Stanley County
Rural Development
Site Analysis

A Study by
Central South Dakota Enhancement District

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 analysis 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 in order to conduct analysis of the potential sites. Minimum thresholds for each standard 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 for the "Best" sites were subsequently identified as "Good" or "Better".

Specific information regarding the Site Assessment Criteria and methodology utilized for developing the "Good", "Better", and "Best" hierarchy may be found in **Appendix 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 (If applicable)*
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.

The analysis found that the primary limiting factor(s) in reviewing the development potential of properties within Stanley County for a "Better" or "Best" CAFO site development is the availability of quality and quantity potable water. The same is true with AID developments which also require a reliable source of not only high quality but also large quantities. Access to a centralized water source such as a rural water system was a piece of key criteria in the site analysis process. While access to rural water quality water was identified as an impediment, the rural water system 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 make the claim that the only sites for CAFO/AID development in Stanley County be 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, 3-Phase power lines, rail, and the county's existing zoning ordinances/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 Site Assessments (ESA), engineering plans, development cost analysis, etc.

Results

Identifying and evaluating potential sites for development is the first step in planning for economic development in rural Stanley 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 Stanley County.

Utilizing Geographic Information System (GIS) technology, the Central South Dakota Enhancement District identified **34** sites within Stanley County that met the minimum site assessment standards of the CAFO analysis, shown in **Table 2.** Only **4** sites met the minimum standards of the AID analysis, as shown in **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) for these development 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. For clarification, other livestock operations such as beef that are relative to Stanley County will be classified with 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 a HWU AID site is 410,000 gallons of water per day, which is supported on a limited basis by the rural water system. 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 **34** Low Water Use CAFO sites. Further, there were **4** High Water Use and **4** Low Water Use AID sites identified. The following maps provide information at a township level regarding the number of “Good”, “Better” and “Best” CAFO and AID sites.

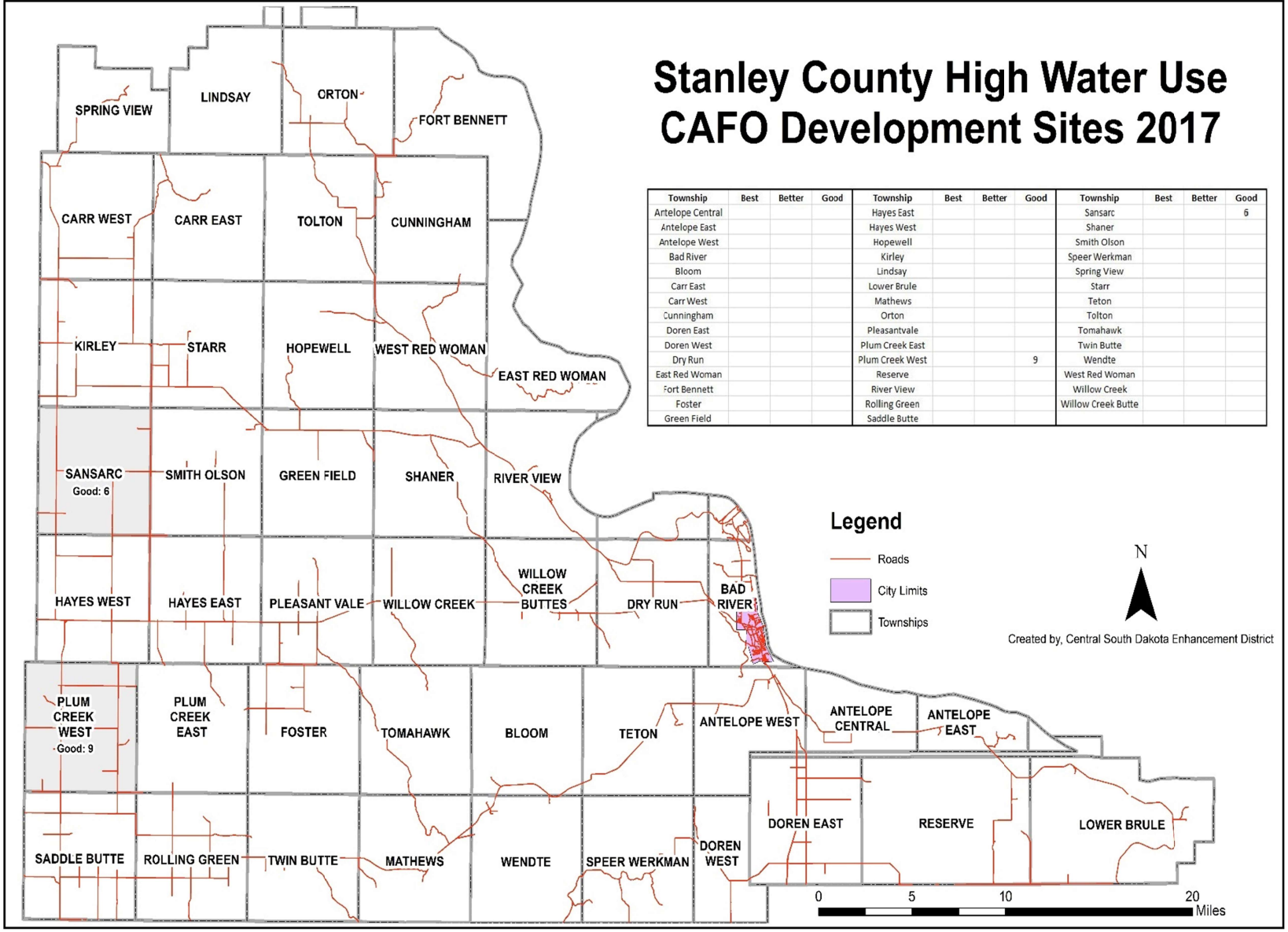
Table 2:
Stanley County CAFO Sites by Hierarchy Classification

