



**SMRID**

ST. MARY RIVER IRRIGATION DISTRICT

*Proposed Irrigation Expansion Information Package*

**PUBLIC INFORMATION MEETINGS:**

November 22, 2022  
Taber Heritage Inn  
Time: 1:30 pm

November 24, 2022  
Seven Persons Community Hall  
Time: 1:30 pm

November 23, 2022  
Bow Island Legion Hall  
Time: 1:30 pm

November 25, 2022  
Readymade Community Hall  
Time: 1:30 pm



To Our Fellow Water Users,

How thankful we are for irrigation! Imagine what Southern Alberta would look like today without irrigation. We owe a great deal to our forefathers who had the foresight and courage to bring water to our communities. At a time when so many irrigation projects in the world are threatened, we are fortunate that, here in Southern Alberta, we are presented with an opportunity to expand and enhance our irrigation district, allowing our communities to grow and prosper.

Your SMRID Board of Directors has authorized the holding of a plebiscite to ask the water users to approve a phased expansion of the District by about 15% or 80,000 acres. This expansion is to be phased in over a number of years with a stringent set of rules that ensure that our current irrigators water security is as good or better than it is today.

In the spring of 2020 Irrigation Districts in Southern Alberta were invited by the Provincial Government to take part in a program to enhance and increase irrigation. Their reasoning was that dollars spent in irrigation agriculture would be a very effective way to stimulate the Alberta economy. SMRID responded aggressively with a list of eligible projects to replace open canals with pipelines as well as a proposal for the expansion of the Chin Reservoir. Our Board sees this as a once in a lifetime opportunity that cannot be passed up. The modelling shows that the combined gains in water savings and increased storage capacity exceed the additional water required to support the 15% expansion we are proposing and therefore reduces the risk of water shortage in times of severe drought. In addition to the Alberta Irrigation Modernization projects, over the past 12 years since the last expansion in 2011, both District water conveyance and on-farm application efficiencies have improved significantly. We expect these gains to continue.

In the planning process, we have taken the time to talk to many of our irrigators throughout the District for their views on expansion. We found that there was general support for the concept with one provision: water security must not be harmed. We have taken this message to our engineers and asked for an expansion limit that would retain or improve water security for our current water users. We have also designed a plan to regulate the allotment of acres in a prudent and cautious manner assuring those new acres are added only when it is wise to do so. This information package and the Public Information meetings will explain how we can enjoy the many benefits of expanding the SMRID without putting existing water users at risk.

We encourage you to attend the information meetings that will be held throughout the District, where you will be given the opportunity to learn about the proposed expansion and ask pertinent questions. We will be presenting relevant expansion-related information. After the information session there will be an opportunity to mingle with your neighbours, board members, and staff.

Your SMRID Board of Directors

# **INFORMATION PACKAGE**

## **TABLE OF CONTENTS**

<b>Page 3</b>	<b>Rationale for Irrigation Expansion</b>
<b>Page 6</b>	<b>General Information</b>
<b>Page 7</b>	<b>Efficiency Gains</b>
<b>Page 8</b>	<b>Chin Reservoir Expansion</b>
<b>Page 10</b>	<b>Who and How to Acquire Acres</b>
<b>Page 12</b>	<b>Plebiscite Vote</b>
<b>Page 13</b>	<b>Proposed Irrigation Expansion Summary Information</b>

## **LIST OF FIGURES**

<b>Page 17</b>	<b>Figure 1: 2021 Crop Mix</b>
<b>Page 17</b>	<b>Figure 2: 2021 Irrigation Systems Summary</b>

# RATIONALE FOR IRRIGATION EXPANSION

The Board of Directors have decided to take a proposal to the irrigators of the St. Mary River Irrigation District for an 80,000-acre expansion in the form of a plebiscite vote planned for November 28, 2022 based on the following rationale:

