



PROPOSED IRRIGATION EXPANSION 2026

Information for the Public

Public Meeting March 13, 2026 | 10:00 AM | WID Office A-1000 Pine Street | Strathmore | AB

Introduction

Section 12 (1) of the *Irrigation Districts Act*¹ (the Act) specifies that the sum of the irrigation acres plus the acres subject to terminable agreements in a district must not exceed the expansion limit for an irrigation district.

Section 12(3) of the Act states that a district may, through bylaw, change the expansion limit.

Section 12(4) of the Act states that if a district proposes to change the expansion limit, the board must hold a meeting with the public and hold a plebiscite to obtain the approval of the irrigators.

Section 4(1) of the *Irrigation Plebiscite Regulation*² (the Regulation) specifies that, before the public meeting, certain information must be available to the public.

The modelling analysis relied on two models: the Irrigation Demand Model version 3.0 (IDM-3) managed by AAFRED, and the Integrated Bow Basin Model (IBBM) operated by Unitech Solutions Inc. in collaboration with Alberta Environment and Parks (AEP), now Alberta Environment and Protected Areas, which was initially modelled for the 2023 plebiscite. WID contracted MPE Engineering to conduct an engineering analysis of the WID distribution system and water supply to determine the feasibility of increasing the expansion limit. This effort included a water balance and system capacity analysis to extrapolate the ability for WID to expand to 140,000 acres and 160,000 acres supported by the previous modelling data which only extended analysis to 125,000-acre feet.

MPE and WID have determined that there is limited additional risk and no significant concern to water security to irrigate 110,000 acres or 140,000 acres based on the inefficiency of our current system. Therefore, the WID is proposing to increase the current expansion limit from 110,000 acres to 140,000 acres.

¹ *Irrigation Districts Act*, Revised Statutes of Alberta 2000, Chapter I-11

² *Irrigation Plebiscite Regulation*, Alberta Regulation 79/2000, Irrigation Districts Act

Required Information

The information that the Regulation specifies the board must make available to the public is contained in this report and follows as items A through K.

A. The volume of water allocated to the district under all the district’s existing water licenses.

The WID has two water licenses as shown in Table 1.
 The total water allocated is **190,500 acre-feet**.

Table 1. WID Water Licences		
Priority Date	Allocation (acre-feet)	Purpose
1903-09-04-001	158,400	Irrigation, domestic, municipal, commercial and industrial.
2000-09-01-003	32,100	Irrigation
TOTAL	190,500	

B. The volume of water lost from canals and reservoirs.

Year	Seepage	Return Flow
2021	15131	34976
2022	4815	24094
2023	15200	27722
2024	13182	50623
2025	12896	58217
5yr avg	12245	39126
5 yr total	61224	195632

Water losses related to conveyance and storage operations occur because of seepage and evaporation from the canal systems and evaporation from reservoirs of approximately 5,200 acft. Seepage in 2025 was 12,895 acre-feet and the 5-year average was 12,245 acre-feet.

C. Volume of Return Flow

Based on the 2025 water audit, water returned to the river was **58,217 acre-feet**, however the 5-year average is **38,401 acre-feet**. We continue to work to reduce return flows through control gates and automation of our systems with the goal of eventually becoming an effectively closed system. We consider all return flows available water.

D. The volume of water allocated under the district’s water licenses that is required for uses other than irrigation.

The WID’s original senior water license allowed for:

- i. Municipal 1,000 acre-feet
- ii. Commercial 1,400 acre-feet
- iii. Industrial 100 acre-feet

In 2011, amendments stated that, as part of its existing allocation, up to **3,500 acre-feet** could be delivered for municipal, commercial or industrial purposes.

E. The remaining volume of water available for crop use

Based on the last 5 year water audits, the average water available for crop use is 169,555 acre feet.

Total water allocated	190,500 acre-feet
Losses from canals and reservoirs	-17,445 acre-feet
*Return Flow Volume	- 38,401 acre-feet
<u>Other (non-irrigation) uses</u>	<u>- 3,500 acre-feet</u>
Remainder available for crop use =	131,154 acre-feet
Return Flow Volume	+ 38,401 acre-feet
Total Available Water	= 169,555 acre-feet

*The above is typical water balancing report when all water is controlled. However, as the WID has no current downstream control and as such, it is considered a flow through system, and the Return Flow Volumes are available water.

F. The gross volume of water required per acre at the farm turnout for crops.

During the past 25 years (2000-2025) the average annual volume of water diverted at the source has been **110,446 acre-feet**, ranging as high as 155,072 acre-feet (2002) and as low as 65,842 acre-feet (2010). This includes the volume required at the farm turnouts for crops as well as the losses incurred through the water delivery process

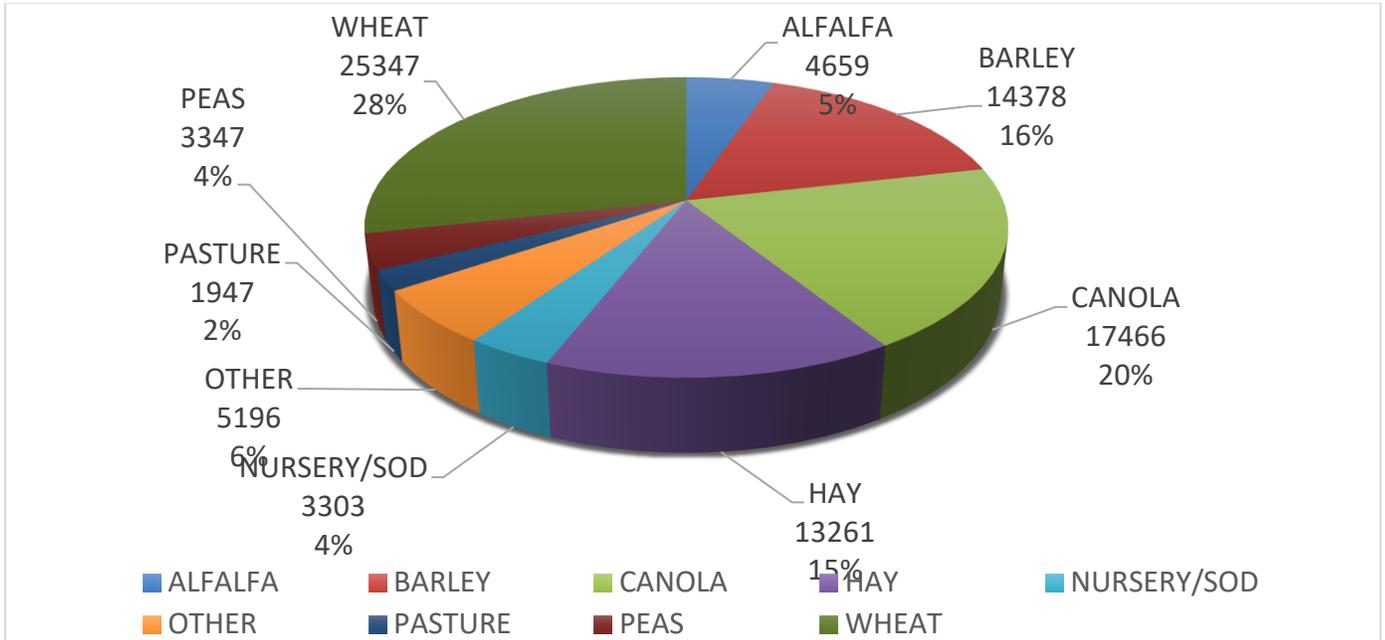
(i) Average net depth of water required per acre

The 1928-2001 modelling calculated the water required per acre (crop water demand) to irrigate 95,000 acres between 221mm/8.7” (1951) to 564mm/22.2” (1929). However we continue to establish improvements and efficiencies in water use, so it is unrealistic to continue to use net depth requirements from 100 years ago. It’s much more realistic to look at demands over the past 10 years which included one of the driest years on record

in 2023. Between 2005 – 2025 the WID has had an average application of 9.6 Inches (Low 5.52” 2020, High 13.2 Inches 2015). In 2025 the average application was 6.12 Inches. It has been determined that the average net depth of water required at the turnout is 9.6”.

(ii) Percentage of each crop type

For modelling purposes, the 2018 crop mix was used
 Total of 106,645 acres contracted for 2025
 97,477 Active (Has an irrigation system)
 88,904 Acres irrigated



(iii) Level of risk of a water shortage (deficit and frequency)

The MPE modelling analysis relied on two previous models: the Irrigation Demand Model version 3.0 (IDM-3) managed by AAFRED, and the Integrated Bow Basin Model (IBBM) operated by Unitech Solutions Inc. in collaboration with Alberta Environment and Parks (AEP), now Alberta Environment and Protected Areas, which was initially modelled for the 2023 plebiscite. **The modelling by Alberta Agriculture and Irrigation and Unitech Solutions/Alberta Environment and Protected Areas, did not analyze an expansion greater than 125,000 acre-feet.**

WID contracted MPE Engineering to conduct an engineering analysis of the WID distribution system and water supply, supported by the previous modelling, to extrapolate the data and determine feasibility of increasing the WID expansion limit to 140,000 acres and 160,000 acres. The modelling estimated the water demand and supply using climatic data over 74 years. This determined in what years the supply met or exceeded the demand and what years the supply could not meet the total demand. In years when demand exceeded supply, the amount of the deficit was calculated. Based on analysis work completed by AAFRED, a deficit of 100mm (~4 inches) or less is not expected to cause serious financial risk for most producers. Table 1

summarizes AAFRED’s guideline for risk assessment associated with a modelling scenario, given the magnitude of a deficit in a single irrigation season.

Table 1. AAFRED risk assessment guideline of annual diversion deficits.

Deficit per irrigation season (mm)	Risk assessment
1-25	No concern
26 - 100	Minor concern
> 100	Significant concern

- **No Concern** - Deficits of 25 millimetres or less of total diversion during an irrigation season are of no concern in the risk analysis as they are considered to have negligible financial implications.
- **Minor Concern** - Diversion deficits between 26 and 100 millimetres during an irrigation season are noted as a minor concern. These deficits would be expected to have minimal financial implications for most irrigators.
- **Significant Concern** - Diversion deficits greater than 100 millimetres in an irrigation season are considered significant because such deficits may have a significant negative impact on on-farm economic viability.

Expansion Analysis Guidelines

- 2023 AAFRED (AB Agriculture & Irrigation) Modelling used as baseline. The acceptable level of risk was defined as a deficit of no greater than 100 mm (4 inches) for 1 in 10 years.
- MPE was contracted to extrapolate data using the 2022 AAFRED modelling and provide an analysis towards expansion to 140,000 and 160,000 acres.
- MPE used the average year irrigation requirement of 9.6” to determine risk in association with AAFRED guidelines.
- Water deficits of > 4” are of significant concern and must not be forecasted to occur no more frequent than once every 10 years
- Water deficits of 4” or less are of minor concern and producers are not expected to experience any serious financial risk
- Water deficits of 1” or less are of no concern

Expansion Analysis Data

- WID average annual irrigation usage is 9.6” over the past 15 years
- WID current available storage volume of 12,770 acre-feet (between Chestermere

and Langdon reservoirs)

- The analysis did not consider other inline storage of approximately 5,000 acft.
- WID current water diversion ratio is 1.5 acre-feet of water diverted per irrigated acre and consistently trending lower, down from 2.0, 10 years ago (actual 2025 ratio was 1.45).
- 10% percentile actual available river diversion volume is 163,000 acre-feet with current license diversion rate limits. 163,000 acre-feet represent the lowest diversion volume available to WID over the past 35 years. 163,000 acre-feet available diversion has occurred in 7 of the past 35 years (1 in 5 years). (pending license amendment application has not been considered in the analysis).

Expansion Analysis to 140,000 acres – Water Usage Efficiency (1.5 is current ratio)

<p>1.5 water usage diversion ratio</p> <ul style="list-style-type: none"> • No additional storage • Water deficit less than 3” • Minor concern in 4 of 5 years • No significant concern in any years.* 	<p>1.3 water usage diversion ratio</p> <ul style="list-style-type: none"> • No additional storage • Water deficit less than 0.5” • No concern in any years * 	<p>1.2 water usage diversion ratio</p> <ul style="list-style-type: none"> • No additional storage • No water deficit • No concern in any years *
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*except in rare extreme drought year

Requirements to Expand to 140,000 acres

- Existing WID system, infrastructure, storage, operations and license can support expansion to 140,000 acres.
- No additional storage required.
- No significant concern of water deficit.
- No changes or improvements required to support expansion to 140,000 acres.
- Infrastructure investments to improve water usage diversion ratio will support expansion beyond 140,000 acres.

Expansion Analysis to 160,000 acres - Water Usage Efficiency (1.5 is current ratio)

<p>1.5 water usage diversion ratio</p> <ul style="list-style-type: none"> • 10,000 ac ft additional storage • Water deficit +/- 4” • Minor concern for 5 of 5 years 	<p>1.3 water usage diversion ratio</p> <ul style="list-style-type: none"> • 10,000 ac ft additional storage • Water deficit +/- 2” • Minor concern for 1 of 2 years 	<p>1.2 water usage diversion ratio</p> <ul style="list-style-type: none"> • 10,000 ac ft additional storage • Water deficit +/- 0.5” • No concern in any years *
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*except in rare extreme drought year

Requirements to Expand to 160,000 acres

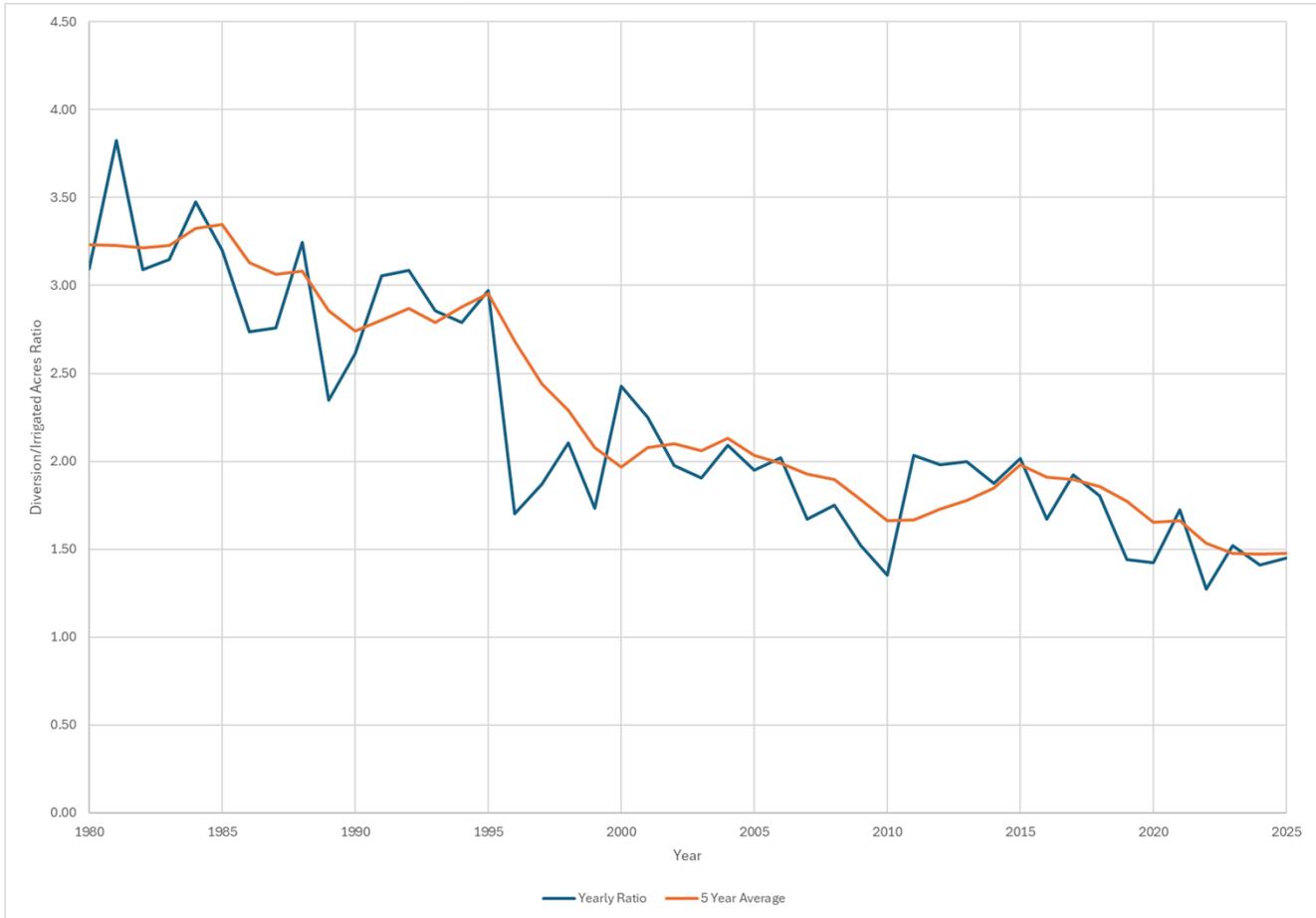
- With additional storage, WID system, infrastructure, operations and license can support expansion to 160,000 acres.
- 10,000 acre-feet of additional storage required. Eagle Lake storage to be in service for 2027 irrigation season.
- No significant concern of water deficit. Water deficit will be reduced to less than 0.5” with efficiency improvements.
- Infrastructure investments to improve water usage diversion ratio will support expansion to 160,000 acres.
- License diversion rate increases would provide additional water security with 24,200 acre-feet additional annual diversion

G. The total acres that could be irrigated based on the calculation made under clause (f):

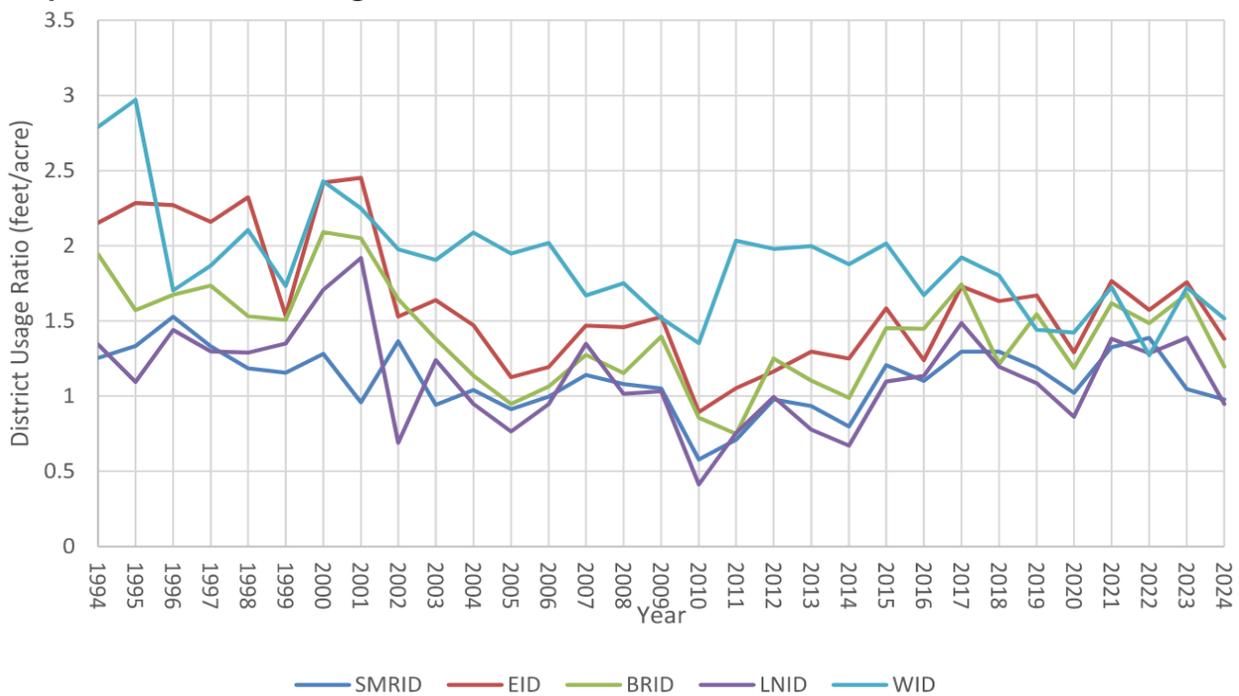
140,000 acres can be irrigated without WID making any improvements. Additional acres may be irrigated with the implementation of any of the noted net positive controllable variables. Storage, process improvement, license amendments etc. Of note is the WID is currently making positive improvements in all these areas.

- Eagle Lake Storage** - 10,000 acre-feet to be online in 2027
- Inline Storage** - adding new projects and Ducks Projects into the system – 2,000 acre-feet
- Operations efficiency** - added 5 control structures to minimize waste flow – program is slated for 30 structures over next 5 years – 10,000 acre-feet in reduced return flow
- Senior License amendment** - currently in mediation process with GoA – GoA is more apt to increase diversion and volumes when there is a legitimate requirement versus a maybe.
- Irrigation improvement** - Irrigators continue to use and require less water. Anecdotal evidence shows timing and correct amount of water has shown to be more productive, then ‘more is better’.
- