

Douglas County Rural Development Site Analysis

A Study by
Planning and Development District III

Funded by the South Dakota Value Added Agriculture Subfund

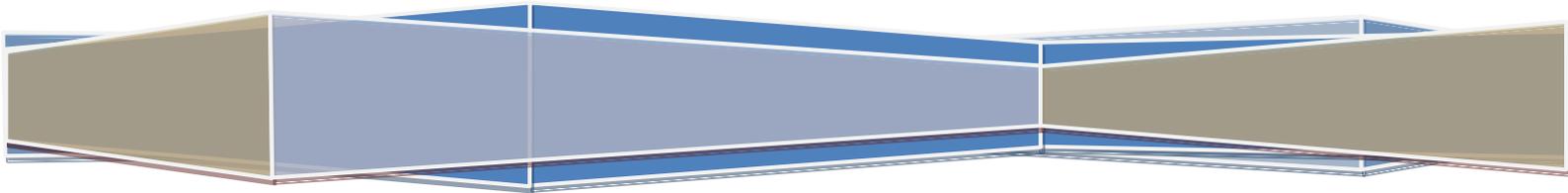


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Summary

Program History

As part of the South Dakota Department of Agriculture's (SDDA) efforts to enhance economic development opportunities and better support local control of development, the County Site Analysis Program (Program) was developed in the summer of 2013. The Program assists participating counties in identifying potential rural properties with site development opportunities. The analysis and subsequent report will provide local leaders with information and research-based resources to foster well informed decisions regarding the future of their respective regions. It also helps identify and plan for potential challenges that may arise should those opportunities be pursued.

In implementing the Program, SDDA is working closely with South Dakota's Planning and Development Districts. The First District Association of Local Governments (First District) and Planning and Development District III (District III) developed a methodology for a feasibility analysis that focuses on identifying locations for rural economic development. The methodology addresses the feasibility of locations for the development of concentrated animal feeding operations, agricultural processing, and storage facilities, and other agriculturally-related commercial/industrial development. The analysis takes into consideration local zoning and State permitting requirements along with the availability of infrastructure necessary to accommodate certain rural economic development projects.

The identification of each prospective site's relative advantages and constraints provides decision-makers with useful information for assessing the development potential of each site. The information contained herein has the potential to streamline the marketing process thereby reducing timelines, financial expenditures, and labor costs. Local governments, landowners, economic development groups, and State agencies such as the Department of Agriculture or Governor's Office of Economic Development all benefit from the rural site development analysis. These entities now have access to a marketing tool based on proactive planning efforts. In addition, the report may assist local governments in updating their comprehensive plans, zoning ordinances, and permitting procedures while also increasing local awareness of potential development opportunities.

Methodology

The methodology developed for this study utilized an established set of criteria deemed critical to further development of the subject properties while specifically addressing the suitability of a site for either a Concentrated Animal Feeding Operation (CAFO) or an Agriculturally-Related Industrial Development (AID). **Table 1** lists the site assessment criteria identified as being necessary to conduct analysis of the potential sites. Minimum thresholds for each criterion were utilized to establish a hierarchy classification of "Good", "Better", and "Best" sites. Those sites designated as "Best" sites were those not limited by any of the criteria considered. Sites not meeting the minimum criteria required of the "Best" sites were subsequently identified as "Better" or "Good".

Specific information regarding the site assessment criteria and methodology utilized for developing the "Good", "Better", and "Best" hierarchy may be found in **Appendices I and II**, respectively.

Table 1: Site Assessment Criteria

CAFO/AID Criteria
Access to County and State Road Network
Proximity to Three-phase Electricity Supply
Proximity to Rural Water System
Capacity of Rural Water System
Location of Shallow Aquifer
Existing Zoning Districts/Land Use Plans
Buildable Parcel
County CAFO Zoning Setback Requirements*
Proximity to Rural Residences* & Communities
Proximity to Rail**

*CAFO Assessment Criteria Only

** AID Assessment Criteria Only

Limiting Factors

While this report focuses on the specific sites matching the site assessment criteria standards, it became apparent that each site also possesses its own unique set of site characteristics which present both advantages and constraints. For example, there were many sites in the County which complied with the County’s zoning regulations but lacked the necessary infrastructure.

The analysis found that the primary limiting factor(s) in reviewing the development potential of properties within Douglas County for a “Better” or “Best” CAFO site development is the availability of quality potable water. The same is true with AID developments which also require a reliable water source of not only high quality but also large quantities. Access to a centralized water source such as rural water was a key criterion in the site analysis process. While access to rural water quality water was identified as an impediment, the rural water systems noted that if a significant water user would locate in the county; they would explore ways to provide water to the proposed development. Therefore, the analysis does not conclude the only sites for CAFO/AID development in Douglas County are relegated to the specific sites identified herein.

