, comfort, and convenience of its residents (The Iowa Legislature, 2022).

Chapter 331.301 continues to outline certain restrictions on the county's power to regulate:

2. *A power of a county is vested in the board, and a duty of a county shall be performed by or under the direction of the board except as otherwise provided by law.*
3. *The enumeration of a specific power of a county, the repeal of a grant of power, or the failure to state a specific power does not limit or restrict the general grant of home rule power conferred by the Constitution and this section. A county may exercise its general powers subject only to limitations expressly imposed by a state law.*
4. *An exercise of a county power is not inconsistent with a state law unless it is irreconcilable with the state law.*
5. *A county shall substantially comply with a procedure established by a state law for exercising a county power unless a state law provides otherwise. If a procedure is not established by state law, a county may determine its own procedure for exercising the power.*
6. a. *A county shall not set standards and requirements which are lower or less stringent than those imposed by state law, but may set standards and requirements which are higher or more stringent than those imposed by state law, unless a state law provides otherwise.*

An Attorney General opinion on a county ordinance regulating manure lines that cross drainage district facilities using the precedent set by the Iowa Supreme Court Case *Goodell v. Humboldt County*, 575 N.W.2d 486 (*Goodell v. Humboldt County*, 1998) further discusses when the State, expressly or impliedly, may preempt counties' power to regulate:

The doctrine of preemption stems from the requirement that the exercise of a home rule power not be "inconsistent with the laws of the general assembly." Id. at 493. Preemption may be either express or implied. Id. Express preemption occurs when the general assembly has specifically prohibited local action in an area. Id. Implied preemption may take two forms: When an ordinance prohibits an act permitted by statute or permits an act prohibited by statute, the ordinance is considered inconsistent with state law and preempted. Id. Implied preemption may also occur when the legislature has covered a subject matter in such a manner as to demonstrate a legislative intention that the field is preempted by state law. Id. As to the latter form of implied preemption, the Court stated that extensive regulation in an area is not sufficient to find preemption absent "clear expression of legislative intent to preempt regulation of a field by local authorities, or a clear expression of the legislature's desire to have uniform regulation statewide." Id. at 500 (Office of the Attorney General, 1998).

Given the Iowa Code and *Goodell v. Humboldt County*, the following questions should be asked to ensure the county's regulation is not preempted: Is it prohibited by state law? Is it inconsistent or irreconcilable with state law? Is it substantially compliant with the procedure set by state law, if applicable? Is it less stringent than state law? Is it clear the legislature intended for an existing regulation to set a statewide standard?

State and Federal Pipeline Regulations

State and federal regulations differentiate between hazardous liquid and hazardous gas pipelines. Hazardous liquid pipelines include those used for carbon dioxide transport.

Iowa Code Chapter 479 and 479B give the Iowa Utilities Board (IUB) authority to oversee the state permitting process for intrastate hazardous liquid or natural gas pipelines. The IUB reviews the location and route, and may grant the permit with conditions related to these factors. There are no specific rules as to a pipeline’s location or setback. Both chapters require the IUB to consider the “the relationship of the proposed project to the present and future land use and zoning ordinances. (The Iowa Legislature, 2022, p. 479.6(9) and 479B.5(7))” as the petition for a permit must include this information. While the IUB has information on zoning and future land use plans to consider, they are not the enforcement authority to ensure these other requirements are met. This can be interpreted as left to municipalities.

The Iowa Administrative Code 199 Utilities Division Chapters 10 and 13 contain IUB rules for hazardous liquid and natural gas pipelines. Chapter 10, Intrastate Natural Gas and Underground Storage, requires that federal standards for safety are met (Iowa Administrative Code Utilities Division (199), 2022). Chapter 12 states that “the Iowa utilities board is authorized to act as an agent for the federal government pursuant to Iowa Code section 479A.1 in determining pipeline company compliance with the standards of the federal government for pipelines within the boundaries of the state of Iowa. (Iowa Administrative Code Utilities Division, 199-12.1, 2022)” There is no such grant for hazardous liquid pipelines (Iowa Administrative Code Utilities Division, 199-13, 2022). Under the Hazardous Liquids Pipeline Safety Act of 1979, 49 U.S.C. 2001, states may certify that they will ensure federal safety standards are met for intrastate hazardous liquid pipelines.

