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**NRD Profile**

# **Twin Platte Natural Resources District**

**Twin Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan Update**

**2021**

## Local Planning Team

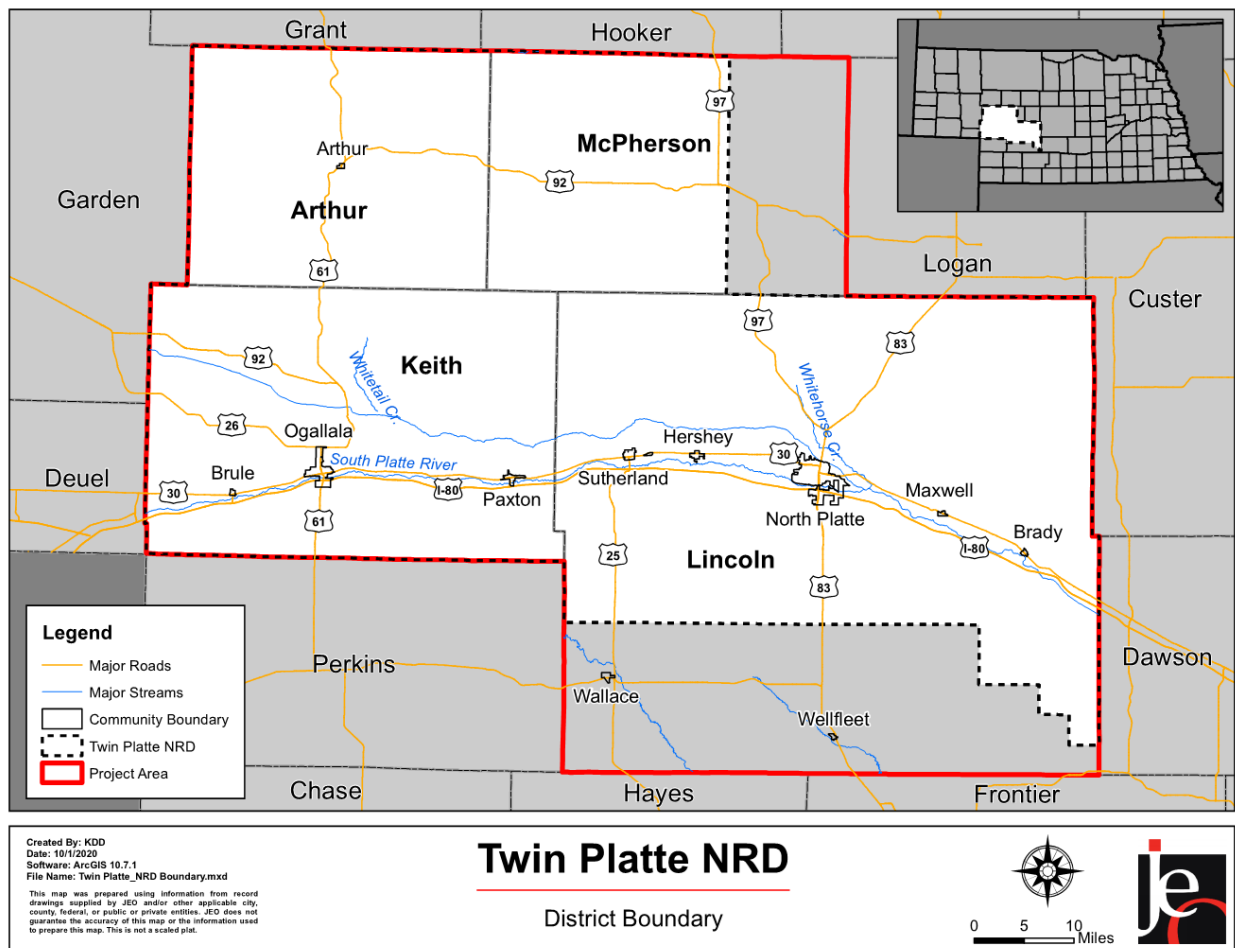
**Table TPNRD.1: Twin Platte Natural Resources District Local Planning Team**

Name	Title	Jurisdiction
Glen Bowers	Water Programs Field Coordinator	Twin Platte NRD

## Location and Geography

In west-central Nebraska, the Twin Platte Natural Resources District (TPNRD) is comprised of Arthur, Keith, Lincoln, and McPherson Counties. Major waterways in the area include the North Platte River, South Platte River, and Lake McConaughy. Topographic regions within the Twin Platte NRD include the sandhills, valleys, bluffs and escarpments, and plains.<sup>1</sup> Altogether, the NRD covers an area of around 5,200 square miles.

**Figure TPNRD.1: Twin Platte Natural Resources District**



<sup>1</sup> Center for Applied Rural Innovation. "Topographic Regions Map of Nebraska." 2001. <http://digitalcommons.unl.edu/caripubs/62>.

## Transportation

The Twin Platte NRD’s major transportation corridors include Interstate 80, US Highways 26, 30, and 83, and State Highways 23, 25, 61, 92, and 97. The most traveled route is Interstate 80 with an average of 18,010 vehicles daily, 7,020 of which are trucks.<sup>2</sup> The major railroads which travel through the NRD include two Union Pacific Railroad lines. Interstate 80 is the transportation route of most concern due to the high amount of traffic and various chemicals carried on it. Transportation information is important to hazard mitigation plans because it suggests possible evacuation corridors in the community, as well as areas more at risk of transportation incidents.

## Demographics

It is estimated that the Twin Platte NRD serves a population of about 44,000 people over four counties.<sup>3</sup> However, the NRD does not collect the demographic information of their population, nor does the U.S. Census Bureau recognize the NRD as a distinct unit. As a result, no population data are generated specifically for the NRD. For information regarding population data, please refer to a specific jurisdiction’s community profile or to *Section Three: Demographics and Asset Inventory*.

## Future Development Trends

The NRD is not planning any future development at this time. Examples of possible development within an NRD include additional flood control structures and recreation areas.

## Parcel Improvements and Valuation

Please refer to the individual Community Profiles for information regarding parcel improvements, valuation, and discussion for specific jurisdictions across the planning area.

## Community Lifelines

### Critical Facilities

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction’s functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and figure provide a summary of the critical facilities for the NRD.

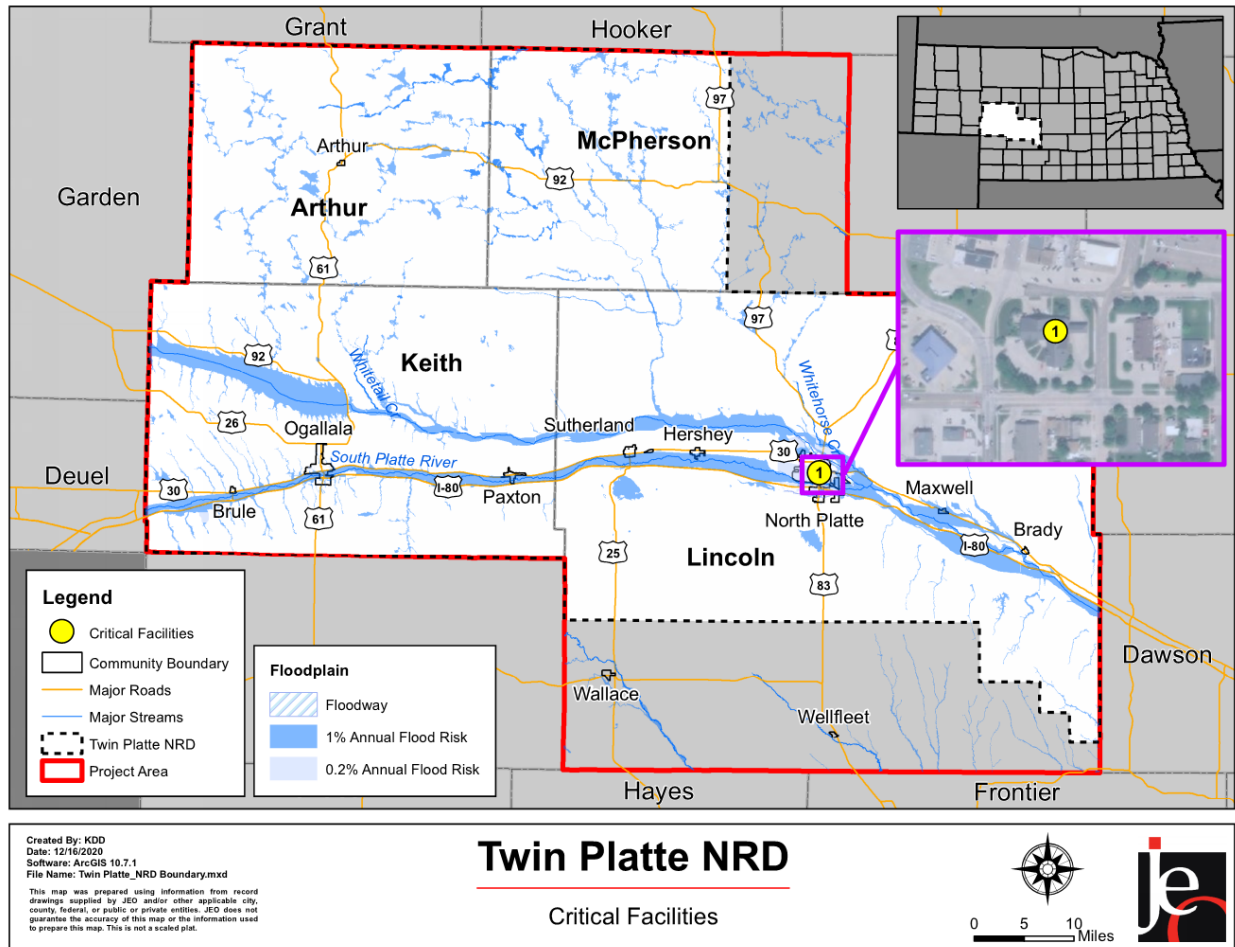
**Table TPNRD.2: Critical Facilities**

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Floodplain (Y/N)
1	NRD Facility	N	N	Y (0.2%)

2 Nebraska Department of Roads. 2018. “Interactive Statewide Traffic Counts Map.” [map]. <https://gis.ne.gov/portal/apps/webappviewer/index.html?id=bb00781d6653474d945d51f49e1e7c34>.

3 United States Census Bureau. 2018. “DP05: Demographic and Housing Estimates [database file]. <https://data.census.gov/cedsci/>.

Figure TPNRD.2: Critical Facilities



Note: Floodplain in Arthur and McPherson Counties is based off a HAZUS created floodplain.

## Governance

The NRD is governed by a group of 11 elected Board of Directors. The mission of the NRD is “to be a leader in conserving, protecting, developing, and maintaining the natural resources of the district for the health and welfare of the people of the district.” The NRD serves both incorporated and unincorporated areas within their district and has the capability to financially and administratively assist villages, cities, and counties with mitigation actions (most commonly flood control and drainage improvements). The following positions may help implement mitigation projects:

- General Manager
- Integrated Management Plan (IMP) Manager
- Water Programs Field Coordinator
- Grasslands Stewardship Coordinator
- GIS Manager
- Office & Financial Coordinator
- Conservation Programs Coordinator
- Field Office Secretary
- Range Technician

## Capability Assessment

The NRD has the authority to levy taxes for specific purposes and to issue general obligation bonds to finance certain projects. The NRD also regularly engages in public education and informational programs related to hazard mitigation. It also supports communities in many areas related to hazard mitigation including flood control structures, tree care programs, wellhead protection, water monitoring, and well permitting.

The capability assessment consisted of a review of existing policies, regulations, plans, and programs with hazard mitigation capabilities. The following table summarizes the NRD's planning and regulatory capability; administrative and technical capability; fiscal capability; educational and outreach capability; and overall capability to implement mitigation projects.

**Table TPNRD.3: Overall Capability**

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Moderate
Staff/expertise to implement projects	High
Public support to implement projects	Moderate
Time to devote to hazard mitigation	Moderate

## Plan Integration

The Twin Platte NRD is working on several planning efforts related to hazard mitigation including the Integrated Management Plan and the Conjunctive Water Management Feasibility Study. These plans look to mitigate the effects of drought and flooding. Although the NRD has other plans and policies in place, they are not currently integrated with the hazard mitigation plan. When the NRD does update their current plans and policies, they will integrate the goals and objectives of the hazard mitigation plan within them as appropriate. Currently, no plan or schedule exists related to the update of other (non-HMP) local planning mechanisms, thus there is no formal strategy for plan integration at this time. Further, the priorities and mitigation strategies included in this plan will be revisited annually, as established in the plan review section of this document, for consideration during the development of the annual budget.

## Historical Occurrences

The following table provides a statistical summary for hazards that have occurred in the planning area. The property damages from the NCEI Storm Events Database (January 1996 – December 2019) should be considered only as broad estimates. For the complete discussion on historical occurrences, please refer to *Section 4: Risk Assessment*. Note that the table covers all of Arthur, Keith, Lincoln, and McPherson Counties.