In addition to the availability of quality potable water, additional limiting factors such as access to County and State road networks, three phase power, rail, and the County’s existing CAFO setback requirements limited the number of potential AID and CAFO sites.

The site assessment process was limited in scope to include undeveloped parcels and did not consider expansion of existing CAFOs or commercial/industrial uses. In addition to this limited scope, minimum values were utilized in ranking each site with regards to zoning requirements and infrastructure demands. No attempt was made to rank each site within the three identified classifications. The uniqueness of each criterion identified in **Table 1** warrants a comprehensive review of the potential impact each may have upon a subject property. This study is intended as the first step of a multi-faceted development process potentially leading to more specific site evaluations such as Phase 1 Environmental Assessments, engineering plans, and development cost analysis.

Results

Identifying and evaluating potential sites for development is the first step in planning for economic development in rural Douglas County. The findings of this report will assist in determining the potential role each site may play in supporting economic development and should be considered when planning for future projects within Douglas County.

Utilizing Geographic Information System (GIS) technology, Planning and Development District III identified **15** sites within Douglas County that met the minimum site assessment standards of the CAFO analysis, **Table 2**; and **42** sites that met the minimum standards of the AID analysis, **Table 3**. These sites complied with local zoning ordinances and were in close proximity to infrastructure necessary to support the previously identified economic development activities.

The CAFO and AID Analysis Maps further detail High Water Use (HWU) and Low Water Use (LWU) CAFO and AID sites. HWU CAFO sites are those locations which require 150,000 gallons of water per day. This amount of water is necessary to support, for example, a 3,000 head dairy. LWU CAFO sites are those locations which require 30,000 gallons of water per day, a volume necessary to support either a 600 head dairy or 5,000 head sow operation. HWU AID sites are those locations which require water at levels necessary to support high water uses such as food processing or ethanol production. The water requirement for an HWU AID site is 410,000 gallons of water per day. LWU AID sites are those locations which require water at levels necessary to support most agriculturally-related commercial/industrial development 30,000 gallons per day. The analysis identified **15** High Water Use and **15** Low Water Use CAFO, sites. Whereas, there were **zero** High Water and **42** Low Water Use AID sites. The following maps provide information at a township level regarding the number of “Good”, “Better”, and “Best” CAFO and AID sites.

**Table 2:
Douglas County CAFO Sites by Hierarchy Classification**

CAFO Site Classification	Good Sites	Better Sites	Best Sites
Low Water CAFO	15	0	0
High Water CAFO	15	0	0

**Table 3:
Douglas County AID Sites by Hierarchy Classification**

AID Site Classification	Good Sites	Better Sites	Best Sites
Low Water AID	42	0	0
High Water AID	0	0	0



TOWNSHIP NAME	BEST	BETTER	GOOD
BELMONT TOWNSHIP	0	0	1
CHESTER TOWNSHIP	0	0	6
CLARK TOWNSHIP	0	0	0
EAST CHOTEAU TOWNSHIP	0	0	1
GARFIELD TOWNSHIP	0	0	3
GRANDVIEW TOWNSHIP	0	0	0
HOLLAND TOWNSHIP	0	0	0
INDEPENDENCE TOWNSHIP	0	0	2
IOWA TOWNSHIP	0	0	0
JOUBERT TOWNSHIP	0	0	0
LINCOLN TOWNSHIP	0	0	2
VALLEY TOWNSHIP	0	0	0
WALNUT GROVE TOWNSHIP	0	0	0
WASHINGTON TOWNSHIP	0	0	0



DOUGLAS COUNTY

Concentrated Animal
Feeding Operation (CAFO) sites 2015

** CAFO LOW WATER ANALYSIS ***

please note: same map as High Water Analysis

- Legend
- ROADS
 - CITY LIMITS
 - TOWNSHIPS



No High Water AID Map - Page Left Blank

TOWNSHIP NAME	BEST	BETTER	GOOD
BELMONT TOWNSHIP	0	0	12
CHESTER TOWNSHIP	0	0	8
CLARK TOWNSHIP	0	0	0
EAST CHOTEAU TOWNSHIP	0	0	4
GARFIELD TOWNSHIP	0	0	0
GRANDVIEW TOWNSHIP	0	0	3
HOLLAND TOWNSHIP	0	0	0
INDEPENDENCE TOWNSHIP	0	0	11
IOWA TOWNSHIP	0	0	0
JOUBERT TOWNSHIP	0	0	0
LINCOLN TOWNSHIP	0	0	0
VALLEY TOWNSHIP	0	0	0
WALNUT GROVE TOWNSHIP	0	0	4
WASHINGTON TOWNSHIP	0	0	0