1. Chin Reservoir Expansion
  2. Efficiency Gains
  3. Revenue Generated from Capital Asset Charges will fund AIM Projects
  4. Rate Stabilization
  5. Increase Irrican Power Generation
  6. Retention of Licensed Allocations
  7. Attraction of Value-Added Industry
  8. Provide Opportunity for Additional Recreation Sites
  9. Provide Job Opportunities
- 
1. **Expansion of the Chin Reservoir will supply water for new acres and provide water security for existing acres.**
    - Allows for new irrigation development within the district, which can enable individual producers to improve their farm profitability and provide greater financial stability.
    - Additional water storage will provide a buffer to help mitigate restrictions in a dry year.
    - An expanded reservoir will allow for extra storage capacity to capture water from high volume storm events and provide flood mitigation.
  
  2. **Efficiency gains provided by replacing open canals with closed pipelines will allow our existing water flows to irrigate more acres.**
    - Our engineers have determined that water savings from our pipeline modernization projects that result from the elimination of seepage, evaporation, and spill losses, will allow us to irrigate more acres with the same amount of water.

# RATIONALE FOR IRRIGATION EXPANSION

## 3. Revenue generated from Capital Asset Charges will:

- Pay for the Alberta Irrigation Modernization projects, removing the burden of this payment from our current irrigators who are not able to expand.
- Provide revenue for continued accelerated rehabilitation beyond the scope of the AIM program. Allow for the creation of a financial reserve to provide for disaster repairs.
- Allow for enhancements to existing infrastructure. Many of our early pipelines did not include settling ponds or screeners. Our plan would direct a portion of Expansion Revenue to bring older infrastructure to present day standards.

## 4. Expanded acre base will spread fixed costs over more acres to allow for water rate stabilization.

- The cost of expansion, including the cost of infrastructure to deliver water to a project, is born by those who contribute Capital Asset Charges. The District will therefore spread its current overhead costs over more acres resulting in greater efficiency and rate stabilization.

## 5. Increased water flow through Irrican Power plants would maximize generation revenue and further stabilize water rates.

- New acres derived from the expansion of Chin Reservoir will require increased flows. The more water that flows through Irrican, the more revenue it generates for our irrigators.
- 2021 saw record net income before tax generation of \$7.8 million.
- The future role that Irrican would play in water rate stabilization is substantial when you consider the bullish outlook for green power pricing coupled with the increased flows of the proposed expansion.

## 6. Retention of Licensed Allocations.

- Expansion will demonstrate more efficient use of our licensed water allocations to reduce the potential for regulatory reductions to our licensed authorizations through a possible “Use It or Lose It” initiative.

# RATIONALE FOR IRRIGATION EXPANSION

## 7. Attract value adding industry and support production of specialty crops.

- An increase in available irrigation land will enhance and solidify Southern Alberta's reputation as one of the most attractive locations in North America for quality food production. Food processors demand stability. Irrigation provides consistent yield and quality for the many specialty crops grown in our district. Increased value-added processing will provide new opportunities for our existing irrigators as well as new irrigators.

## 8. Provide opportunities for an additional recreation site.

- The expansion of Chin Reservoir will allow for a new recreation site opportunity. Our community would appreciate an additional recreation and boating site. Our co-operation with the development of such a facility would go a long way to maintain our good relationship with the public, while maintaining the primary use of the reservoir for irrigation.

## 9. Irrigation expansion within our communities will provide jobs and opportunities to support continued growth and prosperity.

- Irrigation Agriculture provides employment opportunities for our families and allows our communities to grow and thrive.
- Please use this link to be able to download the Economic Value of Alberta's Irrigation report: [https://www.albertairrigation.ca/?page\\_id=148](https://www.albertairrigation.ca/?page_id=148)



# GENERAL INFORMATION

## Background

In October 2020 and November 2021, the Government of Alberta announced the \$933M Alberta Irrigation Modernization (AIM) program to invest in irrigation infrastructure. The investment is shared between the Alberta Government, and Irrigation Districts, with long term financing from the Canada Infrastructure Bank.