**Table TPNRD.3: NRD Hazard Loss History**

Hazard Type	Count	Property Damage	Crop Damage <sup>2</sup>
Agricultural Disease	Animal Disease <sup>1</sup>	25	2,505 animals
	Plant Disease <sup>2</sup>	34	N/A
Chemical Spills – Fixed Site <sup>3</sup>	91	N/A	\$449,001
Chemical Spills – Transportation <sup>4</sup>	368	\$511,911	N/A
Dam Failure <sup>5</sup>	0	N/A	N/A
Drought <sup>6,8</sup>	434 months in drought out of 1,498	\$511,911	\$51,367,442
Earthquakes <sup>11</sup>	0	N/A	N/A

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Hazard Type		Count	Property Damage	Crop Damage <sup>2</sup>
<b>Extreme Heat<sup>7</sup></b>		Avg. 5 days a year	N/A	\$10,616,932
<b>Flooding<sup>8</sup></b>	<b>Flash Flood</b>	52	\$3,035,000	\$660,451
	<b>Flood</b>	20	\$996,000	
<b>Grass/Wildfires<sup>12</sup></b> <i>12 injuries</i>		1,519	161,864 acres	\$4,695,731
<b>Hail<sup>8</sup></b> <i>2 injuries</i>		1,466	\$57,114,800	\$79,276,189
<b>High Winds<sup>8</sup></b> <i>8 injuries</i>		122	\$677,500	\$7,102,325
<b>Levee Failure<sup>10</sup></b>		0	N/A	N/A
<b>Public Health Emergency</b>		Undefined	N/A	N/A
<b>Severe Thunderstorms<sup>8</sup></b> <i>7 injuries</i>	Thunderstorm Wind	589	\$5,016,700	\$6,311,953
	Heavy Rain	7	\$0	
	Lightning	19	\$106,000	
<b>Severe Winter Storms<sup>8</sup></b> <i>2 injuries 3 fatalities</i>	Blizzard	28	\$55,000	\$5,686,647
	Extreme Cold/Wind chill	20	\$0	
	Heavy Snow	21	\$10,000	
	Ice Storm	0	\$0	
	Winter Storm	137	\$94,000	
	Winter Weather	1	\$1,000,000	
<b>Terrorism<sup>9</sup></b>		0	\$0	N/A
<b>Tornadoes<sup>8</sup></b> <i>15 injuries</i>		87	\$4,430,750	\$2,548
<b>Total</b>		<b>4,606</b>	<b>\$95,047,661</b>	<b>\$166,169,219</b>

*N/A: Data not available*  
 1 - NDA, 2014 – November 2020  
 2 - USDA RMA, 2000 – 2019  
 3 - NRC, 1990 – February 2020  
 4 - PHSMA, 1971 – July 2020  
 5 – NeDNR Correspondence  
 6 - NOAA, 1895 – October 2019

7 - NOAA, 1893 – July 2020  
 8 - NCEI, 1996 - December 2019  
 9 - University of Maryland, 1970-2018  
 10 – USACE NLN, 1900 – July 2020  
 11 – USGS, 1900 – July 2020  
 12 – NFS 2000 – 2017

The following table provides a summary of hazards that have affected or have the potential to affect the Twin Platte Natural Resources District. The district was evaluated for previous hazard occurrence and the probability of future hazard events on each of the 17 hazards profiled in this plan. The evaluation process was based on data collected as shown in Table TPNRD.3; previous impacts or the potential for impacts to infrastructure, critical facilities, people, and the economy; and the proximity to certain hazards such as dams and levees. For example, while there have not been instances of dam failure in the district, there exists a possibility for a dam to fail in the future due to the presence of dams in the district.

**Table TPNRD.4: Twin Platte NRD and Irrigation District Hazard Matrix**

Hazard	Twin Platte NRD	Birdwood Irrigation District	Cody-Dillon Ditch	Keith-Lincoln Irrigation District	Paxton Hershey Irrigation District	Platte Valley Irrigation District	Suburban Ditch Company	Western Irrigation District
Ag. Disease	X	X	X	X	X	X	X	X
Chemical Spills (Fixed Site)	X	X	X	X	X	X	X	X
Chemical Spills (Transportation)	X	X	X	X	X	X	X	X
Dam Failure	X	X	X	X	X	X	X	X
Drought	X	X	X	X	X	X	X	X
Earthquakes	X	X	X	X	X	X	X	X
Extreme Heat	X	X	X	X	X	X	X	X
Flooding	X	X	X	X	X	X	X	X
Grass/Wildfires	X	X	X	X	X	X	X	X
Hail	X	X	X	X	X	X	X	X
High Winds	X	X	X	X	X	X	X	X
Levee Failure								
Public Health Emergency	X	X	X	X	X	X	X	X
Severe Thunderstorms	X	X	X	X	X	X	X	X
Severe Winter Storms	X	X	X	X	X	X	X	X
Terrorism	X	X	X	X	X	X	X	X
Tornadoes	X	X	X	X	X	X	X	X

## Hazard Prioritization

The hazards discussed in detail below were either identified in the previous HMP and determined to still be of top concern or were selected by the local planning team from the regional list as relevant hazards for the district. The planning team prioritized the selected hazards based on historical hazard occurrences, potential impacts, and the district's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

### Dam Failure

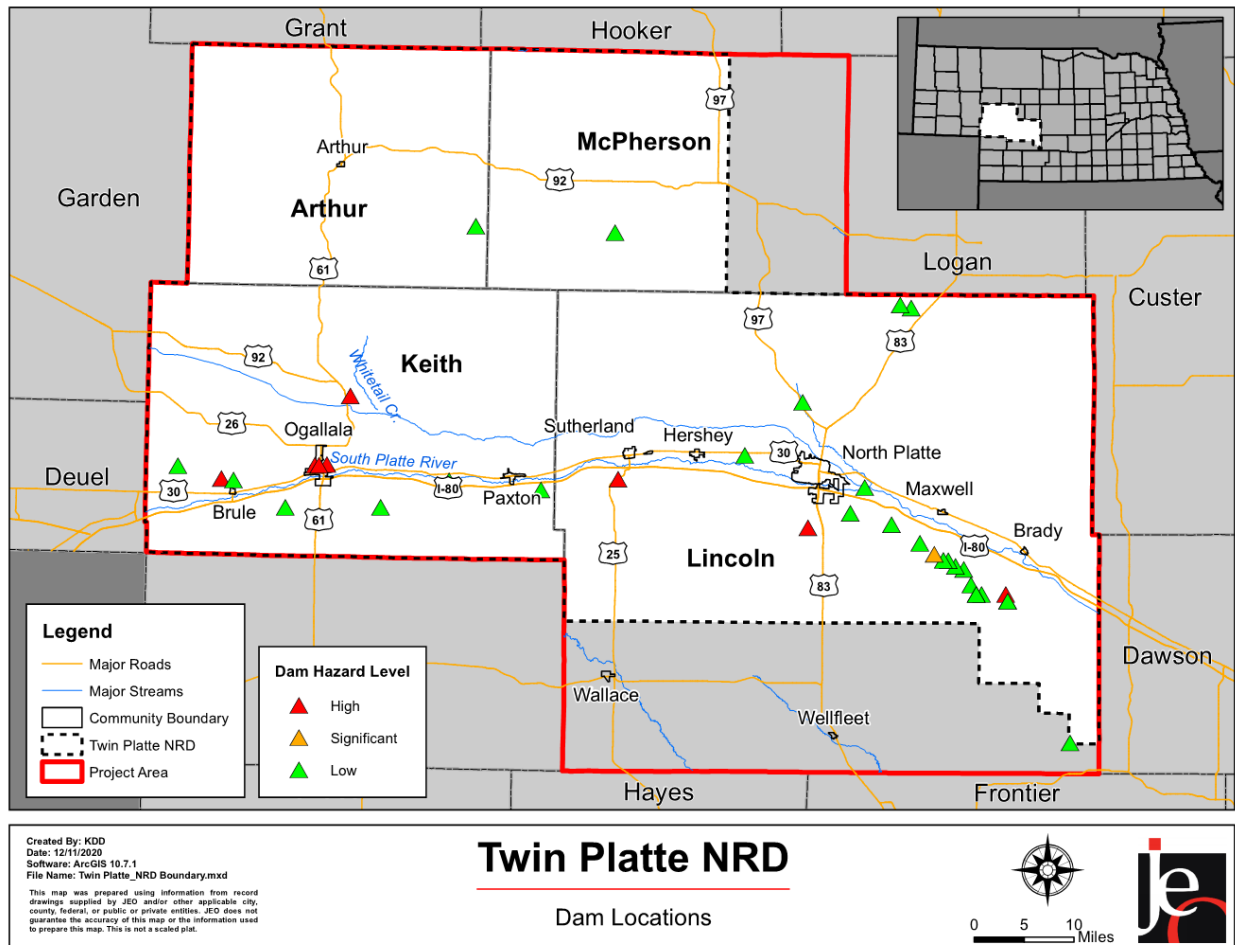
Although dam failure was not identified as a top concern, there are 36 dams in the Twin Platte NRD. The following table provides a list of high hazard dams located in the district. If any of these dams were to fail, they would likely cause flooding in downstream communities. Figure TPNRD.3 shows the location of all the dams in the NRD.



Table TPNRD.5: High Hazard Dams

NIDID	Dam Name	Location
NE01036	Jeffrey Dam Canal	South of Brady
NE01052	Maloney Dam	South of North Platte
NE02062	Sutherland Dam	South of Sutherland
NE01048	Kingsley Dam	East side of Lake McConaughy
NE02331	Ogallala No.6	Northwest Ogallala
NE02334	Ogallala No.7	North Ogallala
NE00210	Cure Creek 1-A	Northeast Ogallala
NE00211	Brule Creek 1-A	Northwest of Brule

Figure TPNRD.3: Dam Locations



**Drought**

The Twin Platte NRD planning area has experienced 434 months of drought in the last 126 years. This leads to an average annual drought probability of 29%. Drought has caused \$73,367,442 in property and crop damages. The TPNRD has 19 water-related programs, all related to drought resilience. The NRD is currently creating a new landowner water use program using GIS.

**Flooding**

The Twin Platte NRD has experienced 72 flooding events since 1996. These events led to \$4,691,451 in estimated property and crop damages. The largest flood risk comes from the North

Platte and South Platte Rivers. The Twin Platte NRD has a flood control program to impound runoff, conserve water, prevent erosion, prevent pollution, and enhance ground water recharge. The Twin Platte NRD has a travelling water trailer that is used to educate the public about groundwater and surface water.

### Grass/Wildfires

The Twin Platte NRD experienced 1,519 grass/wildfires in the last 19 years that burned a total of 161,864 acres and caused \$4,695,731 in crop damages. Most of these fires burned fewer than 100 acres. One of the NRD’s programs is prescribed burning. This program helps reduce fire hazards as well control undesirable vegetation, control plant disease, and improve forage quality. The NRD also conducts fuel reduction through tree programs.

### High Winds

According to NCEI data, 122 high wind events have occurred in the planning area since 1996. These events have caused \$136,390,989 in estimated property and crop damages. Twin Platte NRD has a windbreak/shelterbelt establishment program that aims to protect soil resources, control snow deposition, prevent wind damage to farmsteads, provide shelter for livestock, beautify an area, and improve an area for wildlife.

### Severe Thunderstorms

The Twin Platte NRD has experienced 615 thunderstorm events in the last 24 years, according to the NCEI. These thunderstorms have caused \$11,434,653 in property and crop damages across the planning area. The NRD has a windbreak/shelterbelt establishment program.

### Tornadoes

According to the NCEI, 114 tornadic events have occurred across the TPNRD. These events caused \$5,618,430 in property damage. Tornadoes have the potential to cause significant property damages and loss of life. The NRD runs tree maintenance programs and conducts public education on tornado safety.

## Mitigation Strategy

The TPNRD has the administrative staff and technical and fiscal capabilities to implement some mitigation projects without assistance. The TPNRD typically works with local jurisdictions to implement projects. Larger projects may require TPNRD to partner with other regional and state agencies.

### Continued Mitigation Actions

Mitigation Action	Drainage Study/Stormwater Master Plan
<b>Description</b>	Preliminary drainage studies and assessments can be conducted to identify and prioritize design improvements to address site specific localized flooding/drainage issues to reduce and/or alleviate flooding. Stormwater master plans can be developed to help identify stormwater problem areas and potential drainage improvements.
<b>Hazard(s) Addressed</b>	Flooding
<b>Estimated Cost</b>	\$10,000-\$100,000+
<b>Funding</b>	NRD General Fund
<b>Timeline</b>	5+ Years
<b>Priority</b>	Medium
<b>Lead Agency</b>	Water Program Field Coordinator
<b>Status</b>	In Progress: The NRD consistently evaluates stormwater infrastructure throughout the district and provides recommendations

Mitigation Action	Groundwater Recharge
Description	Divert excess flows from North Platte River to recharge groundwater within the aquifer.
Hazard(s) Addressed	Drought
Estimated Cost	Unknown
Funding	NRD General Fund, Irrigation Districts
Timeline	5+ Years
Priority	Medium
Lead Agency	IMP Manager, Irrigation Districts
Status	In Progress: The NRD works with local irrigation districts divert excess flows from the North Platte River

Mitigation Action	Public Awareness/Education
Description	Educate residents about vulnerability to hazards and mitigation measures. Create educational materials and train staff about hazards and mitigation measures.
Hazard(s) Addressed	All Hazards
Estimated Cost	\$2,000+
Funding	NRD General Fund
Timeline	5+ Years
Priority	High
Lead Agency	General Manager, Water Programs Field Coordinator, IMP Manager
Status	In Progress: The NRD uses a number of education materials and outreach methods to educate residents in the district

Mitigation Action	Reduce Fire Damage
Description	Identify vulnerable areas and combustion sources. Evaluate fire-resistant roofing. Develop plan to reduce wildfire impact and reduce combustion materials. Reduce combustible material by removal or other methods. Enact building codes/ordinances for fire-resistant roofing.
Hazard(s) Addressed	Grass/Wildfire
Estimated Cost	\$500-\$5,000
Funding	NRD General Fund
Timeline	5+ Years
Priority	Medium
Lead Agency	Grasslands Stewardship
Status	In Progress: The NRD uses a number of programs such as controlled burns in order to reduce the risk of wildfire

Mitigation Action	Reduce Flow Restrictions
Description	Evaluate restrictions and measures to prevent or reduce damage from flooding. Implement appropriate methods (such as ice monitoring, ice jam dusting, excavation, or other flow improvements).
Hazard(s) Addressed	Flooding
Estimated Cost	\$10,000-\$100,000+
Funding	NRD General Fund
Timeline	5+ Years
Priority	High
Lead Agency	Water Programs Field Coordinator
Status	In Progress: This action is done on an annual basis

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Mitigation Action	Reduce Tree Damage
Description	Conduct tree inventory. Develop tree maintenance/trimming program. Implement tree maintenance/trimming program.
Hazard(s) Addressed	Tornadoes, High Winds, Severe Thunderstorms, Severe Winter Storms
Estimated Cost	\$2,000
Funding	NRD General Fund
Timeline	5+ Years
Priority	Medium
Lead Agency	Conservation Programs Field Coordinator
Status	In Progress: The NRD has a number of tree related programs that aim to reduce damages due to falling trees/branches

Mitigation Action	Stream Bank/Grade Structure Improvements
Description	Evaluate current streambed and bank stabilization needs. Implement streambed and bank stabilization improvements including grade control structures, rock rip rap, vegetative cover, etc.
Hazard(s) Addressed	Flooding
Estimated Cost	\$25,000+
Funding	NRD General Fund
Timeline	5+ Years
Priority	High
Lead Agency	Water Programs Field Coordinator, IMP Manager
Status	In Progress: The NRD regularly implements streambed/bank/grade stabilization projects

Mitigation Action	Windbreak Improvements
Description	Conduct evaluation of current windbreaks. Implement improvements/repairs to windbreaks.
Hazard(s) Addressed	High Winds, Severe Thunderstorms, Severe Winter Storms
Estimated Cost	\$1,000-\$3,000
Funding	NRD General Fund
Timeline	5+ Years
Priority	Medium
Lead Agency	Conservation Programs Field Coordinator
Status	In Progress: The NRD consistently evaluates and repairs windbreaks

## **District Profile**

# **Birdwood Irrigation District**

## **Twin Platte NRD Multi-Jurisdictional Hazard Mitigation Plan Update**

**2021**

## Local Planning Team

**Table BID.1: Birdwood Irrigation District Local Planning Team**

Name	Title	Jurisdiction
Richard Bodenhamer	Board Member	Birdwood Irrigation District
Glen Bowers	Water Programs Field Coordinator	Twin Platte NRD

## Location and Geography

The Birdwood Irrigation District is located in Lincoln County above the North Platte River, between the Village of Sutherland and the City of North Platte. The district provides a surface water irrigation system to customers within its service area.

## Future Development Trends

Over the past five years, no major updates other than regular maintenance occurred. There are currently no planned changes to the system in the next five years.

## Community Lifelines

### Critical Facilities

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction’s functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table BID.2: Critical Facilities**

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Floodplain (Y/N)
1	Diversion Dam	N	N	Y
2*	Birdwood Canal	N	N	Y

\*The Birdwood Canal starts at the diversion dam.

## Governance

The Birdwood Irrigation District consists of a three-member district board with one of the board members serving as the ditch rider.

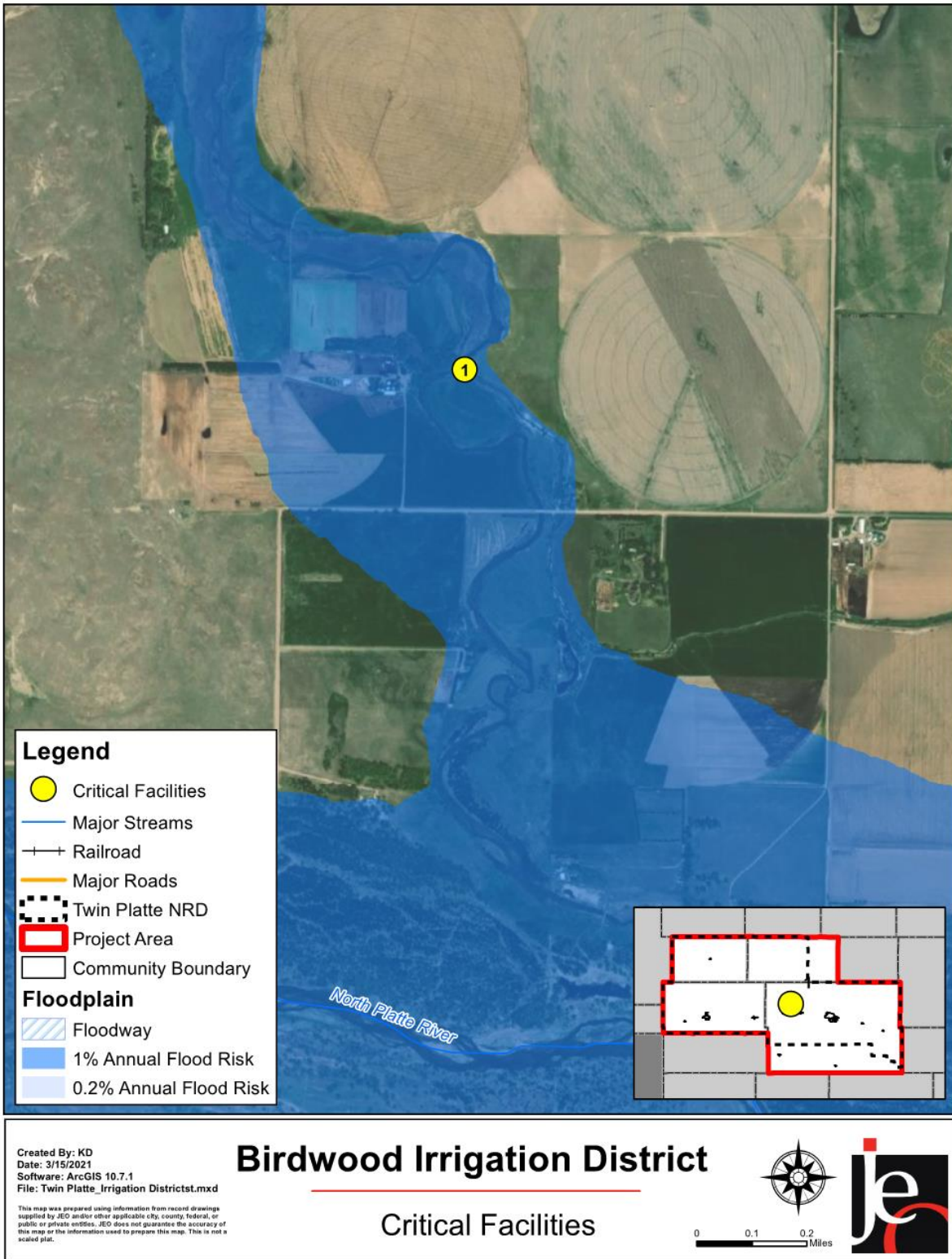
## Capability Assessment

District funds are limited to maintaining current facilities and systems and covering the cost of normal operations. For funds, the district board sets the tax as a portion of the property tax. Due to the unique structure of irrigation districts, the typical capability assessment table is not used. The table below shows the district’s overall capability.

**Table BID.3: Overall Capability**

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Limited
Staff/expertise to implement projects	Limited
Public support to implement projects	Limited
Time to devote to hazard mitigation	Limited

Figure BID.1: Critical Facilities



**Plan Integration**

The irrigation district does not have any formal response plans for an emergency situation, nor do they have plans that discuss hazards. However, the district can open or close a diversion dam during an emergency. In any future planning mechanisms, the Birdwood Irrigation District will work to integrate the goals and objectives of the hazard mitigation plan within them as appropriate. Currently, no schedule exists for creating other (non-HMP) planning mechanisms.

**Historical Occurrences**

See the Lincoln County profile for historical hazard events, including the number of events, damage estimates, and any fatalities or injuries.

**Hazard Prioritization**

The hazards discussed in detail below were either identified in the previous HMP and determined to still be of top concern or were selected by the local planning team from the regional list as relevant hazards for the district. The planning team prioritized the selected hazards based on historical hazard occurrences, potential impacts, and the district’s capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

**Dam Failure**

The Birdwood Irrigation District operates a diversion dam that diverts water from the North Platte River to the canal. The failure of this dam would lead to damages to the canal and to the irrigation district’s consumers. The failure of upstream dams, such as Kingsley Dam in Keith County, could also damage Birdwood Irrigation District infrastructure.

**Drought**

Drought would decrease water in the canal due to lower water levels from Birdwood Creek and the North Platte River as well as increased irrigation on fields. A shortage of water in the canal could also lead to crop loss and increased fire risk within the district.

**Flooding**

Flooding could occur from significant rainfall, dam failure, or flow restrictions within Birdwood Creek or the canal. A flood event has the possibility of causing crop damage and structural damage to the canal system or diversion dam. The irrigation district conducts regular maintenance for the canal system and makes structural improvements to help reduce flooding risk.

**Mitigation Strategy**

**New Mitigation Actions**

Mitigation Action	Canal Maintenance and Improvements
Description	Implement necessary actions to maintain the canal.
Hazard(s) Addressed	Flooding, Chemical Spills, Dam Failure, Severe Thunderstorms, Drought
Estimated Cost	Staff Time
Funding	Irrigation District General Fund
Timeline	5+ Years
Priority	High
Lead Agency	Irrigation District Board, Ditch Rider
Status	In Progress: Canal Maintenance is done regularly when issues are identified



Mitigation Action	Reduce Flow Restrictions
<b>Description</b>	Evaluate restrictions and measures to prevent or reduce damage from flooding. Implement appropriate nonstructural or structural methods on an emergency or permanent basis (such as monitoring, ice jam dusting, or other flow improvements).
<b>Hazard(s) Addressed</b>	Flooding
<b>Estimated Cost</b>	Staff Time
<b>Funding</b>	Irrigation District General Fund
<b>Timeline</b>	5+ Years
<b>Priority</b>	Medium
<b>Lead Agency</b>	Irrigation District Board, Ditch Rider
<b>Status</b>	Not Started

## **District Profile**

# **Cody-Dillon Ditch**

## **Twin Platte NRD Multi-Jurisdictional Hazard Mitigation Plan Update**

**2021**

## Local Planning Team

**Table CDD.1: Cody-Dillon Ditch Local Planning Team**

Name	Title	Jurisdiction
Gary Kuhlman	Chairman	Cody-Dillon Ditch
Dale Margrets	Board Member	Cody-Dillon Ditch
Ernie Kuhlman	Board Member	Cody-Dillon Ditch
Randy Kuhlman	Board Member	Cody-Dillon Ditch
Kevin Kuhlman	Board Member	Cody-Dillon Ditch

## Location and Geography

The Cody-Dillon Ditch is located in Lincoln County below the North Platte River. It starts approximately five miles west of the Highway 83 bridge and ends in the City of North Platte. The district provides a surface water irrigation system to customers within its service area.

## Future Development Trends

Over the past five years, no major updates other than regular maintenance occurred. There are currently no planned changes to the system in the next five years.

## Community Lifelines

### Critical Facilities

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction's functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table CDD.2: Critical Facilities**

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Floodplain (Y/N)
1	Diversion Dam	N	N	Y
2*	Cody-Dillon Canal	N	N	Y

\*The Cody-Dillon Canal starts at the diversion dam.

## Governance

The Cody-Dillon Ditch consists of a five-member district board with board members serving as ditch riders.

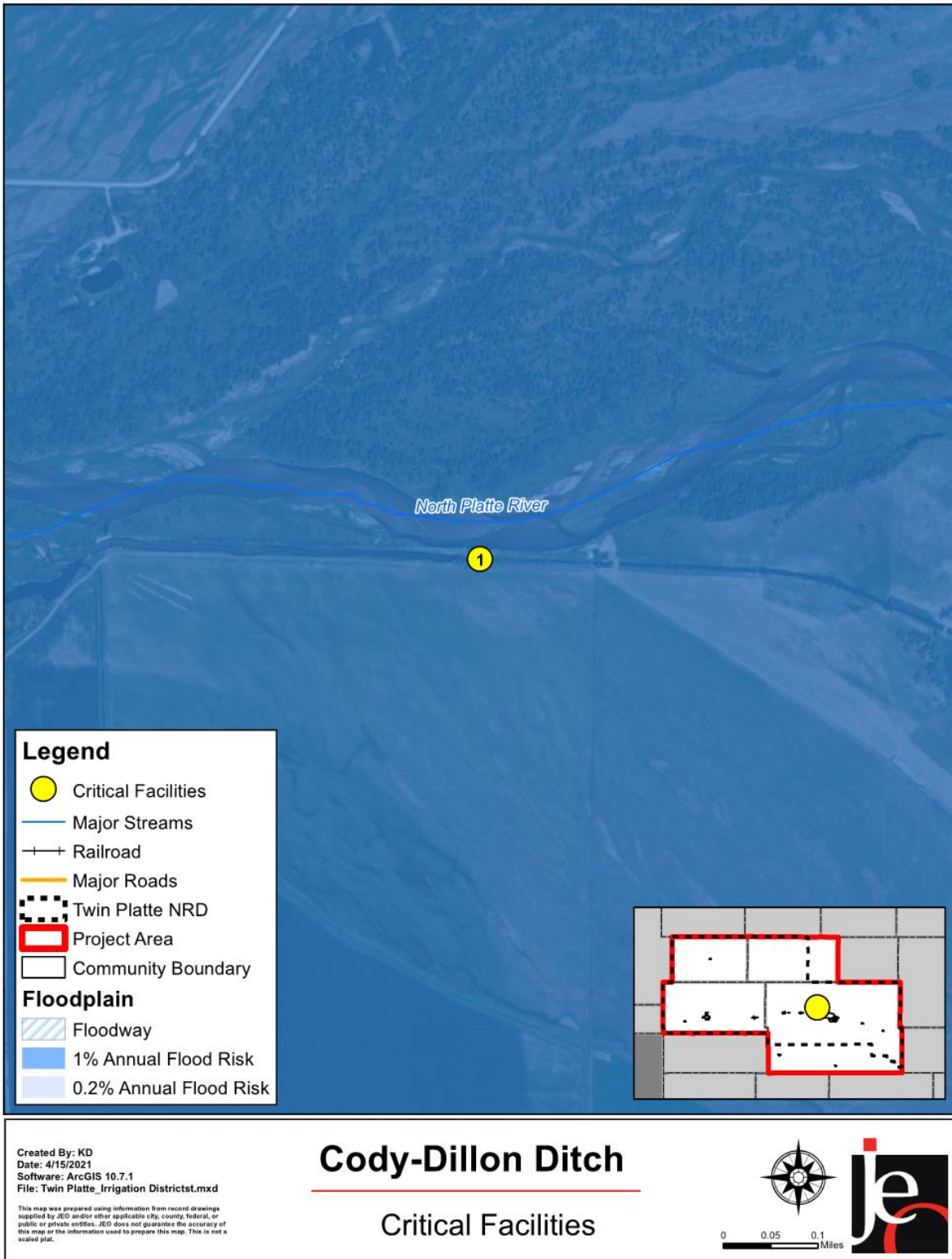
## Capability Assessment

District funds are limited to maintaining current facilities and systems and covering the cost of normal operations. For funds, the district sets the tax as a portion of the property tax. Due to the unique structure of irrigation districts, the typical capability assessment table is not used. The table below shows the district's overall capability.