DOUGLAS COUNTY
 Agriculturally - related
 Industrial Development
 (AID) sites 2015

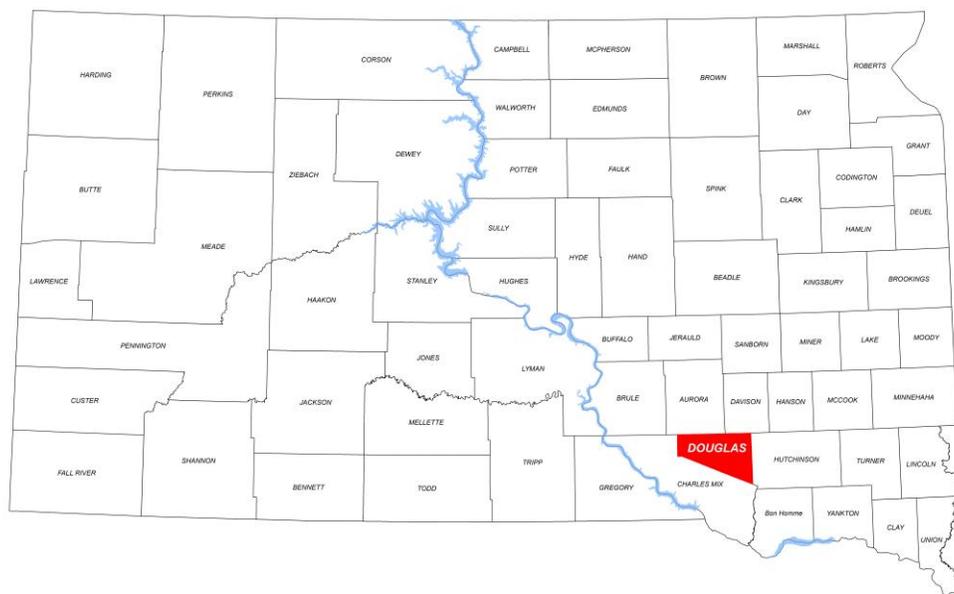
**** AID LOW WATER ANALYSIS *****

Legend
 ROADS
 CITY LIMITS
 TOWNSHIPS



APPENDIX I: SITE ASSESSMENT CRITERIA

Douglas County Location Map



The methodology developed for this study utilized an established set of criteria deemed critical to further the development of the subject properties while specifically addressing the suitability of a site for either a CAFO or an AID.

Sites possessing all of the criteria identified as critical within the analysis will be those most sought by potential developers. The occurrence of these sites may be somewhat rare. Therefore, sites under consideration for either a CAFO or AID may meet the majority of criteria, but may also be lacking in several specific areas. Any sites not meeting all the criteria may be burdened with a limitation thus requiring more specific analysis. In these cases, the feasibility of developing the site is highly dependent upon the identified limitation(s).

A limiting condition could be the availability of water volume at an identified potential CAFO site. For example, the water demand for a 3,000 head dairy is approximately five times greater than the needs of a 5,000 head sow operation even though each operation could generally be subject to similar zoning regulations. In this situation, the lack of water at a volume necessary for a dairy may lend the site to be more likely identified as a possible location for a swine facility. It should be noted that neither this example nor the analysis explores potential alternatives to the absence of adequate rural water volume such as upsizing water distribution infrastructure or securing an alternative water source, all of which hold the potential to mitigate this constraint thereby facilitating the proposed development. Rather, the analysis recognizes upgrading infrastructure identified as necessary to support rural economic development projects may increase the number of developable sites within the County. In other cases, however, failure to meet certain criteria, such as access to a quality road network, may result in a situation where development of the site becomes economically unfeasible.

The site assessment criteria, depending upon whether or not the site is for a CAFO or AID project, have been divided into the three major categories to include: Land Use Regulations, Environmental Constraints, and Infrastructure.

LAND USE REGULATIONS

Economic development planning in Douglas County must be conducted in concert with the County's overall economic development goals. All development activities, including those specifically related to agriculture need to be accomplished within the parameters set forth in local and regional planning documents. Land use or development guidance is traditionally provided via local documents such as comprehensive plans, zoning ordinances, policies, mission statements, and other local economic development plans and initiatives. The analysis reviewed said documents to determine compliance with potential CAFO and AID development. The following is a synopsis of Douglas County's policies regarding CAFO and AID development.