CAFO Site Classification	Good Sites	Better Sites	Best Sites
Low Water CAFO	34	0	0
High Water CAFO	15	0	0

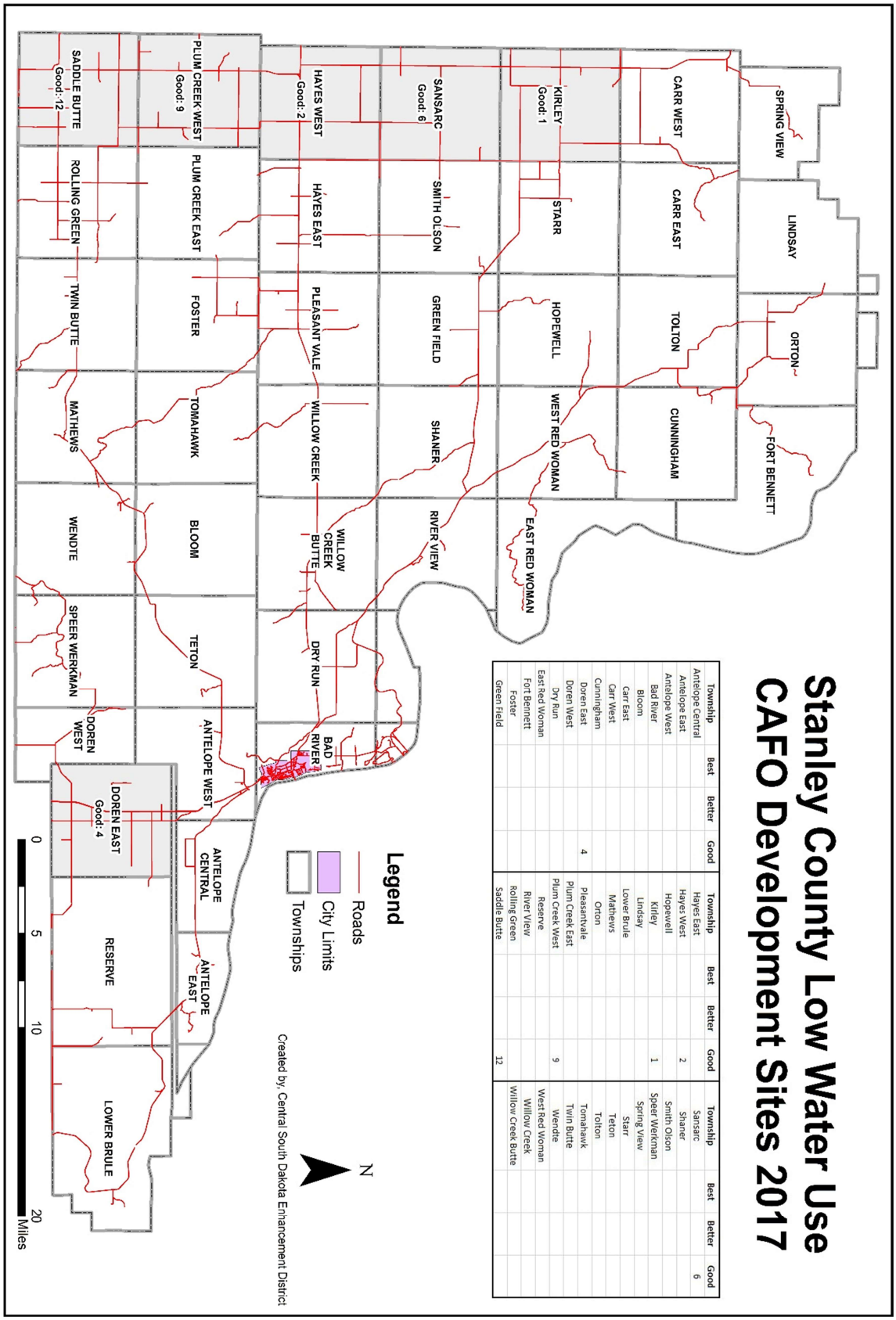
Table 3:
Stanley County AID Sites by Hierarchy Classification