**Table CDD.3: Overall Capability**

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Limited
Staff/expertise to implement projects	Moderate
Public support to implement projects	Limited
Time to devote to hazard mitigation	Limited

Figure CDD.1: Critical Facilities



## Plan Integration

Cody-Dillon Ditch does not have any formal response plans for an emergency situation, nor do they have plans that discuss hazards. However, the district can open or close a diversion dam during an emergency. In any future planning mechanisms, the district will work to integrate the goals and objectives of the hazard mitigation plan within them as appropriate. Currently, there is not a schedule for creating other (non-HMP) planning mechanisms.

## Historical Occurrences

See the Lincoln County profile for historical hazard events, including the number of events, damage estimates, and any fatalities or injuries.

## Hazard Prioritization

The hazards discussed in detail below were either identified in the previous HMP and determined to still be of top concern or were selected by the local planning team from the regional list as relevant hazards for the district. The planning team prioritized the selected hazards based on historical hazard occurrences, potential impacts, and the district’s capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

### Dam Failure

The Cody-Dillon Ditch operates a diversion dam that diverts water from the North Platte River to the canal. The failure of this dam would lead to damages to the canal and the irrigation district’s consumers. The failure of upstream dams, such as Kingsley Dam in Keith County, could also damage Cody-Dillon Ditch infrastructure.

### Drought

Drought would decrease water in the canal due to lower water levels from the North Platte River and increased irrigation on fields. A shortage of water in the canal could lead to crop loss and increased fire risk within the district. The Cody-Dillon Ditch works with the Twin Platte NRD to divert excess river flows outside of irrigation season to achieve groundwater recharge. They also contract with the NRD for unused irrigation acres to help with river flows.

## Mitigation Strategy

### New Mitigation Actions

Mitigation Action	Canal Maintenance and Improvements
<b>Description</b>	Implement necessary actions to maintain the canal.
<b>Hazard(s) Addressed</b>	All Hazards
<b>Estimated Cost</b>	Staff Time
<b>Funding</b>	General Budget
<b>Timeline</b>	5+ Years
<b>Priority</b>	High
<b>Lead Agency</b>	Board Members
<b>Status</b>	In Progress: Canal maintenance is done regularly when issues are identified

Section Seven | Cody-Dillon Ditch Profile

Mitigation Action	Groundwater Recharge
<b>Description</b>	Divert excess flows from North Platte River to recharge groundwater within the aquifer.
<b>Hazard(s) Addressed</b>	Drought
<b>Estimated Cost</b>	Staff Time
<b>Funding</b>	General Budget
<b>Timeline</b>	5+ Years
<b>Priority</b>	Medium
<b>Lead Agency</b>	Board Members, TPNRD
<b>Status</b>	In Progress: Flows are regularly diverted for groundwater recharge

Mitigation Action	Reduce Flow Restrictions
<b>Description</b>	Evaluate restrictions and measures to prevent or reduce damage from flooding. Implement appropriate nonstructural or structural methods on an emergency or permanent basis (such as monitoring, ice jam dusting, or other flow improvements).
<b>Hazard(s) Addressed</b>	Flooding, Dam Failure
<b>Estimated Cost</b>	Staff Time
<b>Funding</b>	General Budget
<b>Timeline</b>	5+ Years
<b>Priority</b>	Medium
<b>Lead Agency</b>	Board Members
<b>Status</b>	In Progress: Flow restrictions are removed as identified

**District Profile**

**Keith-Lincoln Irrigation  
District**

**Twin Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan Update**

**2021**

## Local Planning Team

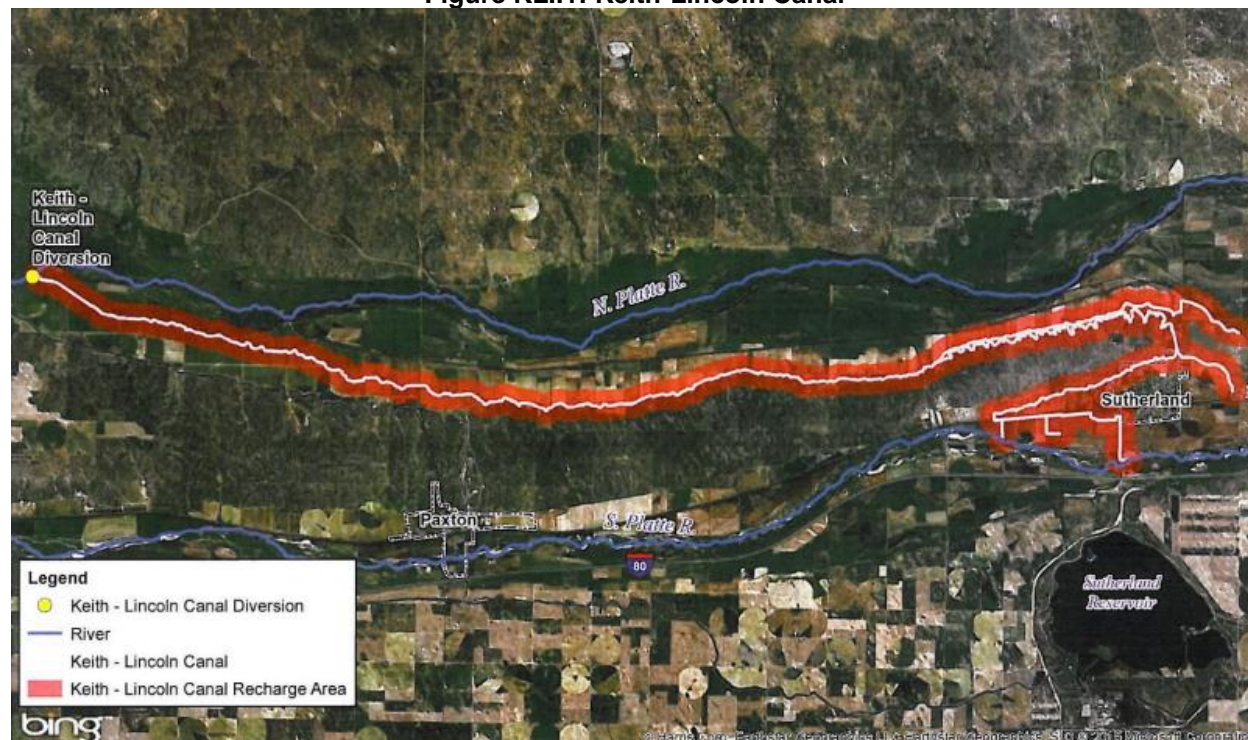
**Table KLI.1: Keith-Lincoln Irrigation District Local Planning Team**

Name	Title	Jurisdiction
Mark McConnell	Director	Keith-Lincoln Irrigation District

## Location and Geography

The Keith-Lincoln Irrigation District is located in between the North Platte River and South Platte River, and east of Keystone to Sutherland. The district supplies supplemental irrigation water to patrons within the district utilizing a canal system and delivery points with water supplied from the North Platte River watershed.

**Figure KLI.1: Keith-Lincoln Canal**



## Future Development Trends

Over the past five years, no changes have occurred to infrastructure other than required maintenance and operational work. In the next five years, no system changes are planned.

## Community Lifelines

### Critical Facilities

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction's functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and Figure KLI.2 provide a summary of the critical facilities for the jurisdiction.



**Table KLI.2: Critical Facilities**

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Floodplain (Y/N)
1	Canal Weir	N	N	Y
2	Diversion Dam	N	N	Y
3*	Keith-Lincoln Canal	N	N	Y

\*A map of the canal system can be found in Figure KLI.1.

## Governance

The Keith-Lincoln Irrigation District consists of a three-member board. Ditch riders are employed by the district.

## Capability Assessment

The district is funded through an annual assessment on district-irrigated acres and through an annual NRD recharge contract and retainer. Funds are limited to maintaining current facilities and systems and have slightly increased over recent years from to NRD annual payments. Due to the unique structure of irrigation districts, the typical capability assessment table is not used. The table below shows a broad overview of the district’s overall capability.

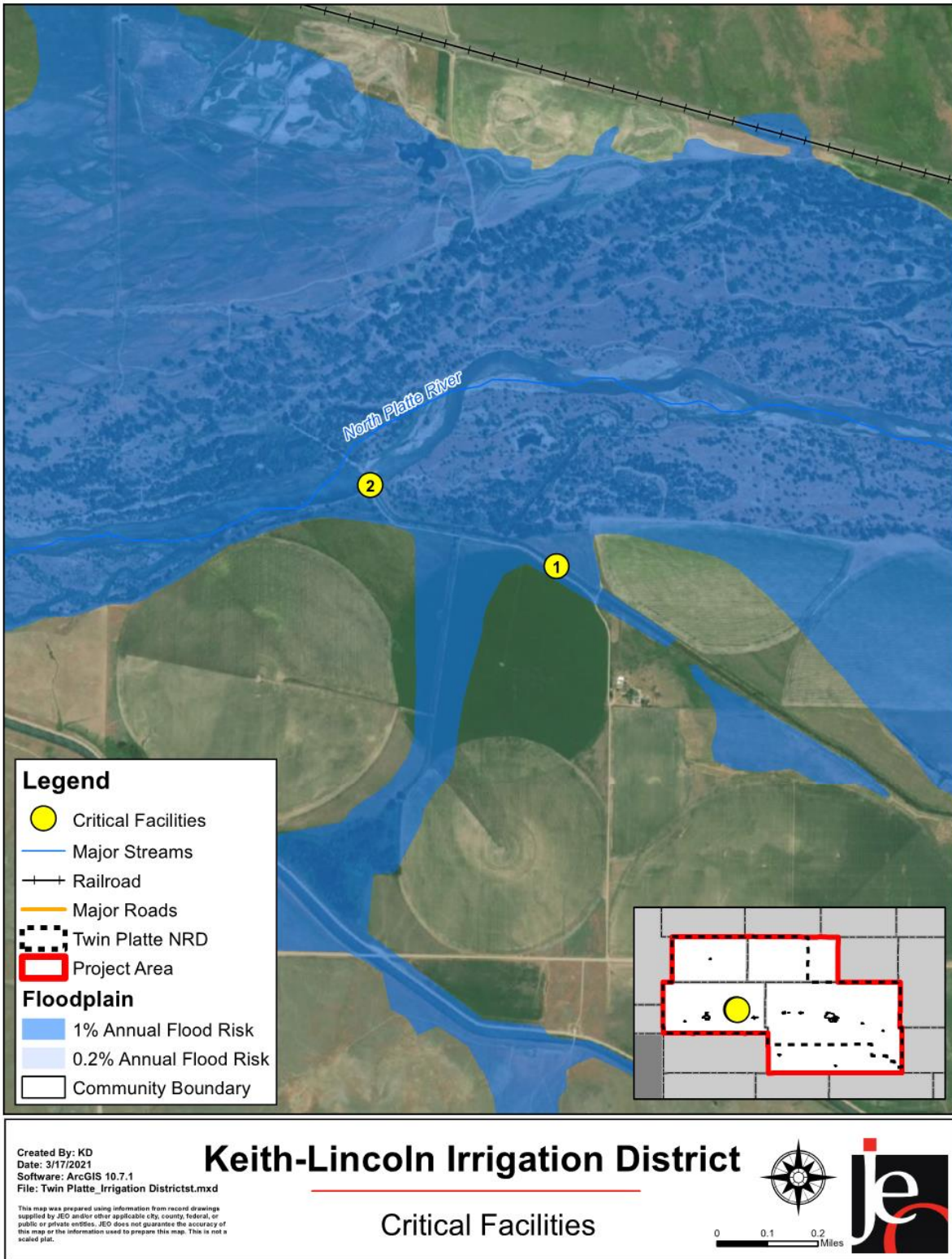
**Table KLI.3: Overall Capability**

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Limited
Staff/expertise to implement projects	Moderate
Public support to implement projects	Limited
Time to devote to hazard mitigation	Limited

## Plan Integration

The irrigation district does not have any formal response plans for an emergency situation, nor do they have plans that discuss hazards. However, the district can open or close their diversion dam during an emergency. In the event of an emergency, the irrigation district would work closely with the Bureau of Reclamation and the Twin Platte NRD to minimize any damages or loss of life. In any future planning mechanisms, the Keith-Lincoln Irrigation District will work to integrate the goals and objectives of the hazard mitigation plan within them as appropriate. Currently, no schedule exists for creating other (non-HMP) planning mechanisms, thus there is no formal strategy for plan integration at this time.

Figure KLI.2: Critical Facilities



## Historical Occurrences

See the Lincoln and Keith County profiles for historical hazard events, including the number of events, damage estimates, and any fatalities or injuries.

## Hazard Prioritization

The hazards discussed in detail below were either identified in the previous HMP and determined to still be of top concern or were selected by the local planning team from the regional list as relevant hazards for the district. The planning team prioritized the selected hazards based on historical hazard occurrences, potential impacts, and the district's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

### Chemical Spills (Transportation)

A chemical spill during transportation could damage district infrastructure or contaminate water within the canal. This could lead to crop loss for patrons and additional clean and containment costs to the district. Chemical spills would be most likely to occur along major transportation routes such as I-80 near Sutherland and along Highway 30. No chemical spills have affected the irrigation district in the past.

### Dam Failure

The Keith-Lincoln Irrigation District operates a diversion dam that diverts water from the North Platte River to the canal. The failure of this dam would lead to damages to the canal and the Irrigation District's consumers. It would also completely shut down the district's operation of the canal system until the failure was repaired. The failure of upstream dams, such as Kingsley Dam in Keith County, could also cause catastrophic damages to Keith-Lincoln Irrigation District infrastructure.

### Drought

Drought would decrease water in the canal due to lower water levels from the Platte River and/or increased irrigation on fields. If a shortage of water were to occur, the district would have to obtain supplemental water either from storage or groundwater pumping. The irrigation district works with the Twin Platte NRD (in coordination with the Nebraska Department of Natural Resources) to divert excess river flows outside of irrigation season to achieve groundwater recharge. Conservation practices to promote water saving is still needed in the area.

### Extreme Heat

Extreme heat was selected as a top concern for the district. During periods of extreme heat, demand for irrigation water increases. Increased demand, as well as possible lower river flows due to evaporation, can lead to fewer water resources for the irrigation district.

### Flooding

Flooding could occur from significant rainfall, dam failure, or flow restrictions within the North or South Platte Rivers or canal. The irrigation district constantly works to reduce and remove flow restrictions such as trees and silt. The upper third of the district is most likely to see flooding as that is where the canal is the fullest, and any restriction can cause overflows. Minor flooding from restricted flows occurs on an almost annual basis. This creates loss to bordering properties and also creates operational problems if flow rates have to be reduced below capacity to meet irrigation demand.

### Severe Thunderstorms

Severe thunderstorms can create many issues for the canal system. Heavy rains and runoff can lead to flooding, lightning and power loss can affect the diversion dam, and tree damage can cause obstructions if limbs end up in the canal. In addition, severe storms have made it difficult to access areas where damage occurred, and debris accumulated.

### Mitigation Strategy

The Keith-Lincoln Irrigation District has limited capabilities to implement hazard mitigation projects independently. The Keith-Lincoln Irrigation District will continue to benefit from its existing relationship with the Twin Platte NRD.

### Continued Mitigation Actions

Mitigation Action	Canal Maintenance
<b>Description</b>	Implement necessary actions to maintain the canal.
<b>Hazard(s) Addressed</b>	Flooding, Chemical Spills, Dam Failure, Severe Thunderstorms, Drought
<b>Estimated Cost</b>	Staff Time
<b>Funding</b>	Irrigation District General Fund
<b>Timeline</b>	Ongoing
<b>Priority</b>	High
<b>Lead Agency</b>	Irrigation District Board, Ditch Rider, TPNRD
<b>Status</b>	In Progress: Canal maintenance is done regularly when issues are identified

Mitigation Action	Groundwater Recharge
<b>Description</b>	Divert excess flows from North Platte River to recharge groundwater within the aquifer.
<b>Hazard(s) Addressed</b>	Drought
<b>Estimated Cost</b>	Staff Time
<b>Funding</b>	Irrigation District General Fund
<b>Timeline</b>	Ongoing
<b>Priority</b>	Medium
<b>Lead Agency</b>	Irrigation District Board, TPNRD
<b>Status</b>	In Progress: Flows are regularly diverted for groundwater recharge

Mitigation Action	Reduce Flow Restrictions
<b>Description</b>	Evaluate restrictions and measures to prevent or reduce damage from flooding. Implement appropriate nonstructural or structural methods on an emergency or permanent basis (such as monitoring, ice jam dusting, or other flow improvements).
<b>Hazard(s) Addressed</b>	Flooding
<b>Estimated Cost</b>	Staff Time
<b>Funding</b>	Irrigation District General Fund
<b>Timeline</b>	Ongoing
<b>Priority</b>	Medium
<b>Lead Agency</b>	Irrigation District Board, Ditch Rider, TPNRD
<b>Status</b>	In Progress: Flow restrictions are removed as identified

**District Profile**

**Paxton Hershey Irrigation  
District**

**Twin Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan Update**

**2021**

## Local Planning Team

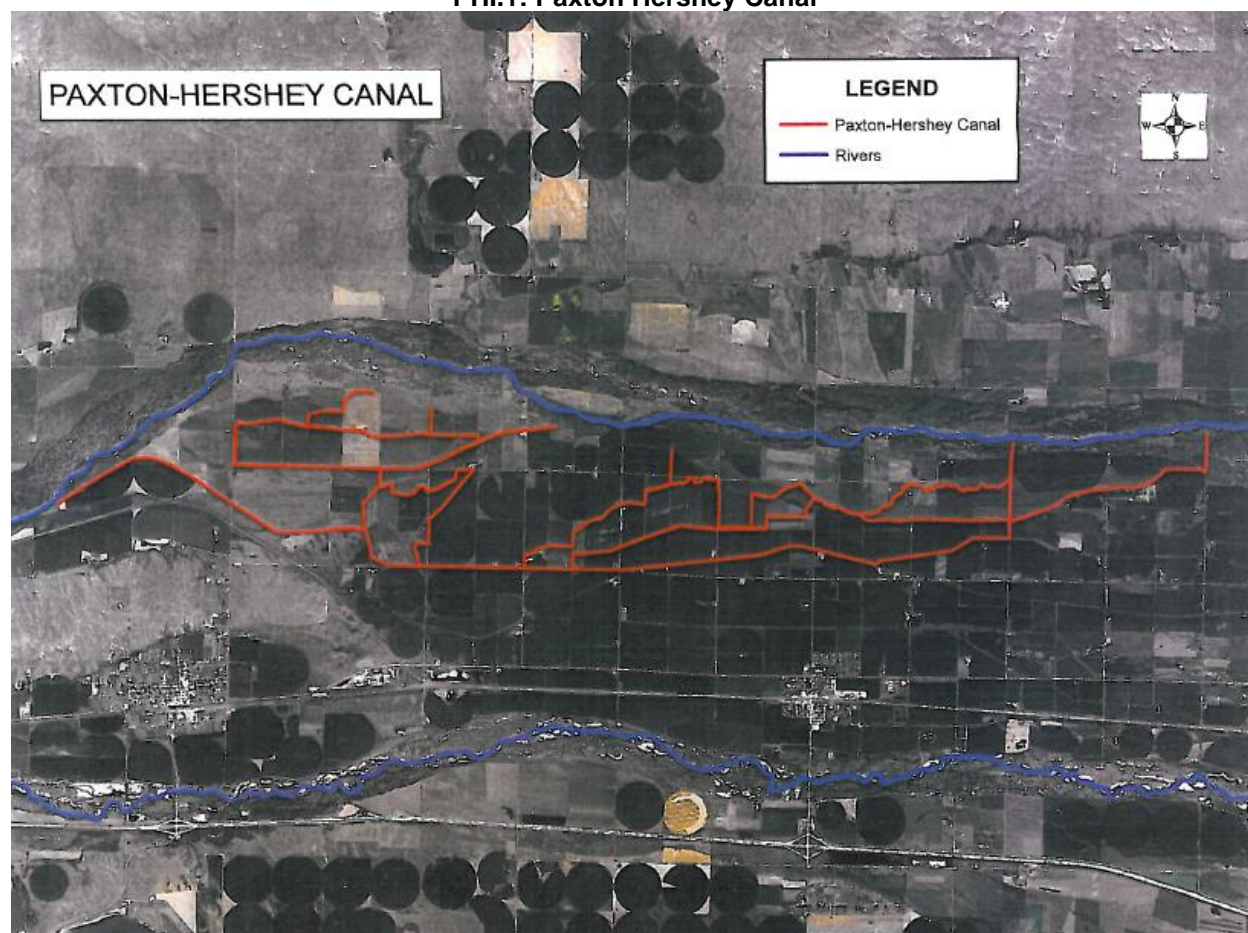
**Table PHI.1: Paxton Hershey Irrigation District Local Planning Team**

Name	Title	Jurisdiction
Paxton Hershey Irrigation District Board	-	Paxton Hershey Irrigation District

## Location and Geography

The Paxton Hershey Irrigation District is located in between the North Platte River and South Platte River, north of the villages of Paxton and Hershey. The district supplies supplemental irrigation water to patrons within the district utilizing a canal system with water supplied from the North Platte River.

**PHI.1: Paxton Hershey Canal**



## Future Development Trends

Over the past five years, no changes have been made to infrastructure other than canal maintenance work. In the next five years, no changes are planned for the system.

## Community Lifelines

### Critical Facilities

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction’s functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table PHI.2: Critical Facilities**

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Floodplain (Y/N)
1*	Paxton Hershey Canal	N	N	Y
2	Diversion Dam	N	N	Y

\*A map of the canal system can be found in Figure PHI.1.

## Governance

The Paxton Hershey Irrigation District consists of a three-member district board and ditch riders.

## Capability Assessment

The district is funded through an annual assessment on district-irrigated acres. Funds are limited to maintaining the canal and its components. Due to the unique structure of irrigation districts, the typical capability assessment table is not used. The table below shows a broad overview of the district’s overall capability.

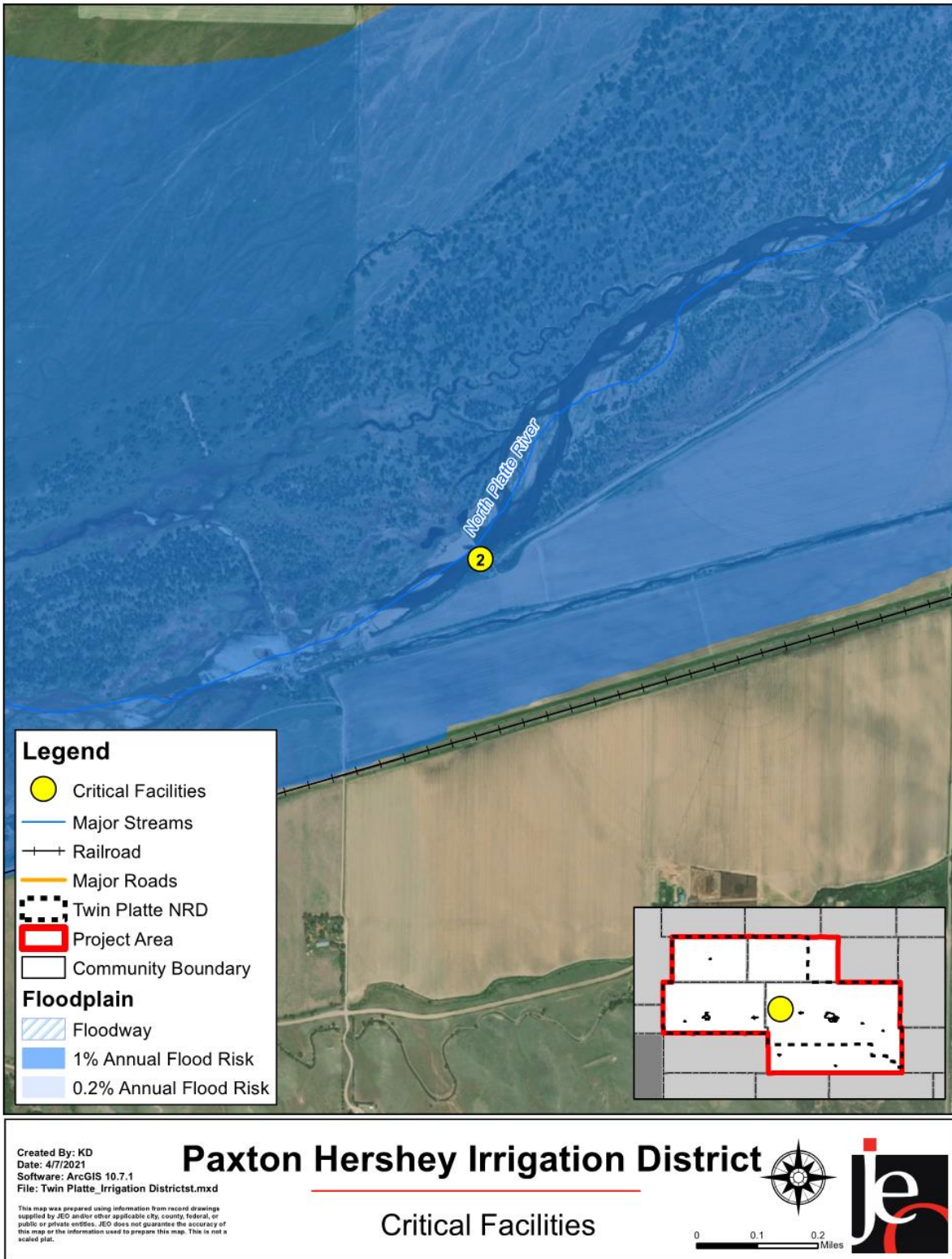
**Table PHI.3: Overall Capability**

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Limited
Staff/expertise to implement projects	Moderate
Public support to implement projects	Moderate
Time to devote to hazard mitigation	Limited

## Plan Integration

The irrigation district does not have any formal response plans for an emergency situation, nor do they have plans that discuss hazards. However, the district can open or close their diversion dam during an emergency. In the event of an emergency, the irrigation district would work closely with the Bureau of Reclamation and the Twin Platte NRD to minimize any damages or loss of life. In any future planning mechanisms, the Paxton Hershey Irrigation District will work to integrate the goals and objectives of the hazard mitigation plan within them as appropriate. Currently, no schedule exists for creating other (non-HMP) planning mechanisms, thus there is no formal strategy for plan integration at this time.

Figure PHI.2: Critical Facilities





## Historical Occurrences

See the Lincoln County profile for historical hazard events, including the number of events, damage estimates, and any fatalities or injuries.

## Hazard Prioritization

The hazards discussed in detail below were either identified in the previous HMP and determined to still be of top concern or were selected by the local planning team from the regional list as relevant hazards for the district. The planning team prioritized the selected hazards based on historical hazard occurrences, potential impacts, and the district’s capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

### Dam Failure

The Paxton Hershey Irrigation District operates a diversion dam that diverts water from the North Platte River to the canal. Failure of this dam would lead to damages to the canal and the irrigation district’s consumers. The failure of upstream dams, such as Kingsley Dam in Keith County, could also damage the canal, bridges, and other Paxton Hershey Irrigation District infrastructure.

### Drought

Drought would decrease water in the canal due to lower water levels from the Platte River and increased irrigation on fields. The irrigation district works with the Twin Platte NRD (in coordination with the Nebraska Department of Natural Resources) to divert excess river flows outside of irrigation season to achieve groundwater recharge.

### Extreme Heat

During periods of extreme heat, demand for irrigation water increases. This increased demand, as well as possible lower river flows due to evaporation, can lead to fewer water resources for the irrigation district.

### Flooding

Flooding could occur from significant rainfall, dam failure, or flow restrictions within the Platte River or the canal. Flooding can damage the diversion dam, canal, bridges and other irrigation district infrastructure.

## Mitigation Strategy

The Paxton Hershey Irrigation District has limited capabilities to implement hazard mitigation projects independently and will continue to benefit from its existing relationship with the Twin Platte NRD.