Comprehensive Land Use Plan

Douglas County's most recent Comprehensive Plan was developed in 1999. The plan does not specifically address agricultural development such as animal feeding or agricultural product processing activities; although, the plan does include policies regarding environmental protection and economic development. Chapter II of the Douglas County Comprehensive Plan provides background information with the later pages focusing on economic issues within the county. Douglas County's leadership recognized the importance of agriculture to the local, regional, and state economies and devoted seventy five percent of the economic discussion to agriculture. Chapter III within the 1999 Comprehensive Plan is dedicated to goals and objectives which also includes policies. There were four subsections within the Chapter addressing various subjects of which two; environmental protection and agriculture are pertinent to this study. Each subsection identifies one overall goal from which objectives and policies are derived. The goals for agriculture and economic development are as follows:

- ❖ It is the goal of Douglas County to avoid development in areas that:
 - Are environmentally fragile or unique;
 - Consist of prime agricultural land;
 - Present health and safety standards to county residents; and
 - Could degrade or otherwise negatively impact neighboring property.

- ❖ It is the goal of Douglas County to encourage the continuation of family farming, while promoting cost effective, value added manufacturing, and other economic diversification efforts.

These goals address many of the challenges which face a majority of the state's counties. Douglas County is attempting to address the challenges by proactive actions such as this study. In reviewing the 1999 Comprehensive Plan, it is clear that Douglas County recognizes the importance of large scale animal agricultural development and agriculturally-related commercial and industrial development.

Commercial/Industrial Land Use Policies

- ❖ Preferences should be given to agricultural production and processing activities that directly benefit the farming and local agribusiness economies.
 - County regulations must preserve individual property rights while promoting the economic opportunities of farm operators and other current county agricultural operators.
 - The conservation of prime agricultural land should be a consideration in land use decisions.
- ❖ Higher density development such as commercial, industrial, and concentrated animal feeding should take advantage of existing utility networks and transportation systems.
 - The locations, capacities, and relationships of public infrastructure systems should be reviewed as part of development proposals requiring county review.
 - The redevelopment and reuse of existing business locations should be encouraged by local development officials.
 - The County should promote the development of agriculture business related processing and manufacturing facilities within the rural areas conducive to such activity.
- ❖ Intense development similar to commercial, industrial, and concentrated animal feeding should be compatible with adjacent land uses.
 - These types of projects should take place in designated industrial parks or already developed highway locations, whenever possible.
 - Developers should be encouraged to reserve “buffer” areas between different land uses, to minimize the potential for conflict.

Zoning

Ideally, economic developers seek sites that are zoned and eligible for specific uses. The need to pursue a zoning change or conditional use permit introduces an additional step in the development process thus increasing development timeframes and costs. These steps or requirements also increase the uncertainty of approval given zoning changes are referable. Another issue is the super majority voting requirement necessary for a County’s Board of Adjustment to approve a conditional use permit.

While the rural areas of Douglas County are reserved for agricultural uses, certain agricultural uses may require a case by case review. Generally speaking, concentrated animal feeding operations are one of the aforementioned uses. It is important to emphasize agricultural producers must maintain flexibility in their operations. Grain farmers are now choosing to spread their expenses over more acres to generate a small return over more acres. Like grain farmers, numerous livestock producers are choosing to accept smaller gains over larger numbers of animals to remain solvent. Douglas County’s leadership recognizes a diverse agricultural industry, relying on cash crop and animal agriculture, promotes a sustainable, balanced agricultural economy. Concentrated animal feeding operations further these goals as

they create a demand for crops grown in the area, provide fertilizer for surrounding land, and yield a raw product which is, in some cases, directly sold to local residents.

General CAFO Policies in the Douglas County Zoning Ordinance:

- Douglas County supports the creation and expansion of concentrated animal feeding operations in rural areas.
- All CAFOs are required to comply with applicable state and federal regulations.
- All manure spreading within Douglas County requires appropriate separation from property lines, rights-of-way, specific water features, and various different land uses.
- CAFOs of greater than 1,000 animal units should meet minimum requirements of the South Dakota DENR General Permit.
- Douglas County does not specifically regulate the siting of a CAFO with regards to shallow aquifers though such a standard could be introduced during the conditional use process.