AID Site Classification	Good Sites	Better Sites	Best Sites
Low Water AID	4	0	0
High Water AID	4	0	0

Stanley County High Water Use CAFO Development Sites 2017



Township	Best	Better	Good	Township	Best	Better	Good	Township	Best	Better	Good
Antelope Central				Hayes East				Sansarc			6
Antelope East				Hayes West				Shaner			
Antelope West				Hopewell				Smith Olson			
Bad River				Kirley				Speer Werkman			
Bloom				Lindsay				Spring View			
Carr East				Lower Brule				Starr			
Carr West				Mathews				Teton			
Cunningham				Orton				Tolton			
Doren East				Pleasantvale				Tomahawk			
Doren West				Plum Creek East				Twin Butte			
Dry Run				Plum Creek West			9	Wendte			
East Red Woman				Reserve				West Red Woman			
Fort Bennett				River View				Willow Creek			
Foster				Rolling Green				Willow Creek Butte			
Green Field				Saddle Butte							

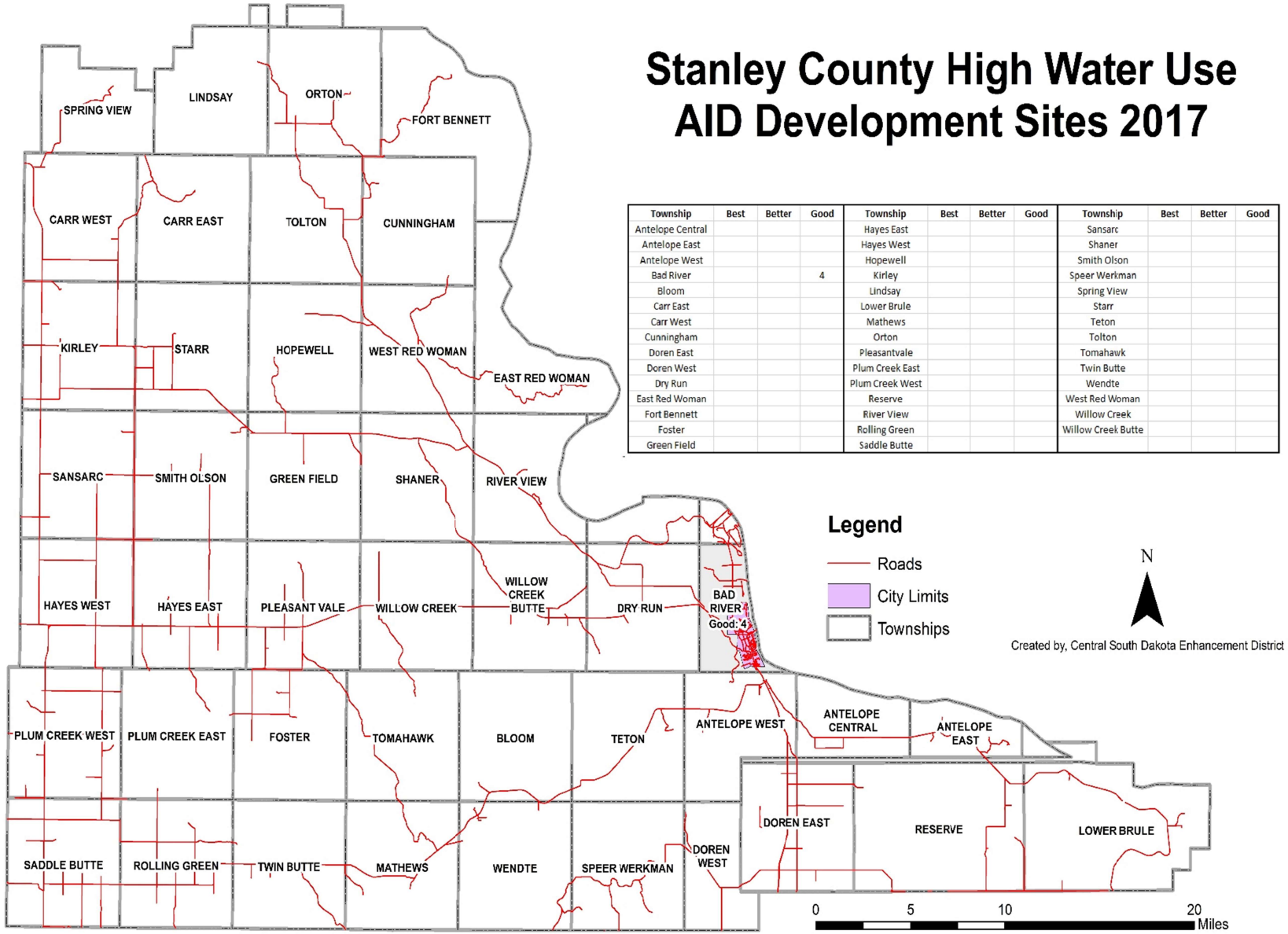


Township	Best	Better	Good
Antelope Central			
Antelope East			
Antelope West			
Bad River			
Bloom			
Carr East			
Carr West			
Cunningham			
Doren East			4
Doren West			
Dry Run			
East Red Woman			
Fort Bennett			
Foster			
Green Field			

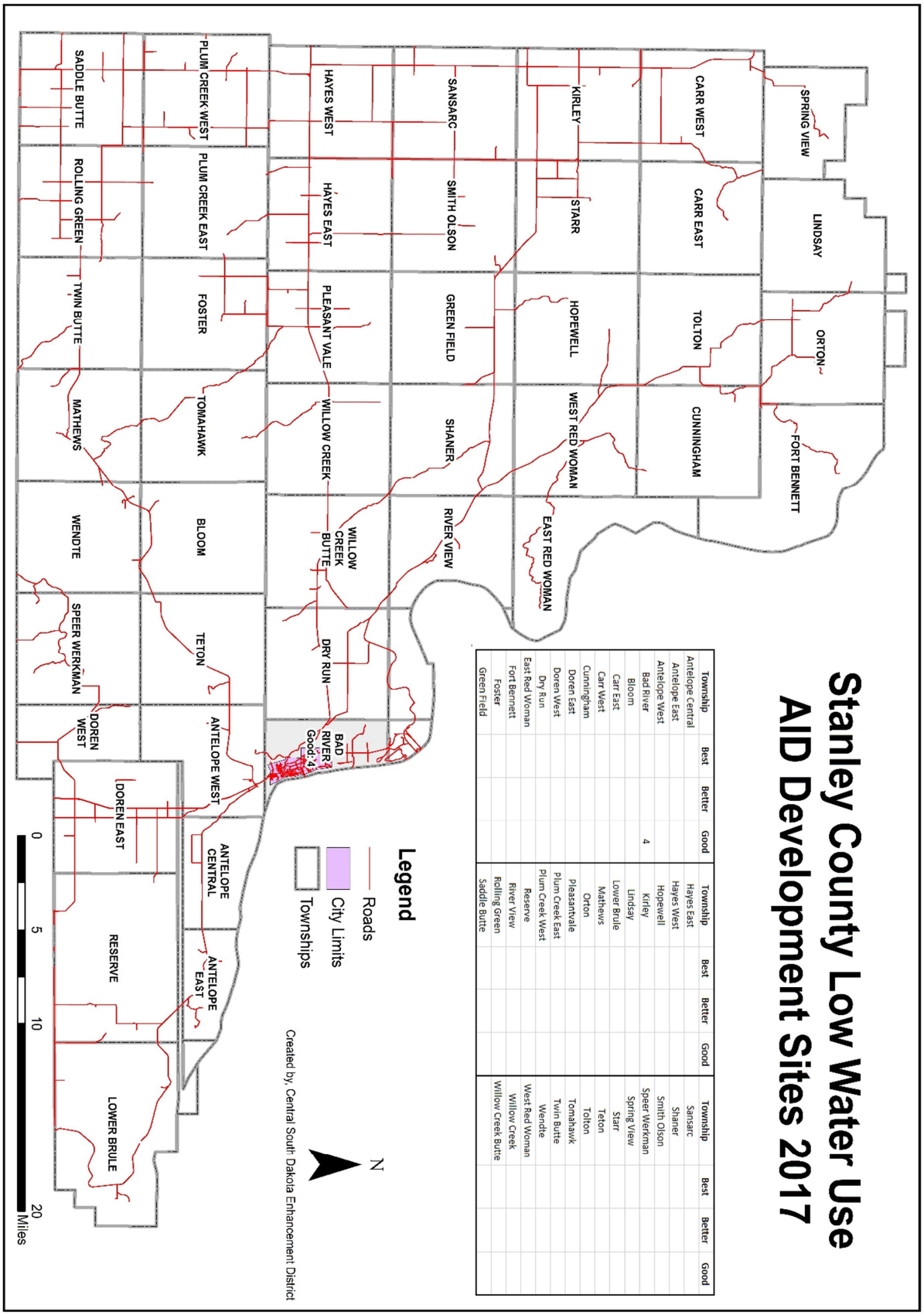
Township	Best	Better	Good
Hayes East			
Hayes West			2
Hopewell			
Kirley			1
Lindsay			
Lower Brule			
Mathews			
Orton			
Pleasantvale			
Plum Creek East			
Plum Creek West			9
Reserve			
River View			
Rolling Green			
Saddle Butte			12

Township	Best	Better	Good
Sansarc			6
Shaner			
Smith Olson			
Speer Werkman			
Spring View			
Starr			
Teton			
Tolton			
Tomahawk			
Twin Butte			
Wendie			
West Red Woman			
Willow Creek			
Willow Creek Butte			

Stanley County High Water Use AID Development Sites 2017

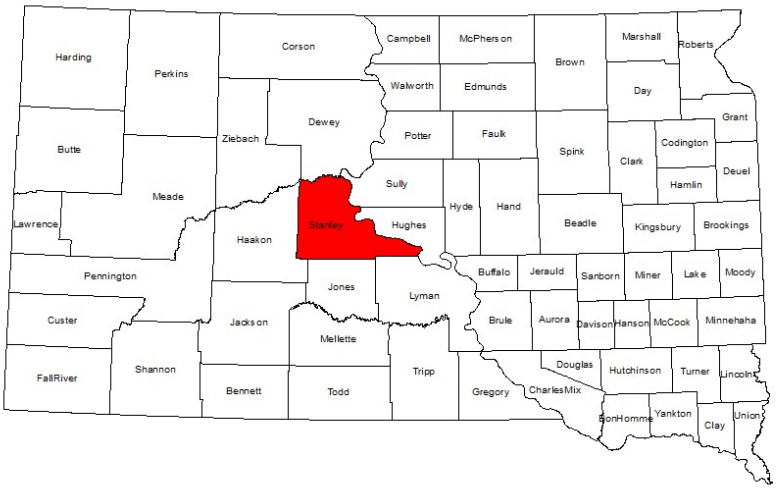


Township	Best	Better	Good	Township	Best	Better	Good	Township	Best	Better	Good
Antelope Central				Hayes East				Sansarc			
Antelope East				Hayes West				Shaner			
Antelope West				Hopewell				Smith Olson			
Bad River			4	Kirley				Speer Werkman			
Bloom				Lindsay				Spring View			
Carr East				Lower Brule				Starr			
Carr West				Mathews				Teton			
Cunningham				Orton				Tolton			
Doren East				Pleasantvale				Tomahawk			
Doren West				Plum Creek East				Twin Butte			
Dry Run				Plum Creek West				Wendte			
East Red Woman				Reserve				West Red Woman			
Fort Bennett				River View				Willow Creek			
Foster				Rolling Green				Willow Creek Butte			
Green Field				Saddle Butte							


Stanley County Low Water Use
AID Development Sites 2017
Township Best Better Good
Antelope Central
Antelope East
Antelope West
Bad River 4
Bloom
Carr East
Carr West
Cunningham
Doren East
Doren West
Dry Run
East Red Woman
Fort Bennett
Foster
Green Field
Township Best Better Good
Hayes East
Hayes West
Hopewell
Kirley
Lindsay
Lower Brule
Mathews
Orton
Pleasantvale
Plum Creek East
Plum Creek West
Reserve
River View
Rolling Green
Saddle Butte
Township Best Better Good
Sansarc
Shaner
Smith Olson
Speer Werkman
Spring View
Starr
Teton
Tolton
Tomahawk
Twin Butte
Wendte
West Red Woman
Willow Creek
Willow Creek Butte
Legend
Roads
City Limits
Townships
N
Created by, Central South Dakota Enhancement District
0 5 10 20 Miles
SPRING VIEW
LINDSAY
ORTON
FORT BENNETT
CARR WEST
CARR EAST
TOLTON
CUNNINGHAM
KIRLEY
STARR
HOPEWELL
WEST RED WOMAN
EAST RED WOMAN
SANSARC
SMITH OLSON
GREEN FIELD
SHANER
RIVER VIEW
HAYES WEST
HAYES EAST
PLEASANT VALE
WILLOW CREEK
WILLOW CREEK BUTTE
DRY RUN
BAD RIVER
Good 4
PLUM CREEK WEST
PLUM CREEK EAST
FOSTER
TOMAHAWK
BLOOM
TETON
ANTELOPE WEST
ANTELOPE CENTRAL
ANTELOPE EAST
SADDLE BUTTE
ROLLING GREEN
TWIN BUTTE
MATHEWS
WENDTE
SPEER WERKMAN
DOREN WEST
DOREN EAST
RESERVE
LOWER BRULE

APPENDIX I: SITE ASSESSMENT CRITERIA

Stanley County Location Map



The developed methodology for this site analysis was carefully assembled using an established set of criteria regarded as crucial to further the development of subsequent properties, while specifically addressing the suitability of either a CAFO or an AID site.