### Continued Mitigation Actions

Mitigation Action	Canal Maintenance
Description	Implement necessary actions to maintain the canal.
Hazard(s) Addressed	Flooding, Chemical Spills, Dam Failure, Severe Thunderstorms, Drought
Estimated Cost	Staff Time
Funding	Irrigation District General Fund
Timeline	Ongoing
Priority	High
Lead Agency	Irrigation District Board, Ditch Rider, TPNRD
Status	In Progress: Canal maintenance is done regularly when issues are identified

Section Seven | Paxton Hershey Irrigation District Profile

Mitigation Action	Groundwater Recharge
<b>Description</b>	Divert excess flows from North Platte River to recharge groundwater within the aquifer.
<b>Hazard(s) Addressed</b>	Drought
<b>Estimated Cost</b>	Staff Time
<b>Funding</b>	Irrigation District General Fund
<b>Timeline</b>	Ongoing
<b>Priority</b>	Medium
<b>Lead Agency</b>	Irrigation District Board, TPNRD
<b>Status</b>	In Progress: Flows are regularly diverted for groundwater recharge

Mitigation Action	Reduce Flow Restrictions
<b>Description</b>	Evaluate restrictions and measures to prevent or reduce damage from flooding. Implement appropriate nonstructural or structural methods on an emergency or permanent basis (such as monitoring, ice jam dusting, or other flow improvements).
<b>Hazard(s) Addressed</b>	Flooding
<b>Estimated Cost</b>	Staff Time
<b>Funding</b>	Irrigation District General Fund
<b>Timeline</b>	Ongoing
<b>Priority</b>	Medium
<b>Lead Agency</b>	Irrigation District Board, Ditch Rider, TPNRD
<b>Status</b>	In Progress: Flow restrictions are removed as identified

**District Profile**

# **Platte Valley Irrigation District**

**Twin Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan Update**

**2021**

## Local Planning Team

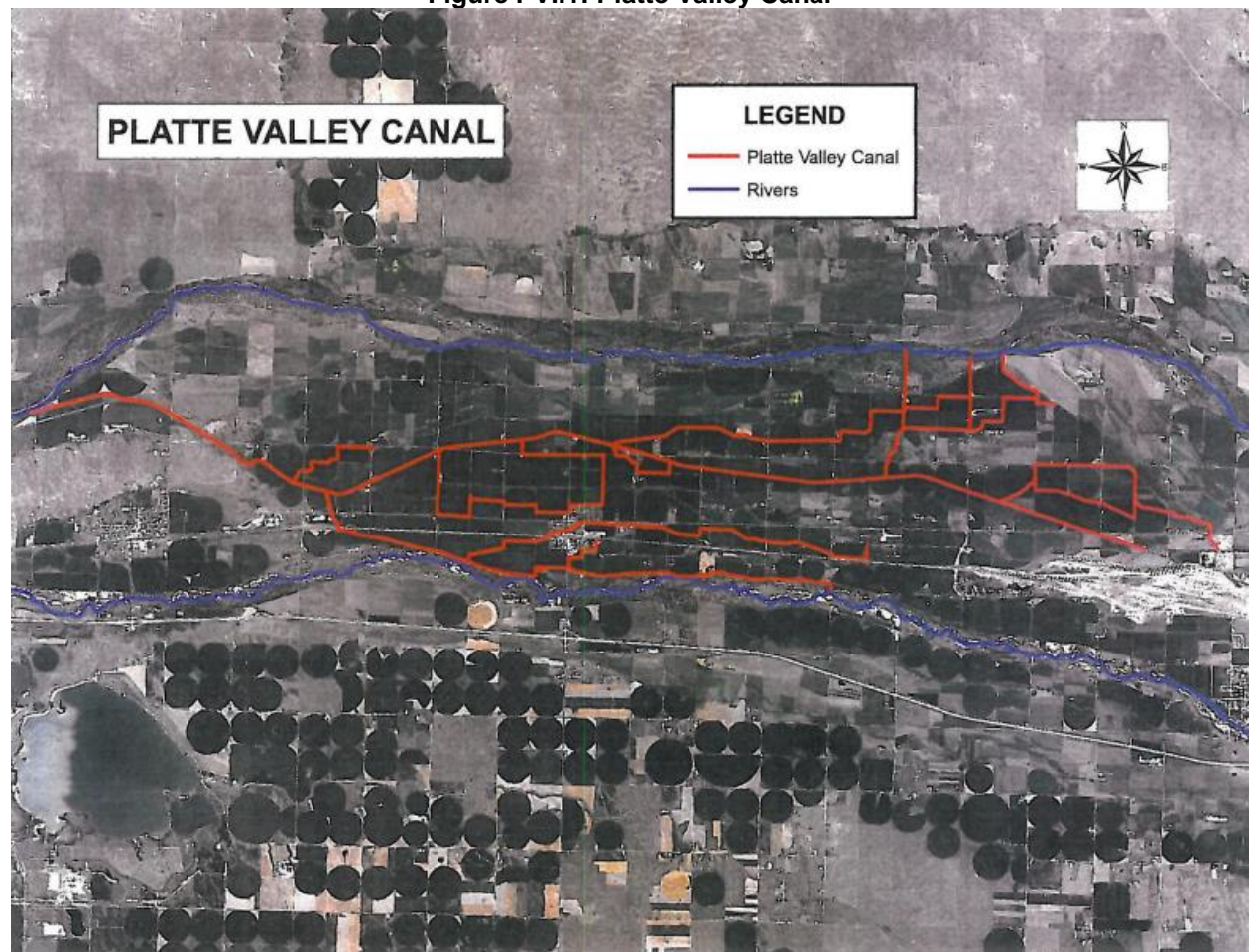
**Table PVI.1: Platte Valley Irrigation District Local Planning Team**

Name	Title	Jurisdiction
Jeff Orr	Board President	Platte Valley Irrigation District

## Location and Geography

The Platte Valley Irrigation District Canal is located in between the North Platte and South Platte Rivers, from north of Sutherland to the City of North Platte. The district provides a surface water irrigation system to approximately 14,000 acres of cropland.

**Figure PVI.1: Platte Valley Canal**



## Future Development Trends

Over the last 10 years, the district hired a contractor and rebuilt many of their rotary gates. These gates should last for at least 50 years. No other changes other than regular maintenance occurred during that time. In the next five years, no changes are planned for the system.

## Community Lifelines

### Critical Facilities

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction’s functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and Figure PVI.2 provide a summary of the critical facilities for the jurisdiction.

**Table PVI.2: Critical Facilities**

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Floodplain (Y/N)
1	Diversion Dam	N	N	Y
2*	Platte Valley Canal	N	N	Y

\*Map of the canal system can be found in Figure PVI.1.

## Governance

The Platte Valley Irrigation District started as a private business in 1884. In 1912 it was switched to a taxing entity as a public irrigation district. Currently there is a three-person board elected by district landowners. A ditch rider and assistant ditch rider are employed by the district along with the occasional part-time summer help.

## Capability Assessment

District funds are limited to maintaining current facilities and systems and cover the cost of normal operations. Funds have increased over time due to inflation but have stayed the same recently. For funding, the district board sets the tax as a portion of the property tax. Due to the unique structure of irrigation districts, the typical capability assessment table is not used. The table below shows a broad overview of the district’s overall capability.

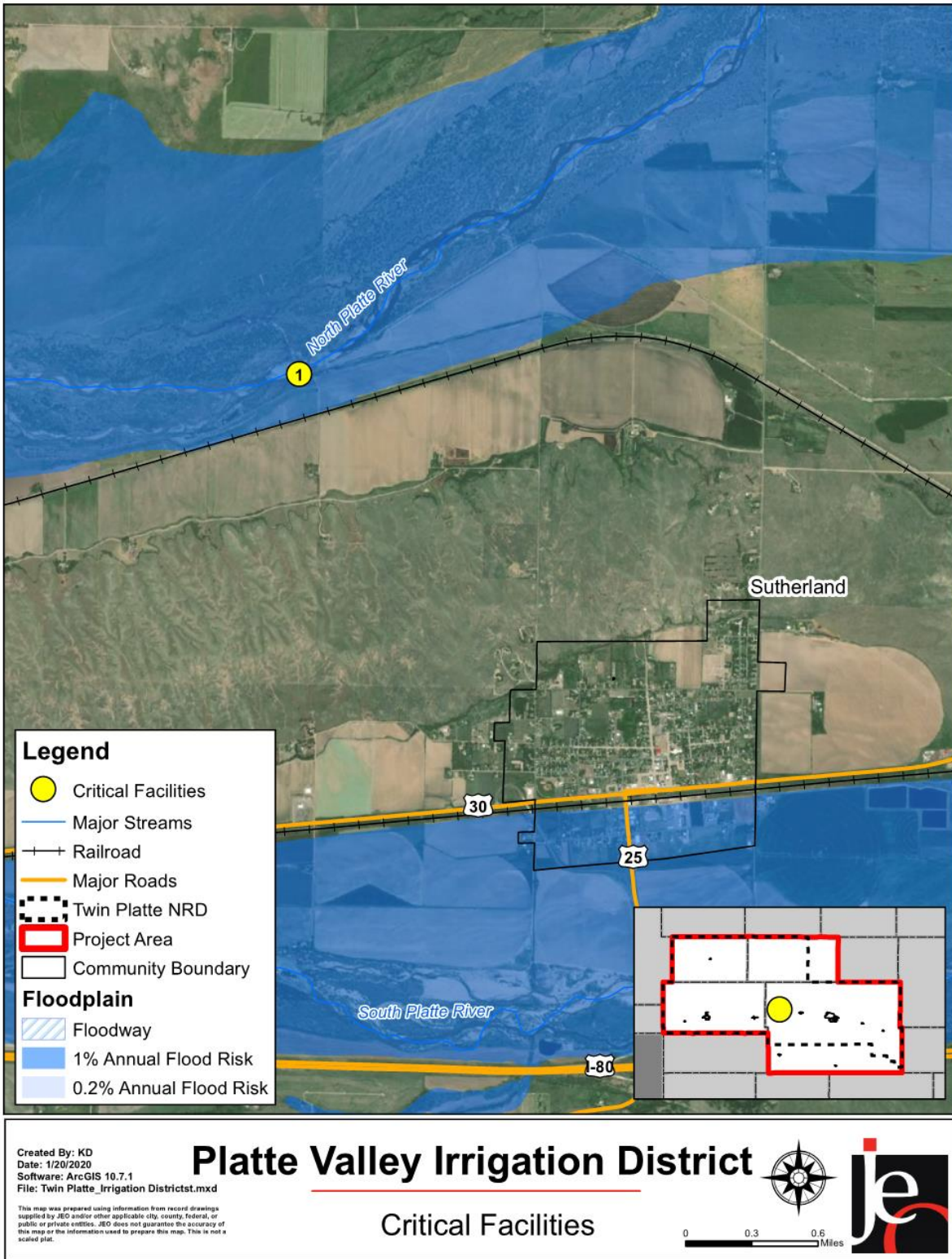
**Table PVI.3: Overall Capability**

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Limited
Staff/expertise to implement projects	Limited
Public support to implement projects	Limited
Time to devote to hazard mitigation	Limited

## Plan Integration

The irrigation district does not have any formal response plans for an emergency situation, nor do they have plans that discuss hazards. However, the district can open or close their diversion dam during an emergency. In the event of an emergency, the irrigation district would work closely with the Bureau of Reclamation and the Twin Platte NRD to minimize any damages or loss of life. In any future planning mechanisms, the Platte Valley Irrigation District will work to integrate the goals and objectives of the hazard mitigation plan within them as appropriate. Currently, no schedule exists for creating other (non-HMP) planning mechanisms.

Figure PVI.2: Critical Facilities



## Historical Occurrences

See the Lincoln County profile for historical hazard events, including the number of events, damage estimates, and any fatalities or injuries.

## Hazard Prioritization

The hazards discussed in detail below were either identified in the previous HMP and determined to still be of top concern or were selected by the local planning team from the regional list as relevant hazards for the district. The planning team prioritized the selected hazards based on historical hazard occurrences, potential impacts, and the district’s capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

### Dam Failure

The Platte Valley Irrigation District operates a diversion dam that diverts water from the North Platte River to the canal. Failure of this dam would lead to damages to the canal and the irrigation district’s consumers. Flooding downstream is not likely to occur, but the district would lose the ability to divert water which would impact irrigation if it occurred during the growing season. Failure of upstream dams, such as Kingsley Dam, could also lead to major flooding and potentially damage the diversion dam. Any upstream flooding, ice jams, or earthquakes also have the potential to damage the dam and cause it to fail. Dam failure has not occurred but undermining at the dam has caused past issues. The district pumped concrete into the wall to fix this issue. To help reduce vulnerability to this hazard, the district’s ditch rider is in regular communication with the operators of the Kingsley Dam to monitor outflows into the river.

## Mitigation Strategy

The Platte Valley Irrigation District has limited capabilities to implement hazard mitigation projects independently and will continue to benefit from its existing relationship with the Twin Platte NRD.