Concentrated Animal Feeding Operation Setbacks

Douglas County utilizes standard setback requirements based upon 1,000 animal units. For example, a 3,000 head dairy, or 4,290 animal units, is required to observe a minimum setback of **one mile** from established residences, schools, and churches. As for setbacks from municipalities, rural residential districts, or the Corsica Lake Recreation Area the same 3,000 head dairy can be no closer than **two miles**. This analysis also used a 5,000 head sow operation for the purposes of a low water use CAFO. The setback requirements for the 5,000 head sow operation are identical to the 3,000 head dairy operation. Both the dairy and swine operations must remain a minimum of **1,000 feet** from lakes, rivers, and streams considered fisheries.

GIS point data for schools was not readily available so the County Director of Equalization was contacted regarding rural schools and their respective locations. There were no rural schools identified by the County. Point data was available for the remaining attributes. All **15** CAFO sites in the analysis are currently zoned agricultural and either each of the individual identified parcels or a portion thereof meet setback and lot area requirements.

Commercial/Industrial Development

There is very little concentrated or clustered commercial/industrial activity at the county level. Douglas County's commercial and industrial properties are generally near municipalities, singular, and adjacent to County and State hard surface roads. Commercial and industrial activities located in rural areas are generally not conducive to municipal or populated locales.

Joint Jurisdiction

Douglas County shares zoning jurisdiction with the City of Corsica which extends approximately one mile from the City's corporate limits. While the CAFO setback from communities precludes the siting of a CAFO within the prescribed areas of communities, it is possible that with cooperation or support of a participating municipality, AID sites could be located within these areas.

Buildable Parcel

One criterion deemed necessary to facilitate development of either a CAFO or an AID was land area. A parcel of 40 buildable acres was set as the minimum for consideration within the analysis. In order to be considered, the property must have consisted of 40 contiguous acres and able to support development upon all 40 acres. Parcels without 40 buildable acres were not considered in the final analysis. Douglas County does not have parcel data in a GIS format therefore usable acres must be field verified especially when government lots are under consideration for potential development.

Proximity to Communities

The AID analysis also considered sites within one mile of a community or at specific locations identified by the County. This was done because many communities and counties have established growth plans for economic development within certain proximities of communities or at locations with existing infrastructure such as paved roads. Also since the parameters of the original AID analysis excluded all AID sites within counties without access to rail, the criterion of “proximity to a community” was defined as an adequate alternative for counties lacking rail facilities.

ENVIRONMENTAL

The location of shallow aquifers in relation to potential development sites was included in the analysis. In reviewing shallow aquifers, it is critical to note that they are included in the analysis for two distinct and very different reasons. Shallow aquifers may be utilized as a potential water source to support development. These same aquifers are also vulnerable to pollution due to their proximity to the surface and may be required to be protected via setbacks and development limitations.

While the potential exists for individuals to protest CAFO and AID developments locating over aquifers, Douglas County has not enacted nor currently enforces aquifer protection regulations more restrictive than the State of South Dakota. Therefore, sites situated over the shallow aquifer were considered eligible for development.

The analysis did consider local zoning setbacks from waters identified as fisheries by the State of South Dakota.

Prior to or contingent upon acquiring a parcel, it is assumed other environmental factors potentially affecting the property would be addressed via a Phase I Environmental Assessment or similar process. It is recommended that developers consider undertaking such an inquiry prior to executing a major commitment to a particular location.

INFRASTRUCTURE

The term infrastructure is broad though in the context of property development the term includes essential services such as water, sewer, electrical, telecommunications, and roads. With regards to the rural site analysis process; access to quality roads, electrical capacity, and water supply were deemed essential and identified as site selection criteria.

Transportation

Access to quality roads was identified as critical to determining the development potential of a parcel. As such, the proximity of a potential development site to either a State or County road was established as one of the parameters in conducting the rural site analysis. In addition to utilizing the South Dakota Department of Transportation's road layer to identify roads and surface types, local experts were consulted to assist in identifying the road network. District III requested the Douglas County Highway Superintendent to identify segments of the county road system inadequate to support a CAFO or AID. Sites accessed only by township roads that were located further than one mile from the intersection of a County or State hard surface road were eliminated from the analysis.

A potential development site's proximity to certain road types impacted its designation. Those parcels abutting hard surface roads were consistently ranked higher than those served by gravel roads. In reviewing CAFO and AID sites, parcels adjacent to a County or State hard surface roads were designated "Better" or "Best" for transportation resources. Parcels within one mile of an intersection with a County or State road were designated "Good" for CAFO sites. Parcels within one mile of an intersection with a County or State hard surface road were designated "Good" for CAFO sites.