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 a crucial specific area. 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 condition for a 3,000-head dairy, versus the needs of a 5,000-head sow operation is approximately five times greater, but both could be subject to similar zoning regulations. In this situation, the lack of water at a volume necessary for a potential dairy site are more likely identified as a 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. These issues 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 Stanley County. In other cases, 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. Another limiting factor could be uneven terrain/topography for AID sites located throughout the county, but especially along the river breaks near the Fort Pierre area.

The site assessment criteria, depending upon whether or not the site is for a CAFO or AID project, have been divided into the four major categories of **Land Use Regulations, Zoning, Environmental Constraints** and **Infrastructure**.

LAND USE REGULATIONS

Economic development planning in Stanley County must be conducted in concert with Stanley 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 Stanley County's policies regarding CAFO and AID development.

Comprehensive Land Use Plan

Stanley County's most recent Comprehensive Plan was developed in 1999, and serves as a tool for future development. In Chapter 1, Introduction, of Stanley County's Comprehensive Plan, the first primary issue indicated is the preservation of the current agricultural practices as viable economic activities. This issue is of primary importance due to current social and economic conditions, revisions to environmental protection laws, and changing of agriculture production practices. Chapter II provides mostly background information, with the later pages focusing on land use within Stanley County. There are four areas of development that Stanley County categorized as being important land use patterns. One area of development related to agricultural development is "Stability". It states any future development, such as confinement operations, should be compatible with existing land uses and undergo mandatory public input and environmental assessment procedures. Chapter III within the 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 economic development are pertinent to this study. Each subsection identifies one overall goal from which objectives and policies are derived. The goals for environmental protection and economic development are as follows:

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

- It is the goal of Stanley 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. Stanley County is attempting to address the challenges by proactive actions such as this study. In reviewing the 1999 Comprehensive Plan, it is clear that Stanley County recognizes the importance of potential large scale animal agricultural development and agriculturally-related commercial and industrial development. Additional land use policies found in Stanley County's Comprehensive Plan are as followed:

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 contention 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 Stanley County are reserved for agricultural uses, certain agricultural uses may require a case by case review. Generally speaking, CAFO's are one of the aforementioned uses. It is important to emphasize that agricultural producers must maintain flexibility in their operations. Stanley County's leadership recognizes a diverse agricultural industry, relying on cash crops and animal agriculture, and promotes a sustainable, balanced agricultural economy. CAFO sites furthers 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. Zoning regulations pertaining to concentrated animal feeding operations can be referenced to in Stanley County's Zoning Ordinances.

General CAFO Policies in the Stanley County Zoning Ordinance:

- Stanley 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 Stanley County requires appropriate separation from property lines, rights-of-way, specific water features, and various different land uses.

- CAFOs shall submit animal waste management system plans and specifications for review and approval prior to construction and a Notice of Completion for a Certificate of Compliance, after construction, to the South Dakota Department of Environment and Natural Resources.

- Prior to construction, such facilities shall obtain a Storm Water Permit for Construction Activities from the South Dakota Department of Environment and Natural Resources. The Storm Water Pollution Prevention Plan required by the permit must be developed and implemented upon the start of construction

- Applicants must present a nutrient management plan to the Department of Environment and Natural Resources for approval and/or certification. Examples of such management shall include at least proposed maintenance of holding ponds, land application process and/or methods, and legal description and maps that include documented proof of the area to be utilized for nutrient application.

Concentrated Animal Feeding Operation Setbacks:

Stanley County utilizes standard setback requirements based upon 1,000 animal units. For the purpose of the analysis a 3,000-head dairy and a 5,000-head sow farrowing operation was used for identifying CAFO sites. The setback requirements for the 5,000-head sow farrowing operation are **identical** to the 3,000-head dairy operation. In Stanley County, a CAFO is required to observe a minimum setback of **one-mile** from lakes, rivers, and streams that are classified as drinking water supply or fisheries. The second setbacks includes federal and state road right-of-ways, which consist of U.S. Highway 83, U.S. Highway 14, State Highway 34, State Highway 63, and State Highway 1806, that cannot be closer than **one-mile**. Both the dairy and swine operations must remain a minimum of **300 feet** from county and township road right of ways. Another setback requirement CAFOs must comply to is a **half-mile** setback from water wells that are less than 500 feet deep. Animal waste facilities shall be located no closer than **three-miles** from any incorporated municipality or rural residential district. Animal waste facilities shall be located no closer

than **two-miles** from any church, school, commercially zoned area, or residential dwelling, one dwelling unit is allowed on the facility site. Lastly, the creation of an animal confinement facility in an area that is part of a 100-year floodplain is prohibited. All **34** CAFO sites in the analysis are currently zoned agricultural and each of the individual identified parcels, or at least 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. Stanley County's commercial and industrial properties are generally 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 locations.