The purpose of the AIM program is to stimulate the Alberta economy and increase irrigation in Alberta. The program includes two areas of focus: projects that modernize irrigation infrastructure and the expansion of off-stream water storage.

## Modernization Projects

The amalgamated SMRID received approval for 30 modernization projects; primarily converting open channel water delivery systems with enclosed underground pipelines. The District has been completing similar projects for the past 40 years. These modernization projects increase water use efficiency within the District. The total budget for the 30 Modernization projects is \$206 Million.

## Off-Stream Water Storage

The SMRID, along with its main canal partner, the Raymond Irrigation District (RID), was also approved for funding to expand Chin Reservoir. The project will result in significant additional water storage (increasing the Chin Reservoir storage by roughly 50%) which will provide additional water security for our water users and the ability to expand our irrigation acres. The project is estimated at \$133 Million, of which the RID is contributing \$13.3 Million.



# EFFICIENCY GAINS

## Efficiency Gains

Since our last expansion in 2011, approximately 226 km of canals have been replaced through the District's Irrigation Rehabilitation Program (IRP). In addition, we have committed to replacing another 198 km of open canals through the Alberta Irrigation Modernization Program (AIM), so in total 424 km of canals will be replaced with buried PVC pipelines since the last expansion.

In addition, there have also been significant improvements in on-farm irrigation application efficiencies over the past 11 years since the last expansion.

Accounting for both on-farm and infrastructure improvements, it is estimated that the amalgamated SMRID will be saving 54,550 ac-ft of water per year, which is enough to serve an expansion of **40,912** acres. Water will continue to be saved through ongoing on-farm improvements and continuing rehabilitation efforts.

## **Water savings from on-farm and infrastructure improvements (SMRID)**

Category	Estimated water savings
Infrastructure Improvements (2011-present)	9,201 ac-ft
On-farm improvements (2011-present)	16,292 ac-ft
Alberta Irrigation Modernization Program projects (2020+)	29,057 ac-ft
<b>TOTAL</b>	<b>54,550 ac-ft</b>

**We are proposing that 40,000 acres derived from efficiency gains be put towards expanding additional acres.**



# CHIN RESERVOIR EXPANSION

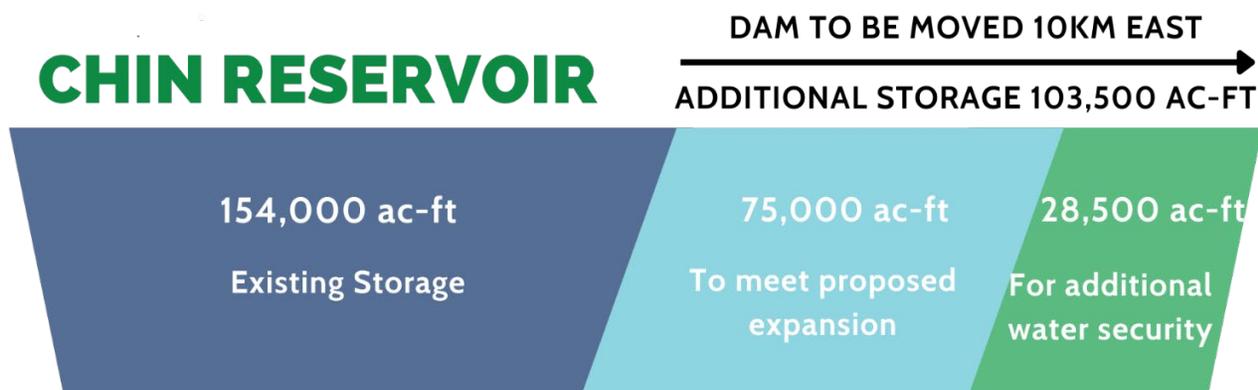
## Chin Reservoir Expansion

In addition to the expansion based on water savings from efficiency gains, SMRID engaged WaterSmart Solutions Ltd. (WaterSmart), to review expansion of the Chin Reservoir. SMRID is proposing to enlarge Chin Reservoir by relocating the East Dam 10 kilometers to the East, and raising the water level by 2.6 metres which will result in an additional 103,500 ac-ft of water storage.