Access to rail was also considered to be an important factor in locating an AID site. However, there are no rail facilities in Douglas County. To compensate for lack of rail facilities the analysis removed the rail requirement and considered sites within one mile of a community or at locations identified by the County. Without rail, there are no "Best" sites. However, those parcels within one mile of a municipality or at locations identified by the County are designated as "Good" and "Better".

Electric Supply

Access to three-phase power was designated as a site characteristics criterion for both CAFO and AID development. Planning and Development District III contacted the primary provider of electricity in the rural areas, Douglas Electric Cooperative, to obtain the location and capacity of the three-phase infrastructure within the county. All potential CAFO or AID developable parcels adjacent to a three-phase power line were designated "Best" for electricity resources. Whereas, parcels within one mile of a three-phase power line were designated "Better" and those within two miles of a three-phase power line were designated "Good".

Water Supply

The ability to secure specific information regarding a rural water system's operations to include storage, distribution, and capacities proved to be the most complex and difficult component of the infrastructure analysis. Due to this, water resources were evaluated differently than transportation and electric infrastructure. While transportation and electric infrastructure were classified based primarily upon location and availability of three-phase power, the analysis of rural water systems first required the evaluation of the water system, specifically, each system's supply and distribution capacities.

Development sites were then selected upon the proximity to water service. The classifications with regards to water supply and their respective criteria are as follows:

1. “Best” Classification

a. CAFO

- i. High Water Use CAFO Site- If the site was adjacent to or within an area where a rural water system had sufficient supply and distribution capacity to provide 150,000 gallons per day, the site area was designated as “Best” for water resources.
- ii. Low Water Use CAFO Site - If the site was adjacent to or within an area where a rural water system had sufficient supply and distribution capacity to provide 30,000 gallons per day, the site area was designated as “Best” for water resources.

b. AID

- i. High Water Use AID Site- If the site was adjacent to or within an area where a rural water system had sufficient supply and distribution capacity to provide 410,000 gallons per day, the site area was designated as “Best” for water resources.
- ii. Low Water Use AID Site- If the site was adjacent to or within an area where a rural water system had sufficient supply and distribution capacity to capacity to provide 30,000 gallons per day, the site area was designated as “Best” for water resources.

2. “Better” Classification

a. CAFO

- i. High Water Use CAFO Site- If the site was within an area where a rural water system had either a sufficient supply or distribution capacity to provide 150,000 gallons per day, the site area was designated as “Better” for water resources.
- ii. Low Water Use CAFO Site- If the site was within an area where a rural water system had either a sufficient supply or distribution capacity to provide thirty thousand 30,000 gallons per day, the site area was designated as “Better” for water resources.

b. AID

- i. High Water Use AID Site- If the site was within an area where a rural water system had sufficient supply or distribution capacity to provide 410,000 gallons per day, the site area was designated as “Better” for water resources.
- ii. Low Water Use AID Site- If the site was within an area where a rural water system had sufficient supply or distribution capacity to provide 30,000 gallons per day, the site area was designated as “Better” for water resources.

3. “Good” Classification

- a. In the event the rural water system had neither supply nor distribution capacity to serve either a CAFO or AID as defined above, a “Good” designation was applied to those locations situated over or within two miles of a shallow aquifer. The designation as “Good” for water resources was not applied to High Water Use AID sites due to the water volume requirements of HWU AID sites and the lack of available data regarding shallow aquifer capacities.

The site analysis sought to address whether the rural water system serving the region had excess water treatment capacity (supply) as well as their ability to serve potential properties (distribution). In order to address the issue of supply, Planning and Development District III requested location and capacity information from Randall Community Water District (RCWD) and Bon Homme-Yankton Water Districts (B-Y). RCWD is the primary rural water system for the county with B-Y providing service to the northeast corner of the county. RCWD and B-Y was requested to provide information regarding their available treated water capacity. In addition, RCWD and B-Y were requested to notate, on maps, those geographic areas where distribution capacities of 30,000, 150,000, and 410,000 gallons per day were available.

Both, RCWD and B-Y noted limitations with capacities whether supply of distribution; thereby, limiting their ability to meet the minimum requirements of the analysis. While each stated that the system may have an adequate supply of water depending upon the actual location of a proposed CAFO or AID; RCWD and B-Y further noted that only portions of their system had the necessary distribution infrastructure to deliver the minimum volumes. RCWD and B-Y identified zero sites where 150,000 gallons per day, the high water user CAFO “Best” requirement, could be provided. Although, there were numerous sites to which the minimum low water user CAFO “Best” requirement of 30,000 gallons per day was available.