### Continued Mitigation Actions

Mitigation Action	Canal Maintenance
<b>Description</b>	Implement necessary actions to maintain the canal.
<b>Hazard(s) Addressed</b>	Flooding, Chemical Spills, Dam Failure, Severe Thunderstorms, Drought
<b>Estimated Cost</b>	Staff Time
<b>Funding</b>	Irrigation District General Fund
<b>Timeline</b>	Ongoing
<b>Priority</b>	High
<b>Lead Agency</b>	Irrigation District Board, Ditch Rider, TPNRD
<b>Status</b>	In Progress: The district maintains the canal on a regular basis and fixes issues as they arise

Section Seven | Platte Valley Irrigation District Profile

Mitigation Action	Groundwater Recharge
<b>Description</b>	Divert excess flows from North Platte River to recharge groundwater within the aquifer.
<b>Hazard(s) Addressed</b>	Drought
<b>Estimated Cost</b>	Staff Time
<b>Funding</b>	Irrigation District General Fund
<b>Timeline</b>	Ongoing
<b>Priority</b>	Medium
<b>Lead Agency</b>	Irrigation District Board, TPNRD
<b>Status</b>	In Progress: The district will continue to divert flows until it is no longer needed as determined by the TPNRD or if the board determines they no longer wish to participate

Mitigation Action	Reduce Flow Restrictions
<b>Description</b>	Evaluate restrictions and measures to prevent or reduce damage from flooding. Implement appropriate nonstructural or structural methods on an emergency or permanent basis (such as monitoring, ice jam dusting, or other flow improvements).
<b>Hazard(s) Addressed</b>	Flooding
<b>Estimated Cost</b>	Staff Time
<b>Funding</b>	Irrigation District General Fund
<b>Timeline</b>	Ongoing
<b>Priority</b>	Medium
<b>Lead Agency</b>	Irrigation District Board, Ditch Rider, TPNRD
<b>Status</b>	Not Started

Mitigation Action	Repair Flood Damage
<b>Description</b>	Repair South Platte River flood damage, Platte Wind (river ditch) washout and small erosions elsewhere.
<b>Hazard(s) Addressed</b>	Flooding
<b>Estimated Cost</b>	\$200,000
<b>Funding</b>	Irrigation District General Fund
<b>Timeline</b>	2-5 Years
<b>Priority</b>	High
<b>Lead Agency</b>	Irrigation District Board, TPNRD
<b>Status</b>	Not Started



## **District Profile**

# **Suburban Ditch Company**

## **Twin Platte NRD Multi-Jurisdictional Hazard Mitigation Plan Update**

**2021**

## Local Planning Team

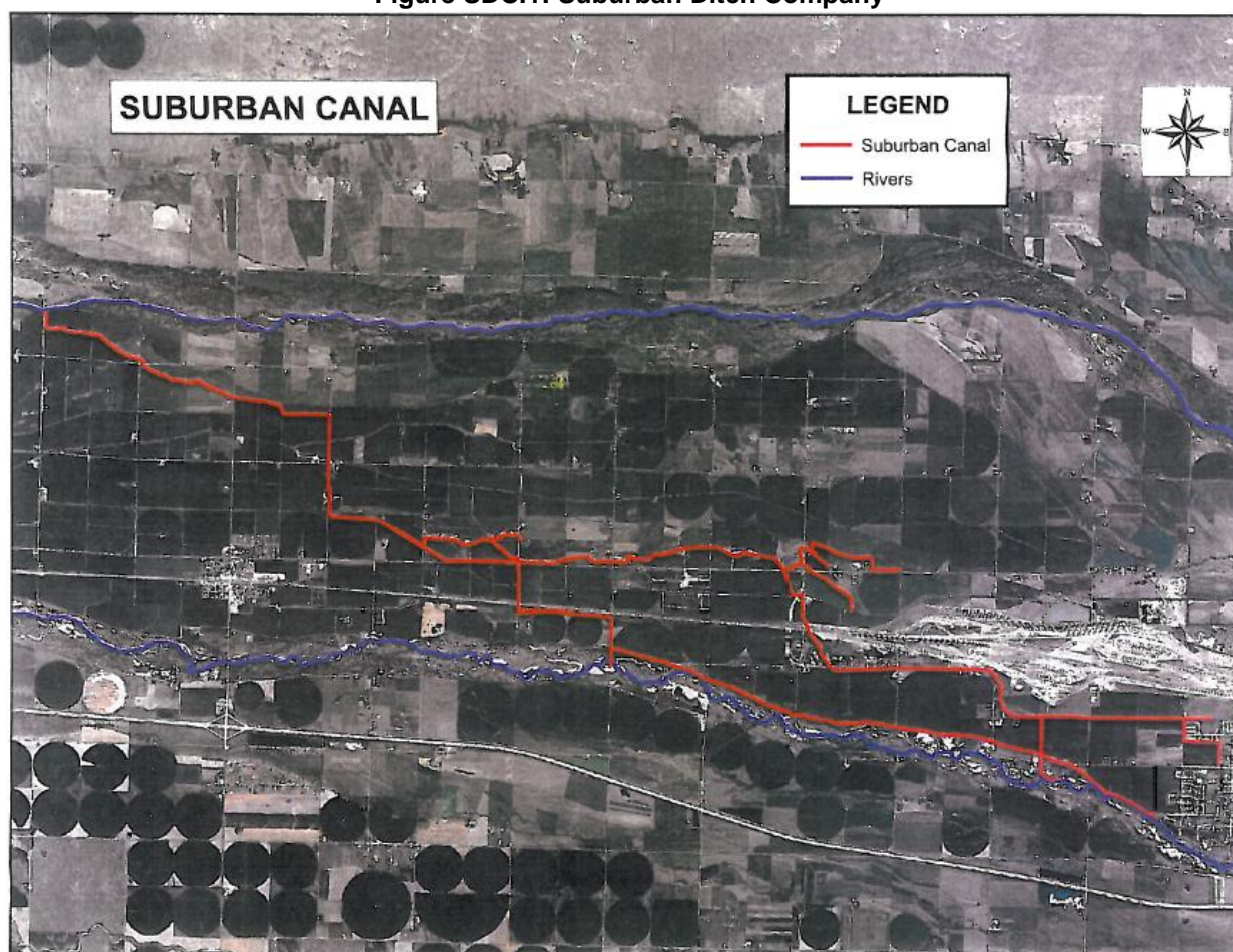
**Table SDC.1: Suburban Ditch Company Local Planning Team**

Name	Title	Jurisdiction
David Steffes	Chairman	Suburban Ditch Company
Kirk Olson	Board Member	Suburban Ditch Company
David Colvin	Board Member	Suburban Ditch Company

## Location and Geography

The Suburban Ditch Company is located in between the North Platte River and South Platte River, from west of the City of North Platte to northwest of Hershey. The irrigation district supplies supplemental irrigation water to patrons utilizing a canal system with water supplied from the North Platte River.

**Figure SDC.1: Suburban Ditch Company**



## Future Development Trends

Over the past five years, no updates have been made to the canal or other infrastructure beyond than general maintenance work. In the next five years, no changes are planned for the canal or other parts of the system.

## Community Lifelines

### Critical Facilities

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction’s functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table SDC.2: Critical Facilities**

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Floodplain (Y/N)
1*	Suburban Canal	N	N	Y
2	Diversion Dam	N	N	Y

\* A map of the canal system can be found in Figure SDC.1.

## Governance

The Suburban Ditch Company consists of a three-member company board and a ditch rider.

## Capability Assessment

The ditch company is funded through an annual assessment on irrigation acres. Funds are limited to maintaining the canal and its components. Due to the unique structure of irrigation districts and ditch companies, the typical capability assessment table is not used. The table below shows a broad overview of the district’s overall capability.

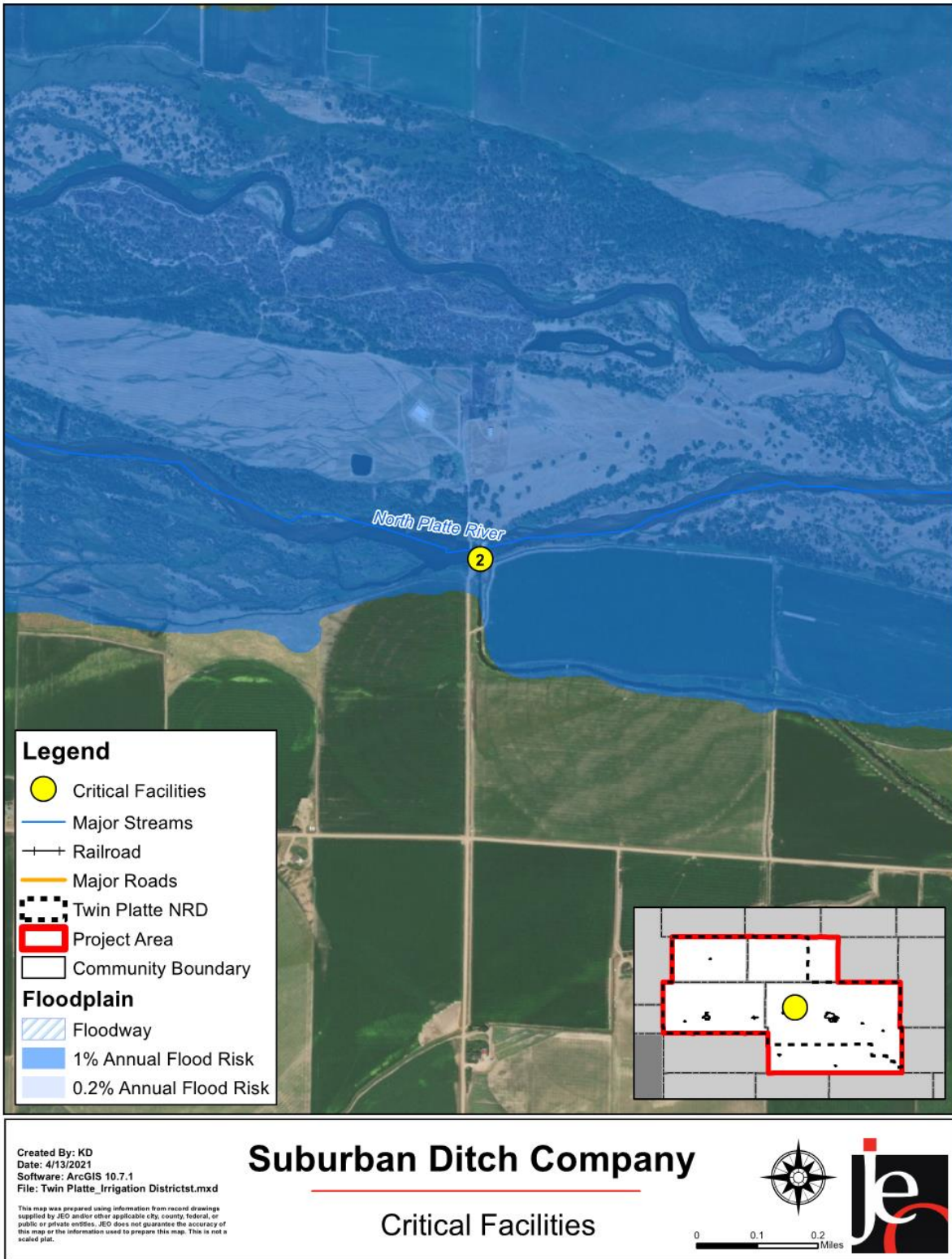
**Table SDC.3: Overall Capability**

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Limited
Staff/expertise to implement projects	High
Public support to implement projects	Moderate
Time to devote to hazard mitigation	Limited

## Plan Integration

Suburban Ditch Company does not have any formal response plans for an emergency situation, nor do they have plans that discuss hazards. However, the ditch company can open or close a diversion dam during an emergency. In the event of an emergency, the company would work closely with the Bureau of Reclamation and the Twin Platte NRD to minimize any damages or loss of life. In any future planning mechanisms, the Suburban Ditch Company will work to integrate the goals and objectives of the hazard mitigation plan within them as appropriate. Currently, no schedule exists for creating other (non-HMP) planning mechanisms, thus there is no formal strategy for plan integration at this time.

Figure SDC.2: Critical Facilities



## Historical Occurrences

See the Lincoln County profile for historical hazard events, including the number of events, damage estimates, and any fatalities or injuries.

## Hazard Prioritization

The hazards discussed in detail below were either identified in the previous HMP and determined to still be of top concern or were selected by the local planning team from the regional list as relevant hazards for the district. The planning team prioritized the selected hazards based on historical hazard occurrences, potential impacts, and the district’s capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

### Dam Failure

The Suburban Ditch Company has a diversion dam that diverts water from the North Platte River to the canal. The failure of this dam would lead to damages to the canal and the irrigation district’s consumers. The failure of upstream dams, such as Kingsley Dam in Keith County, could also damage Suburban Ditch Company infrastructure.

### Drought

Drought would decrease water in the canal due to lower water levels from the North Platte River and increased irrigation on fields. Suburban Ditch Company works with the Twin Platte NRD (in coordination with the Nebraska Department of Natural Resources) to divert excess river flows outside of irrigation season to achieve groundwater recharge.

### Flooding

Flooding could occur from significant rainfall, dam failure, or flow restrictions within the North or South Platte Rivers or canal. The ditch company constantly works to reduce and remove flow restrictions such as trees and silt.

## Mitigation Strategy

The Suburban Ditch Company has limited capabilities to implement hazard mitigation projects independently and will continue to benefit from its existing relationship with the Twin Platte NRD.

### Continued Mitigation Actions

Mitigation Action	Canal Maintenance
<b>Description</b>	Implement necessary actions to maintain the canal.
<b>Hazard(s) Addressed</b>	Flooding, Chemical Spills, Dam Failure, Severe Thunderstorms, Drought
<b>Estimated Cost</b>	Staff Time
<b>Funding</b>	Irrigation District General Fund
<b>Timeline</b>	Ongoing
<b>Priority</b>	High
<b>Lead Agency</b>	Company Board, Ditch Rider, TPNRD
<b>Status</b>	In Progress: Canal maintenance is done regularly when issues are identified

Section Seven | Suburban Ditch Company Profile

Mitigation Action	Groundwater Recharge
<b>Description</b>	Divert excess flows from North Platte River to recharge groundwater within the aquifer.
<b>Hazard(s) Addressed</b>	Drought
<b>Estimated Cost</b>	Staff Time
<b>Funding</b>	Irrigation District General Fund
<b>Timeline</b>	Ongoing
<b>Priority</b>	Medium
<b>Lead Agency</b>	Company Board, TPNRD
<b>Status</b>	In Progress: Flows are regularly diverted for groundwater recharge.