## Computer Modelling and Risk of a Water Shortage

Based on WaterSmart’s modelling, it is estimated that the enlarged reservoir could support an additional 46,500 acres of expansion. WaterSmart’s analysis involved computer modelling using 82 years of climate and river flow records, which have been accumulated for the period of 1928 – 2009. The model used irrigation demand based on 2020 acres and the 2016 crop mixes, irrigation management techniques and practices and District infrastructure against recorded river flows and weather data from 1928 to 2009 (inclusive). Modelling showed that 75,000 ac-ft was adequate to support the proposed expansion with minimal additional risk.

## Modelled Water Requirements



Modelled scenarios used a variety of expansion acreages, which indicated what level of water deficits would have happened over the 82-year period. The base (current water demand) and anticipated (after expansion water demand) was compared to the water supply over those 82 years. In years where demand is higher than supply, a deficit was calculated.

# CHIN RESERVOIR EXPANSION

## Modelled Deficit Frequency 82 years (1928–2009 inclusive) – Amalgamated SMRID

Model Deficit Range (inches)	Base Case	75,000 ac-ft Storage Increase 46,500 acre Expansion
0 to 2	73	71
2 to 4	8	8
4 to 6	0	2
6 to 8	1	1
<b>TOTAL</b>	<b>82</b>	<b>82</b>

Based on an expansion of an additional 46,500 acres, there were two fewer deficits of 0 to 2 inches and two additional deficit water shortages of 4 to 6 inches based on a modelled 82-year period. SMRID and RID would share the 46,500 additional acres, **41,850 (90%)** and **4,650 (10%)**, respectively. The modelled deficits show there is minimal change in the risk of insufficient water to irrigators. **We are proposing that 40,000 acres derived from the expanded Chin Reservoir be put towards expanding additional acres.**

**In total, the 40,000 acres of water savings from efficiency gains plus the 40,000 acres of additional storage from an expanded Chin Reservoir will allow for 80,000 additional irrigation acres within the District.**

Amalgamated modelling results are of former SMRID and TID expansion modelling performed by WaterSmart prior to amalgamation.

### Gross Diversion of Water

The St. Mary River Irrigation District has eight water licenses which authorize the diversion of up to 880,000 acre-feet annually. Over the 35-year period of 1987 to 2021 inclusive, the gross diversion of water for the District, which includes water conveyed for other than irrigation purposes, seepage and evaporation losses and return flows, has **averaged 497,475 ac-ft in the amalgamated SMRID**. Over this period the greatest gross diversion was 685,289 ac-ft in 1988 and a low of 254,835 ac-ft in 2010. Over the 20-year period 2001-2021, **the average irrigation diversion for the amalgamated SMRID has been 13.0 inches.**

# WHO AND HOW TO ACQUIRE ACRES

In the proposed Expansion the District would be divided into four development blocks allowing for distribution of expansion acres across the entire District to fully utilize the capacity of each block.

- The distribution of expansion acres would be accomplished in Phases by a lottery system.
- Each Phase could include more than one lottery round, depending on demand, so that expansion is done in a controlled and prudent manner.
- If you are considering expansion, please note that the only time to enter your application for Phase 1 is in the designated application window. There will not be another opportunity to apply for acres until Phase 2.
- All applications received any time within the 30-day application window would be entered into the draw.
- Once each lottery round is complete, successful applicants would have 30 days to place a 10 percent down payment of the Capital Asset Charge. Successful applicants would then be required to provide proof of any necessary easements for their project, an acceptable irrigable land classification for irrigation, and full payment of the Capital Asset Charge before irrigation of the parcel could commence. Successful applicants have one year from the date of the lottery to complete the above requirements, otherwise these acres will be returned to the pool of available acres.