Similar to the CAFO sites, there were also no locations within the RCWD and B-Y distribution systems where the high water user AID site “Best” requirement of 410,000 gallons per day could be met. However, RCWD and B-Y did identify numerous sites that could to which they could provide water service of 30,000 gallons per day thus meeting the Low Water AID requirement. RCWD and BY also identified areas within their systems that presently could not meet the CAFO or AID water requirements without further evaluation by their engineer and/or infrastructure upgrades. Any costs associated with an engineering analysis would be borne by the applicant while potential system upgrades would require financing alternatives.

APPENDIX 2: RESEARCH AND METHODOLOGY

This section describes the methodology utilized to evaluate the suitability of potential CAFO or AID development sites.

Step 1: Identification of Site Assessment Criteria

Table A1 lists the site assessment criteria identified as being necessary to conduct an analysis of potential sites. Utilizing these criteria as a guide, a variety of research methods were employed to compile the GIS data sets utilized within the analysis. Research efforts included the examination of local, regional, and state planning documents along with existing GIS data layers.

Table A1: Site Assessment Criteria

CAFO Criteria	AID Criteria
Access to County and State Road Network	Access to County and State Road Network
Proximity to Three-Phase Electricity Supply	Proximity to Three-Phase Electricity Supply
Proximity to Rural Water System	Proximity to Rural Water System
Capacity of Rural Water System	Capacity of Rural Water System
Location of Shallow Aquifer	Location of Shallow Aquifer
Buildable Parcel	Buildable Parcel
Existing Zoning Districts/Land Use Plans	Existing Zoning Districts/Land Use Plans
Proximity to Rural Residences & Communities	Proximity to Communities
County CAFO Zoning Setback Requirements	Proximity to Rail

Step 2: Evaluation of Site Assessment Criteria

After developing the data sets in **Table A1**, the analysis identified those site locations that:

1. Complied with zoning guidelines; and
2. Were in close proximity to infrastructure necessary to support either CAFO or AID development.

Concentrated Animal Feeding Operation (CAFO) Analysis

The GIS analysis removed all parcels within the County from consideration that:

1. Were not within one mile of a County or State road.
2. Were not within two miles of three phase electric power;
3. Did not meet the (county specific i.e. half mile) setback from (county specific uses i.e. - existing residences, churches, businesses and commercially zoned areas);
4. Did not meet the (county specific i.e. half mile) setback from municipalities; and
5. Were situated over the shallow aquifer (if a county has aquifer protection regulations).
6. Did not meet the minimum standards for available water.
7. Did not contain a buildable footprint of at least 40 acres.

After applying the local zoning and buildable footprint requirements to each site, the availability of necessary infrastructure was incorporated into the analysis. The general location of available water, electric and road infrastructure was applied to the remaining sites to establish “Good”, “Better”, and “Best” hierarchy of potential development sites. **Table A2** exhibits the minimum requirements necessary for a site to be classified as “Good”, “Better”, or “Best” for **CAFO development**.

Table A2: CAFO Hierarchy Classification Requirements

Location Criteria	Description	Good	Better	Best
Roads	Site is <u>adjacent</u> to County/State hard surface road		X	X
	Site is within <u>1 mile</u> of an intersection with a County/State road	X		
Water	Site is <u>adjacent</u> to rural water system area that has both supply <u>and</u> distribution capacity to provide 150,000 gallons per day or 30,000 gallons per day			X
	Site is <u>adjacent</u> to or within rural water system area that has either supply <u>or</u> distribution capacity to serve either 150,000 gallons per day or 30,000 gallons per day		X	
	Site is within <u>2 miles</u> but no closer than <u>½ mile</u> of shallow aquifer in those counties <u>with</u> aquifer protection regulations or Site is within <u>2 miles</u> of shallow aquifer and may be located over shallow aquifer in those counties <u>without</u> aquifer protection regulations	X		
Electricity	Site is <u>adjacent</u> to three phase power			X
	Site is within <u>1 mile</u> of three phase power		X	
	Site is within <u>2 miles</u> of three phase power	X		
Zoning	Site meets county zoning setback requirements	X	X	X
Aquifer	Site meets county aquifer protection regulations (if applicable)	X	X	X
Buildable Parcel	Site contains buildable area of at least <u>40 acres</u>	X	X	X

Agriculturally-related Industrial Development (AID)

The GIS analysis removed all parcels within the County from consideration that:

1. Were not within one mile of a County or State hard surface road.
2. Were not within two miles of three phase electric power;
3. Were not within one mile of rail, if applicable;
4. Were not within one mile of a community or at locations identified by the county
5. Were situated over the shallow aquifer (if a county has aquifer protection regulations).
6. Did not meet the minimum standards for available water.
7. Did not contain a buildable footprint of at least 40 acres.