Joint Jurisdiction

Stanley County shares zoning jurisdiction with the City of Fort Pierre 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 be able to support development upon all 40 acres. Parcels without 40 buildable acres were not considered in the final analysis.

Proximity to Communities

The AID analysis also considered sites within one mile of a community or at specific locations identified by Stanley 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 determined to be an adequate alternative for counties without rail facilities to identify potential AID sites.

ENVIRONMENTAL

If available, 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.

At present, there is limited information regarding the occurrence and/or location of shallow aquifers in Stanley County. Further, Stanley County has not enacted or currently enforce aquifer protection or surface water regulations more restrictive than the State of South Dakota. Therefore, all sites within Stanley County were considered eligible for development.

Prior to or contingent upon acquiring a parcel for development it is assumed other environmental factors potentially affecting the property would be addressed via a Phase I Environmental Site 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 in the context of property development 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. 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. CSDED requested the Stanley 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 network 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 road were designated "Better" or "Best" for transportation resources. Parcels adjacent to county gravel roads or within one mile of an intersection with a county/state road network were designated "Good" for CAFO sites. Parcels within one mile of an intersection with a county/state hard surface road network were designated "Good" for AID sites.

Access to rail was also considered to be an important factor in locating an AID site. Parcels adjacent to rail facilities were designated "Best". Parcels within one-half mile of rail were designated "Better" and those parcels within one mile of rail were designated "Good". In addition, the analysis also considered sites within one mile of a community or at locations identified by the County, with or without rail. Those parcels within one mile of a municipality or at locations identified by the County that met necessary requirements, except access to rail, were designated as "Good" and "Better".

Electric Supply

Access to 3-phase power was designated as a site characteristics criterion for both CAFO and AID development. The Central South Dakota Enhancement District contacted West Central Electric Cooperative to obtain the location and capacity of the 3-Phase infrastructure within Stanley County West Central Electric Cooperative is the primary provider of electricity in the rural area of Stanley County. All parcels whether for CAFO or AID development adjacent to a 3-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 has neither supply nor distribution capacity to serve either a Low or High Water Use CAFO or Low Water Use AID as defined above, the site area was designated as "Good" for water resources if it was located within **two miles** of a river, stream or lake designated by SD DENR Administrative Rule 74:51:02 and 74:51:03 which assigns the following uses to rivers streams and lakes – domestic water supply, stock watering waters, irrigation waters, commerce and industry waters, cold water and warm water permanent fish life propagation waters. The analysis does not make any conclusions regarding the quantity or quality of the water source identified in SDDENR Administrative Rule 74:51:02 and 74:51:03. Only that the potential for a water source may exist. The designation as "Good" for water resources was not applied to High Water Use AID sites due to the water volume requirements of High Water Use AID sites and the lack of available data regarding the capacity of shallow aquifers. Therefore, High Water Use AID sites without a water resource designation of "Better" or "Best" were deemed unusable for the purpose of the analysis.

The site analysis sought to address whether or not the Rural Water System serving the region had excess water treatment capacity (supply) and their ability to serve potential properties (distribution). In order to address the issue of supply, the Central South Dakota Enhancement District contacted and requested location and capacity information from the rural water provider within Stanley County. The primary rural water system for Stanley County is West River/ Lyman-Jones Rural Water System (RWS). West River/ Lyman-Jones RWS take water from the Missouri River through western South Dakota. West River/ Lyman-Jones RWS was requested to provide information regarding their available treated water capacity. The system was asked to notate on maps those geographic areas where distribution capacity existed which could provide water volumes at 30,000, 150,000, and 410,000 gallons per day, respectively.
West River/Lyman-Jones RWS sent detailed maps illustrating approximate locations of water delivery capacity without conducting a hydraulic analysis on land areas. However, West River/ Lyman-Jones RWS expressed limitations on the possible supply of water to these areas stating larger users need to request service in the future and improvements may be needed.