Federal standards for hazardous liquid pipelines are contained the Code of Federal Regulations Title 49, Part 195. Regarding setbacks, the route should be selected to avoid dwellings, industrial buildings, and places of public assembly. Pipelines may not be within 50 feet of these locations unless an additional 12 inches of cover is provided above minimum requirements (49 CFR § 195.210). Minimum cover requirements are provided in Table 1.

Location	Cover inches (millimeters)	
	For normal excavation	For rock excavation
Industrial, commercial, and residential areas	36 (914)	30 (762)
Crossing of inland bodies of water with a width of at least 100 feet (30.5 meters) from high water mark to high water mark	48 (1219)	18 (457)
Drainage ditches at public roads and railroads	36 (914)	36 (914)
Deepwater port safety zones	48 (1219)	24 (610)
Gulf of Mexico and its inlets in waters less than 15 feet (4.6 meters) deep as measured from mean low water	36 (914)	18 (457)
Other offshore areas under water less than 12 ft (3.7 meters) deep as measured from mean low water	36 (914)	18 (457)
Any other area	30 (762)	18 (457)

Table 1 Minimum Cover Requirements for Hazardous Liquid Pipelines (49 CFR § 195.248)

For natural gas and other gas pipelines, there are no setback requirements. There are depth of cover requirements based on the location. Areas where there are fewer than 10 dwellings require 30 inches of cover. Other, denser locations, drainage ditches, public road and railroad crossing require 36 inches of cover. Navigable watercourses require 48 inches of cover (49 CFR § 192.327, 2022).

Federal regulations for natural and other gas pipelines do define high consequence areas. These are areas where a potential impact area contains 20 or more dwellings or a place of public assembly meeting certain usage requirements (49 CFR § 192.5, §192.903). The potential impact area for natural gas is determined by the equation " $r = 0.69 * (\text{square root of } (p*d^2))$ ", where 'r' is the radius of a circular area in feet surrounding the point of failure, 'p' is the maximum allowable operating pressure (MAOP) in the pipeline segment in pounds per square inch and 'd' is the nominal diameter of the pipeline in inches (49 CFR § 192.903)." Other multipliers apply for different types of gases, following engineering standards (ASME and ANSI). In these areas, there are higher standards for pressure testing, inspections, automatic shutoff and remote valves, and other mitigation requirements. If the impact radius is over 660 feet, the area in the impact area is also considered a high consequence area.

Proposed Amendment to the Story County Code of Ordinances—Land Development Regulations

The proposed ordinance is purposefully limited to establishing setbacks for hazardous materials pipelines. This clearly grounds the ordinance in the County's power granted by Iowa Code Chapter 335 to enact zoning, including setbacks and other provision for certain uses. Iowa Code 335 expressly grants a county board of supervisors the power to "by ordinance regulate and restrict the height, number of structures, and size of buildings and other structures, the percentage of lot that may be occupied, the size of yards, courts, and other open spaces, the density of population, and the location and use of buildings, structures, and land for trade, industry residence, or other purposes."

The ordinance was also narrowly tailored to avoid creating a regulation that was otherwise prohibited, inconsistent or irreconcilable, less stringent, or not compliant with procedure set by state law. It was also considered if the legislature intended for an existing regulation to set a statewide standard. How these considerations further informed the ordinance is discussed below.

Is it inconsistent or irreconcilable or less stringent than state law?