After applying the required location based site assessment criteria to each site, the availability of necessary infrastructure was incorporated into the analysis. The general location of available water, electric, rail and road infrastructure was applied to the remaining sites to establish “Good”, “Better”, and “Best” hierarchy of potential development sites. **Table A3** exhibits the minimum requirements necessary for an AID site to be classified as “Good”, “Better”, or “Best”.

Table A3: AID Hierarchy Classification Requirements

Location Criteria	Description	Good	Better	Best
Roads	Site is <u>adjacent</u> to County/State hard surface road		X	X
	Site is within <u>1 mile</u> of an intersection with a County/State hard surface road	X		
Rail	Site is <u>adjacent</u> to rail facility			X
	Site is within <u>½ mile</u> of rail facility		X	
	Site is within <u>1 mile</u> of rail facility	X		
Water	Site is <u>adjacent</u> to or within rural water system area that has <u>either</u> supply <u>or</u> distribution capacity to serve 410,000 gallons per day or 30,000 gallons per day			X
	Site is adjacent to or within <u>1 mile</u> of rural water system area that has <u>either</u> supply <u>or</u> distribution capacity to serve 410,000 gallons per day or 30,000 gallons per day		X	
	Site is within <u>2 miles</u> but no closer than <u>½ mile</u> of shallow aquifer in those counties <u>with</u> aquifer protection regulations or Site is within <u>2 miles</u> of shallow aquifer and may be located over shallow aquifer in those counties <u>without</u> aquifer protection regulations	X		
Electricity	Site is <u>adjacent</u> to three phase power			X
	Site is within <u>1 mile</u> of three phase power		X	
	Site is within <u>2 miles</u> of three phase power	X		
Zoning	Site is zoned for commercial/industrial development			X
	Site is identified in land use plan for commercial/industrial development		X	
	Site is neither identified or zoned for commercial/industrial development	X		
Proximity	Site is within <u>1 mile</u> of community	X	X	
Aquifer	Site meets county aquifer protection regulations (if applicable)	X	X	X
Buildable	Site contains buildable area of at least <u>40 acres</u>	X	X	X

Step 3: Site Development Recommendations

Based on the analysis, **15** sites were classified as Good, Better, or Best for CAFO development (**Table A4**) and **42** sites were classified as Good, Better, or Best for AID development (**Table A5**).

While this study only identifies those sites that met the required criteria for the analysis, it should be noted that other sites within the county may be satisfactory for CAFO and AID development. Sites not within the specified distance of a hard surfaced county or state road or does not have desired infrastructure (rail, water, power) within close proximity does not necessarily negate its development potential.

**Table A4:
Douglas County CAFO Sites by Hierarchy Classification**

CAFO Site Classification	Good Sites	Better Sites	Best Sites
Low Water CAFO	15	0	0
High Water CAFO	15	0	0

**Table A5:
Douglas County AID Sites by Hierarchy Classification**

AID Site Classification	Good Sites	Better Sites	Best Sites
Low Water AID	42	0	0
High Water AID	0	0	0

APPENDIX 3: CONTACT INFORMATION

Planning & Development District III

Executive Director: Greg Henderson
GIS Coordinator, GISP: Harry Redman
Community Development Specialist: Brian McGinnis
Phone: (605) 665-4408

First District Association of Local Governments

Executive Director: Todd Kays
GIS Coordinator: Ryan Hartley
Phone: 605-882-5115

Douglas County

Director of Equalization & Zoning Administrator: Jessica Goehring
Phone: 605-724-2688

Highway Superintendent: Joel Meyers
Phone: (605)-724-2707

Rural Water Systems

Randall Community Water District
Scott Pick
Phone: 605-487-7823

B-Y Water District
Terry Wooten
Phone: 605-463-2531

Electric Providers

Douglas Electric
General Manager: Ken VanZee
Phone: 605-724-2323

Other Resources - Aquifer

First Occurrence of Aquifer Materials in Douglas County, South Dakota
Department of Environment and Natural Resources
Division of Financial and Technical Assistance
Geological Survey Aquifer Materials Map 3
Anne R. Jensen, 2001
http://www.sdgs.usd.edu/pubs/pdf/AM-28_20080515.pdf