**Expansion must go to areas that have sufficient capacity. There will be canals, laterals and pipelines that may have capacity constraints that could limit their ability to effectively supply irrigation water to new expansion acres.**

- The District would consider all applications received to determine if the applied-for acres could be properly serviced.
- A special exemption from this capacity requirement would be made for successful applicants that are on the list for AIM modernization projects. These applicants may apply in the first round, make a 10 percent down payment, then make full payment when their rehab is complete and capacity is available.
- Successful lottery acres that apply for the same limited capacity within a specified system, would be accepted in the order that they are picked.

# WHO AND HOW TO ACQUIRE ACRES

The proposed Expansion would begin with Phase 1 planned for the spring of 2023. The primary goal of Phase 1 is to allow our existing irrigators to maximize the irrigation acres of their farms.

- This goal would be achieved by limiting applications to 150 acres per registered landowner.
- Irrigators would be allowed to hold new acres on their existing dryland corners for future corner system development.
- The first lottery round would be limited to **15,000 acres** and awarded based on the capacity within each block.
- The acreage limit and timing of future rounds to complete Phase 1 would be based on the District's ability to provide adequate capacity.
- **All current and future irrigators** could apply in Phase 1 and lottery rounds would be run until all eligible requests are satisfied.

Once the eligible applications in Phase 1 are allocated the expansion process would move to Phase 2.

- The goal of Phase 2 would be to direct expansion to where demand and capacity is available
- Acreage limits will be increased to accommodate larger projects.
- Capital cost of expansion would be determined at that time, based on market conditions.

During the expansion process, it is imperative to protect the water security of our current irrigators.

- Expansion progress would be tied to demonstrated and verified capacity gains from completed modernization projects.
- The Board of Directors would review the expansion progress at the end of each irrigation season. If the rate of expansion is found to be detrimental to the interests of the irrigators the Board of Directors has the option of adjusting or delaying any further expansion within each block.

# PLEBISCITE VOTE

Voting regulations for a plebiscite are identical to the election process for Directors.

The plebiscite is approved if more than 50% of the irrigators voting, vote in favour on a ballot which will have wording similar to:

**The St. Mary River Irrigation District presently has an expansion limit of 504,200 acres. The Board of Directors has determined that 584,200 acres could be served with its existing water license(s). The Board of Directors is seeking the approval of the irrigators to change the expansion limit to 584,200 acres.**

The plebiscite vote will be held at poll stations on:

**Date: November 28, 2022**

**Time: 10:00 a.m. to 8:00 p.m.**

**Locations: Lethbridge, Taber and Bow Island District Offices**

## Public Information Meetings:

The Board of Directors will hold public information meetings for all irrigators prior to the plebiscite vote. These meetings will be held on:

**Date: November 22, 2022**

**Location: Taber Heritage Hall**

**Time: 1:30 p.m.**

**Date: November 23, 2022**

**Location: Bow Island Legion Hall**

**Time: 1:30 p.m.**

**Date: November 24, 2022**

**Location: Seven Persons Community Hall**

**Time: 1:30 pm**

**Date: November 25, 2022**

**Location: Readymade Community Hall**

**Time: 1:30 p.m.**

All irrigators are strongly urged to attend one of these meeting to hear the presentations on the expansion proposal.

# PROPOSED IRRIGATION AREA EXPANSION SUMMARY INFORMATION

## **Background:**

The Board of Directors of the St. Mary River Irrigation District (SMRID) is proposing to acquire authorization to increase the expansion limit of the SMRID by an additional **80,000 acres**. The current expansion limit for the amalgamated SMRID is 504,200 acres, which will increase the expansion limit to **584,200 acres**.