Mitigation Action	Reduce Flow Restrictions
<b>Description</b>	Evaluate restrictions and measures to prevent or reduce damage from flooding. Implement appropriate nonstructural or structural methods on an emergency or permanent basis (such as monitoring, ice jam dusting, or other flow improvements).
<b>Hazard(s) Addressed</b>	Flooding
<b>Estimated Cost</b>	Staff Time
<b>Funding</b>	Irrigation District General Fund
<b>Timeline</b>	Ongoing
<b>Priority</b>	Medium
<b>Lead Agency</b>	Company Board, Ditch Rider, TPNRD
<b>Status</b>	In Progress: Flow restrictions are removed as identified

Mitigation Action	Repair Flood Damage
<b>Description</b>	Repair South Platte River flood damage, Platte Wind (river ditch) washout and small erosions elsewhere.
<b>Hazard(s) Addressed</b>	Flooding
<b>Estimated Cost</b>	\$200,000
<b>Funding</b>	Irrigation District General Fund
<b>Timeline</b>	2-5 Years
<b>Priority</b>	High
<b>Lead Agency</b>	Company Board, Ditch Rider, TPNRD
<b>Status</b>	Not Started

**District Profile**

**Western Irrigation District**

**Twin Platte NRD  
Multi-Jurisdictional Hazard Mitigation Plan Update**

**2021**

## Local Planning Team

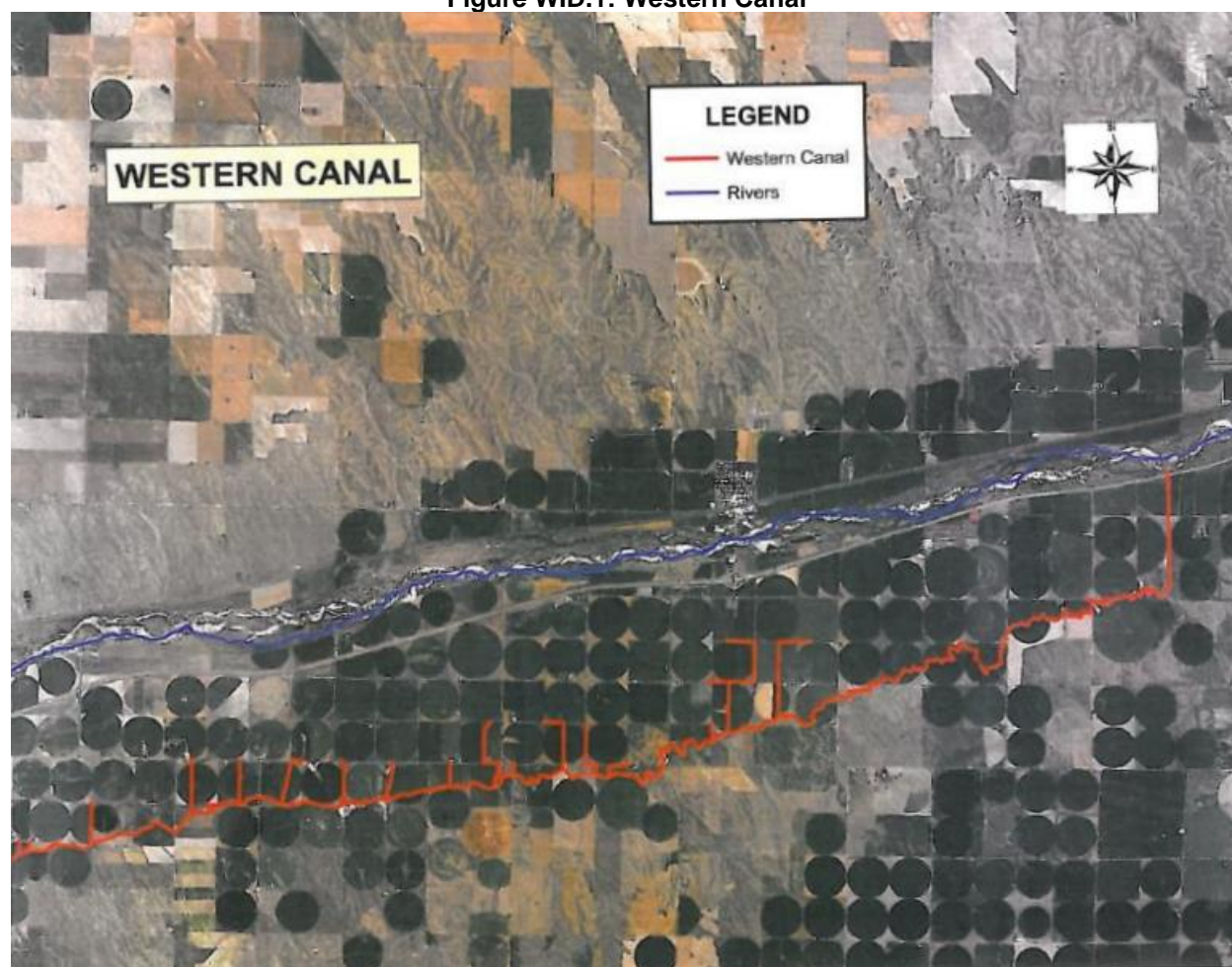
**Table WID.1: Western Irrigation District Local Planning Team**

Name	Title	Jurisdiction
<b>Dennis Schilz</b>	President	Western Irrigation District
<b>Stephen Palser</b>	Secretary	Western Irrigation District
<b>Phil Armstrong</b>	Treasurer	Western Irrigation District
<b>Dylan Johnson</b>	Ditch Rider	Western Irrigation District

## Location and Geography

Western Irrigation District is located south of the South Platte River, from southwest of Big Springs to west of the City of Ogallala. The district provides a surface water irrigation system to the patrons in its service area.

**Figure WID.1: Western Canal**



## Future Development Trends

Over the past five years, the irrigation district added new bridge overhead gates. No other changes other than regular maintenance occurred during that time. No changes to the system are planned for the next five years.



## Community Lifelines

### Critical Facilities

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public, and essential for returning the jurisdiction’s functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and Figure WID.2 provide a summary of the critical facilities for the jurisdiction.

**Table WID.2: Critical Facilities**

CF Number	Name	Community Shelter (Y/N)	Generator (Y/N)	Floodplain (Y/N)
1	Diversion Dam	N	N	Y*
2**	Western Canal	N	N	Y*

\*No mapped floodplain but is located directly on the South Platte River.

\*\*Map of the canal system can be found in Figure WID.1.

## Governance

The Keith-Lincoln Irrigation District consists of three-member district board and a ditch rider.

## Capability Assessment

The district is funded by assessment fees per acre and payments for augmentation. Funds are limited to maintaining current facilities and systems and have stayed the same over recent years. Due to the unique structure of irrigation districts, the typical capability assessment table is not used. The table below shows a broad overview of the district’s overall capability.

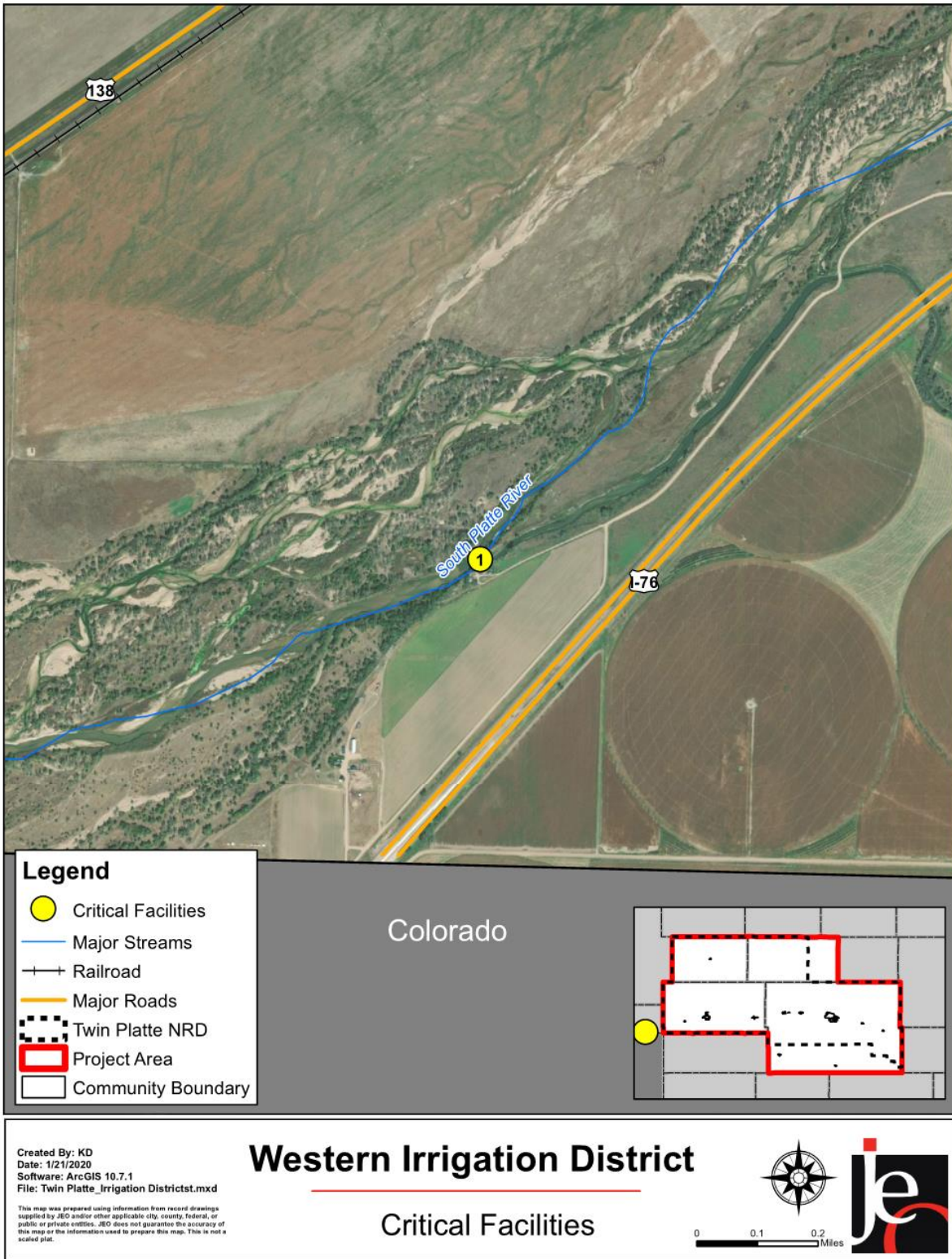
**Table WID.3: Overall Capability**

Overall Capability	Limited/Moderate/High
Financial resources to implement mitigation projects	Limited
Staff/expertise to implement projects	Limited
Public support to implement projects	Limited
Time to devote to hazard mitigation	Limited

## Plan Integration

The irrigation district does not have any formal response plans for an emergency situation, nor do they have plans that discuss hazards. However, the district can open or close a diversion dam during an emergency. In the event of an emergency, the irrigation district would work closely with the Bureau of Reclamation and the Twin Platte NRD to minimize any damages or loss of life. Emergency procedures and materials are discussed during board meetings. In any future planning mechanisms, the Western Irrigation District will work to integrate the goals and objectives of the hazard mitigation plan within them as appropriate. Currently, no schedule exists for creating other (non-HMP) planning mechanisms, thus there is no formal strategy for plan integration at this time.

Figure WID.2: Critical Facilities



## Historical Occurrences

See the Keith County profile for historical hazard events, including the number of events, damage estimates, and any fatalities or injuries.

## Hazard Prioritization

The hazards discussed in detail below were either identified in the previous HMP and determined to still be of top concern or were selected by the local planning team from the regional list as relevant hazards for the district. The planning team prioritized the selected hazards based on historical hazard occurrences, potential impacts, and the district's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

### Dam Failure

The Western Irrigation District operates a diversion dam that diverts water from the South Platte River to the canal. Failure of this dam would lead to damages to the canal, and properties throughout the irrigation district. Failure of the diversion dam is more likely to occur when water levels are higher on the South Platte River. Western is in the process of restoring 200-foot and 600-foot blowouts of the sand dam upstream of the diversion head gate.

### Drought

Drought would decrease water in the canal, likely because of lower water levels from the South Platte River and/or increased irrigation on fields. A shortage of water in the canal could lead to crop loss and increased fire risk within the district. The Western Irrigation District works with the Twin Platte NRD (in coordination with the Nebraska Department of Natural Resources) to divert excess river flows outside of irrigation season to achieve groundwater recharge.

### Flooding

Flooding could occur from significant rainfall, dam failure, or flow restrictions within the Platte River or the canal. A flood event has the possibility of causing crop damage and structural damage to the canal system or diversion dam. For example, flooding in 2015 led to approximately \$25,000 in damages to the canal. The irrigation district conducts regular maintenance on the canal system and makes structural improvements to help reduce flooding risk.

## Mitigation Strategy

The Western Irrigation District has limited capabilities to implement hazard mitigation projects independently and will continue to benefit from its existing relationship with the Twin Platte NRD.

### Continued Mitigation Actions

Mitigation Action	Canal Maintenance
<b>Description</b>	Implement necessary actions to maintain the canal.
<b>Hazard(s) Addressed</b>	Flooding, Chemical Spills, Dam Failure, Severe Thunderstorms, Drought
<b>Estimated Cost</b>	Staff Time
<b>Funding</b>	Irrigation District General Fund
<b>Timeline</b>	Ongoing
<b>Priority</b>	High
<b>Lead Agency</b>	Irrigation District Board, Ditch Rider, TPNRD
<b>Status</b>	In Progress: The regularly makes canal maintenance when issues occur

Section Seven | Western Irrigation District Profile

Mitigation Action	Groundwater Recharge
<b>Description</b>	Divert excess flows from South Platte River to recharge groundwater within the aquifer.
<b>Hazard(s) Addressed</b>	Drought
<b>Estimated Cost</b>	Staff Time
<b>Funding</b>	Irrigation District General Fund
<b>Timeline</b>	Ongoing
<b>Priority</b>	Medium
<b>Lead Agency</b>	Irrigation District Board, TPNRD
<b>Status</b>	In Progress: The district regularly diverts flows from the South Platte River

Mitigation Action	Reduce Flow Restrictions
<b>Description</b>	Evaluate restrictions and measures to prevent or reduce damage from flooding. Implement appropriate nonstructural or structural methods on an emergency or permanent basis (such as monitoring, ice jam dusting, or other flow improvements).
<b>Hazard(s) Addressed</b>	Flooding
<b>Estimated Cost</b>	Staff Time
<b>Funding</b>	Irrigation District General Fund
<b>Timeline</b>	Ongoing
<b>Priority</b>	Medium
<b>Lead Agency</b>	Irrigation District Board, Ditch Rider, TPNRD
<b>Status</b>	Not Started