West River/Lyman-Jones RWS identified 143 miles of water lines that could service land areas potentially meeting the minimum High Water Use CAFO "Best" requirement of 150,000 gallons per day. Also, the rural water system identified 330 miles of water lines that could service land areas potentially meeting the minimum Low Water Use CAFO "Best" requirement of 30,000 gallons per day.

West River/Lyman-Jones stated that Mni Wiconi corelines, which are owned, operated, and maintained by the Oglala Sioux Rural Water Supply System have the delivery capacity to accommodate the High Water Use AID site "Best" requirement of 410,000 gallons per day. West River/ Lyman-Jones highlighted a 55 mile stretch of Mni Wiconi's coreline from west-central Stanley County, through the Fort Pierre area, and southward along Highway 83. The same 330 miles of water lines from West River/Lyman-Jones, mentioned in the Low Water Use CAFO requirement can provide a source of water for a Low Water AID site, which also requires the 30,000 gallons per day.

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.

<u>Concentrated Animal Feeding Operation (CAFO) Analysis</u>

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 setbacks from (county specific uses i.e. - existing residences, churches, businesses and commercially zoned areas);
4. Did not meet the setbacks from municipalities;
5. Did not meet the minimum standards for available water;
6. Did not contain a buildable footprint of at least 40 acres.

After applying the buildable footprint requirement 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 adjacent to County/State hard surface road		X	X
	Site is within one (1) mile of a County/State road	X		
Water	Site is adjacent to rural water system area that has both supply and distribution capacity to provide 150,000 gallons per day or 30,000 gallons per day			X
	Site is adjacent to or within rural water system area that has either supply or distribution capacity to serve either 150,000 gallons per day or 30,000 gallons per day		X	
	Site is within two (2) miles of a river, stream or lake designated by SD DENR Administrative Rule 74:51:02 and 74:51:03 which assigns the following uses to rivers streams and lakes – domestic water supply, stock watering waters, irrigation waters, commerce and industry waters, cold water and warm water permanent fish life propagation waters	X		
Electricity	Site is adjacent to three-phase power			X
	Site is within one (1) mile of three-phase power		X	
	Site is within two (2) miles of three-phase power	X		
Zoning	Site meets county zoning setback requirements	X	X	X
Buildable Parcel	Site contains buildable area of at least forty (40) acres	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. Did not meet the minimum standards for available water;
6. 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 a site to be classified as "Good", "Better" or "Best" **for AID development**.

Table A3: AID Hierarchy Classification Requirements

Location Criteria	Description	Good	Better	Best
Roads	Site is adjacent to County/State hard surface road		X	X
	Site is within one (1) mile of a County/State hard surface road	X		
Rail	Site is adjacent to rail facility			X
	Site is within one half ½ mile of rail facility		X	
	Site is within one (1) mile of rail facility	X		
Water	Site is adjacent to rural water system area that has both supply and distribution capacity to provide 410,000 gallons per day or 30,000 gallons per day			X
	Site is adjacent to or within rural water system area that has either supply or distribution capacity to serve either 410,000 gallons per day or 30,000 gallons per day		X	
	Site is within two (2) miles of a river, stream or lake designated by SD DENR Administrative Rule 74:51:02 and 74:51:03 which assigns the following uses to rivers streams and lakes – domestic water supply, stock watering waters, irrigation waters, commerce and industry waters, cold water and warm water permanent fish life propagation waters *	X		
Electricity	Site is adjacent to three-phase power			X
	Site is within one (1) mile of three-phase power		X	
	Site is within two (2) miles 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 to Community	Site is within one (1) mile of community	X	X	
Buildable Parcel	Site contains buildable area of at least forty (40) acres	X	X	X

* Rivers, streams, and lakes designated by SD DENR Administrative Rule 74:51:02 and 74:51:03 are not used for High Water Use AID site analysis as they require specific Rural Water System Supply and Distribution Capacities

Step 3: Site Development Recommendations

Based on the analysis, **34** sites were classified as Good, Better, or Best for CAFO development **(Table A4)** and **4** 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 Stanley County may be satisfactory for CAFO and AID development. Sites not within the specified distance of a hard-surfaced County or State road or that do not have desired infrastructure (rail, water, power) within close proximity do not necessarily negate their development potential.

Table A4:
Stanley County CAFO Sites by Hierarchy Classification

CAFO Site Classification	Good Sites	Better Sites	Best Sites
Low Water CAFO	34	0	0
High Water CAFO	15	0	0

Table A5:
Stanley County AID Sites by Hierarchy Classification

AID Site Classification	Good Sites	Better Sites	Best Sites
Low Water AID	4	0	0
High Water AID	4	0	0

APPENDIX 3: CONTACT INFORMATION

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Electric Provider

West Central Electric Cooperative
CEO: Steve Reed
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