## **Required Information:**

Within the governing requirements, as specified in the Irrigation Districts Act and its Regulations, the Board of Directors must:

- Provide notice of their intention to increase the District's irrigation expansion limit by approval of the irrigators;
- Provide specific water use and associated information to the public;
- Hold at least one public meeting to explain the details of the proposed increase in the irrigation expansion limit, and
- Hold a plebiscite vote of the irrigators on the proposed expansion.

The following information is provided in accordance with the stipulation of the Irrigation Plebiscite Regulation and is to be referenced as supporting rationale for expansion and the basis on which a plebiscite vote is implemented. Much of the detailed water requirement data has been derived through irrigation demand modelling work carried out on behalf of the SMRID by WaterSmart. The modelling analysis considers climate and water supply conditions representing 82 years of historical records. Expansion assessments are compared with water requirements as if the District were developed fully to a 584,200 acre Expansion Limit, as defined in the Irrigation Districts Act. All quantities derived and presented below are based on average annual conditions. 2021 crop mix (Figure 1) and on-farm system information (Figure 2) are included for recent information purposes.

## **A. Allocated License Volume of Water**

The SMRID retains the equivalent of eight (8) irrigation diversion licenses totalling 880,000 acre feet of water. The date of these priority licences range in date of issue from 1899 – 1991.

# PROPOSED IRRIGATION AREA EXPANSION SUMMARY INFORMATION

## B. Volume of Water Lost from Canals and Reservoirs

Water related to the SMRID licenses is lost through either seepage or evaporation from the district conveyance canal systems, as end of canal flows that do not return to the system and flow to the river, and notably through evaporation off system reservoirs. Seepage has been significantly reduced over the last number of years through the rehabilitation of these works and the installation of more and more pipelines. As of 2021, it was estimated that approximately 10,902 acre-feet of water is being lost due to seepage and 38,507 acre-feet is lost from District canals and reservoir evaporation for a total of 49,409 acre-feet of water per operating season.

## C. Volume of Return Flow

Water related to the amalgamated SMRID diversion licenses that is returned to the natural river systems, (return flow), is estimated as 47,467 ac-ft per operating season. This is based on the average of years 2016 to 2021. It is also recognized that in recent years the District is making notable reductions in the quantity of return flow as a result of continued upgrading of infrastructure with pipelines and landowner efficiency gains.

## D. Volume of SMRID Licence Water Used for Other Purposes

The amalgamated District supplies 20,000 acre-feet of its licensed diversion water to uses other than irrigation. In 2021, approximately 33% of this volume was remaining to be allocated for agricultural and industrial water conveyance agreements.

## E. Volume of Remaining License Water Available for Crop Use

The remaining licensed water available for use at the farm delivery is the net amount after the above “losses”. This is equivalent to:

<b>Total Licensed Volume</b>	<b>880,000 ac-ft</b>
<b>Less:</b>	
Losses from Seepage and Evaporation	(49,409) ac-ft
Return Flow Volume	(47,467) ac-ft
Other Use Commitment	(20,000) ac-ft
Remaining for Irrigation	763,124 ac-ft

# PROPOSED IRRIGATION AREA EXPANSION SUMMARY INFORMATION

## F. Water Requirements

SMRID has collected flow data over the past 35 years (1987-2021) and can demonstrate that the average volume of water diverted to meet farm delivery requirements is 497,475 acre-feet annually. The diversion has ranged as high as 685,289 acre-feet (1988) and as low as 254,835 ac-ft (2010). This includes both the volume required for consumption by crops as well as the losses incurred through the application and water delivery process, as well as other uses;

- 1) **Average Gross Water diverted, including losses (2001-2021): 13.0 inches**  
**Average On Farm Water applied, (2001-2021): 9.6 inches**  
*(based on acres actually irrigated)*
- 2) **2021 SMRID Crop Mix (Figure 1)**

Crop	Percentage %
Cereals	33%
Forages	25%
Oil Seeds	12%
Specialty Crops	29%
Other	1%

- 3) **Level of Risk of Water Shortage** – For the 40,000 acres of the proposed irrigation expansion from efficiency gains, there is no change in deficit and frequency of water shortage. For the additional 40,000 acres of proposed irrigation expansion based on the Chin Reservoir expansion, please see the **Modelled Deficit Frequency Table** on Page 9 which summarizes the number of deficits and frequency for the planned Chin expansion.