For hazardous liquid pipelines, the state does not enforce federal safety standards. There are federal, numeric standards for depth of cover for both gas and liquid pipelines, however, no numeric depth standard for hazardous liquid pipelines when land is in agricultural production. The proposed ordinance introduces a numeric standard for depth in agricultural areas of 48 inches, matching the federal requirement from residences and places of public assembly. The depth may be required to be increased above this standard or federal law for gas and liquid pipelines, accounting for the impact of deep tillage of 18 inches required by Iowa Administrative Code Chapter 9.5(6), Restoration of Agricultural Lands.

For liquid pipelines, federal standards require a 50-foot setback from residences or places of public assembly, unless additional cover is added. Staff proposes to use the federal minimums as setbacks for hazardous liquid pipelines, with the exception of carbon dioxide in its supercritical/dense phase (liquid). In May of 2022, the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration announced a new rulemaking for carbon dioxide pipelines, in response to a pipeline failure in Sartartia, Mississippi (PHMSA, PHMSA Announces New Safety Measures to Protect Americans From Carbon Dioxide Pipeline Failures After Sartartia, MS Leak, 2022). The standards are not yet available. Ruptures are rare. However, unlike other hazardous liquids, when a carbon dioxide pipeline ruptures it becomes a gas. As the gas is heavier than air, it displaces air and can cause asphyxiation at certain concentrations. At a concentration of 50,000 parts per million (ppm), it can cause dizziness, confusion, and other symptoms after 30 minutes. At a concentration between 70,000 and 100,000 ppm it can cause death and loss of consciousness (NIOSH, 1994) within several minutes.

Staff is proposing setbacks based on these concentrations and several peer reviewed, scientific studies of the distance from a pipeline failure these concentrations may be found (Xiong Liu, 2019; Mazzoldi, 2013). The recommended setbacks vary by pipeline diameter. This ensures, while they protect public health, safety, and welfare, that they are also the minimum necessary. Staff also based the setbacks on a 10 kilometer pipeline length, which was the length studied and wind speeds of 22 miles per hour. New federal requirements require emergency shutoff valves every 7.5 miles. The 10 kilometer length is comparable (PHMSA, PHMSA Announces Requirements for Pipeline Shut-off Valves to Strengthen Safety, Improve Response Efforts and Reduce Emissions, 2022). Setbacks based on a concentration of 50,000 ppm are proposed for denser residential developments and other developments that pose evacuation challenges (hospitals, nursing homes). For example, a six inch pipeline would require a setback of 1,673 feet. Setbacks from dwellings and other development are based on a concentration of 80,000 ppm. For example, a six inch pipeline would require a setback of 974 feet.

As proposed pipeline routes typically include a quarter mile buffer on each side of a proposed centerline to allow for changes in the route, the setbacks should provide sufficient flexibility for siting a pipeline. Typically, dwellings are located every quarter mile due to County zoning requirements. Staff did buffer the proposed carbon dioxide pipeline routes to determine if the proposed setbacks would create major conflicts. It appeared for each pipeline modeling and an emergency plan to reduce setbacks, or a major reroute would only be needed in one or two instances where there is a denser residential development. Minor route changes around isolated dwellings may also be needed in lieu of an emergency plan and modeling but based on staff's analysis do not pose major hurdles to siting a pipeline.

For natural and other gas pipelines, the ordinance proposes to adopt a setback based on the potential impact radius formula used to identify high consequence areas. While the state does enforce federal safety standards for hazardous gas pipelines, there are no "setbacks" under federal law. Similar to carbon dioxide pipelines, the ordinance proposes different setbacks for denser developments and uses that are difficult to evacuate, versus dwellings. For difficult to evacuate uses, a natural gas pipeline that is 24 inches in diameter and 1,200 psi would have a required setback of 574 feet. This is a large natural gas pipeline.

An option to reduce the required setback is provided if an emergency plan is submitted, requiring a pipeline operator to work with local emergency responders, and providing modeling to determine risk distances.

Finally, all hazardous pipeline types will also be required to meet setback and mitigation requirements when environmentally sensitive areas near the proposed route or proposed to be impacted. If impact is allowed, only trenchless construction methods through these areas are permitted to reduce disturbance.

Is it prohibited, is it compliant with state procedures, and or did the legislature intend to set a statewide standard for pipelines?

Iowa Code 331 does prohibit county regulation of natural gas service by a public utility. The proposed ordinance excepts all pipelines that are operated as public utilities, following IUB regulations. It also excepts water service lines. Otherwise, there is no prohibition in Iowa Code. Again, the chapters regarding the IUB's regulation of hazardous materials pipelines specifically require a petition for a new

pipeline to address conformance with zoning and future land use plans, thereby recognizing that there may be local standards in addition to state requirements.

92.07(2) Standards for Approval.

All applications for text amendments shall satisfy the following standards for such requested action to be approved:

A. The proposed amendment shall conform to the Story County Development Plan (C2C).

A strategy for Land Use Goal 8 in the C2C Plan (ensure that land use transitions are gradual or designed to reduce potential incompatibilities among land uses) is:

Ensure new development is setback an adequate distance from existing and proposed major utility transmission lines and pipelines.

This is the purpose of the proposed amendment.

B. The proposed amendment shall conform to the scope and purpose of the Ordinance (Story County Land Development Regulations).

Chapter 85.02 of the Story County Land Development Regulations states that the Ordinance was adopted in accordance with Chapter 335 of the code, which expressly allows counties to regulate setbacks.

It further states that it is the objective of the ordinance to protect general welfare and to secure safety from fire, flood, panic, and other dangers.

Again, as the proposed ordinance is limited to setbacks and the setbacks are the minimum necessary to protect public safety, it is within the scope and purpose of the Ordinance (Story County Land Development Regulations).

Planning and Zoning Commission Recommendation

At their October 5, 2022, meeting the Story County Planning and Zoning Commission recommended approval of the proposed ordinance. The Commission discussed the emergency response plans, as well as whether local emergency responders would need specialized equipment to handle pipeline-related emergencies.

The Commission also asked for clarification on why staff conducted their own research on setbacks and whether existing pipelines would be exempt. Staff clarified that there are currently no regulatory setbacks for CO2 pipelines and that Story County would be the first in Iowa with a formula for setbacks.

One Commissioner supported the minimum-cover requirements outlined in the ordinance, and staff clarified for the Commission that eminent domain could be used for the pipelines if an easement agreement cannot be reached with the property owner.

Attorney Review Comments

Assistant County Attorney Ethan Anderson reviewed the proposed ordinance after the Planning and Zoning Commission and proposed the following changes. The changes will be incorporated into the ordinance prior to the public hearing on October 18th.

- Defining what a “professionally accepted level of concern” is
- Better relaying how we will be tracking that annual notices are mailed out to structures within one mile of pipelines

Alternatives

The Story County Board of Supervisors may consider the following alternatives. Notice of the public hearing on the ordinance with the Planning and Zoning Commission and Board of Supervisors (set for October 18) was published in the three County newspapers on September 29, 2022.

- 1) **The Story County Board of Supervisors approves Ordinance 306, Amending Chapter 85, General Provisions and Definitions, and Chapter 86, District Requirements, of the Story County Code of Ordinances – Land Development Regulations to Establish Setback Requirements for Hazardous Materials Pipelines as presented on first consideration and sets second consideration for Tuesday, October 25, 2022.**
- 2) The Story County Board of Supervisors denies Ordinance 306, Amending Chapter 85, General Provisions and Definitions, and Chapter 86, District Requirements, of the Story County Code of Ordinances – Land Development Regulations to Establish Setback Requirements for Hazardous Materials Pipelines as presented on first consideration and sets second consideration for Tuesday, October 25, 2022.
- 3) The Story County Board of Supervisors remands Ordinance 306, amending Chapter 86—District Requirements and Chapter 85.08—Definitions, of the Story County Land Development Regulations, of the Story County Code of Ordinances, back to staff for additional information, and directs staff to set first consideration for Tuesday, November 1, 2022.

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