Based on calculated Efficiency gains and the modelled expansion of additional storage in Chin Reservoir the level of risk of water shortage of the proposed 80,000 acre expansion is minimal to our water users.

# PROPOSED IRRIGATION AREA EXPANSION SUMMARY INFORMATION

## **G. Total Acres that could Be Irrigated**

Based on the modelled irrigation demand the District's current licensing has enough capacity to support irrigation of at least 584,200 acres.

## **H. Current Expansion Limit**

The present Expansion Limit is 504,200 acres.

## **I. Current Irrigation Area on the Assessment Roll**

As of the 2021 assessment roll for the amalgamated SMRID, 502,794 acres were identified as irrigated, including 3,537 annual acre agreements and 623 terminable acres.

## **J. Proposed Expansion Limit**

The SMRID Board of Directors is proposing a revised Expansion Limit of **584,200 acres**.

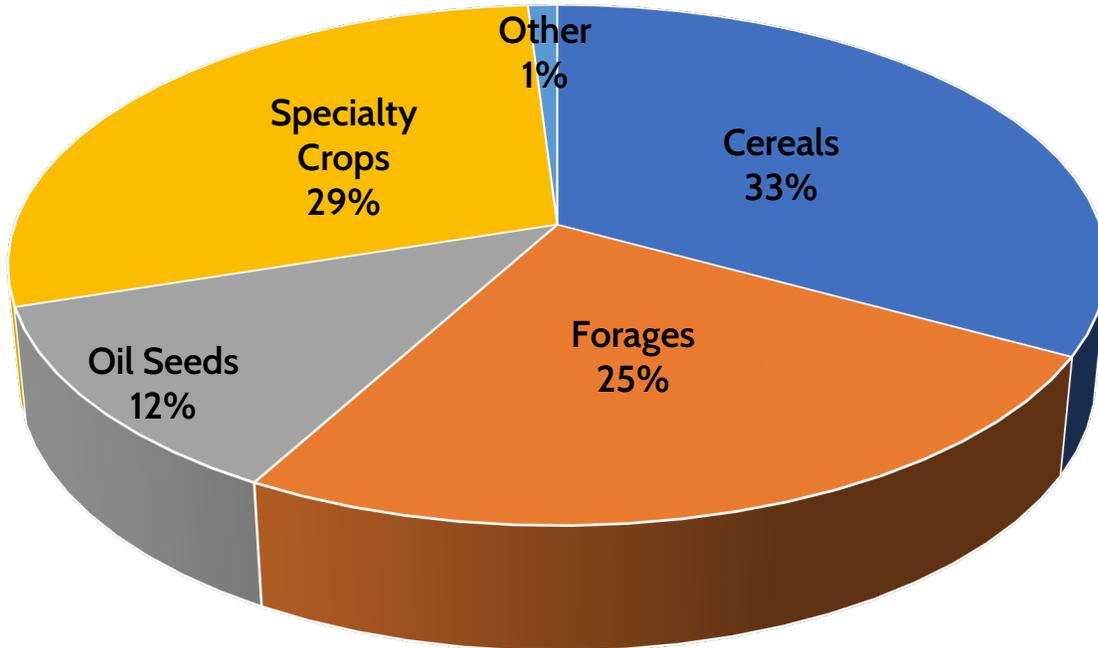
## **K. Location of Expansion Areas**

Throughout the District, particularly where in-fill is beneficial and along main canal.



# FIGURE 1

2021 SMRID CROP MIX



# FIGURE 2

2021 SMRID IRRIGATION SYSTEMS

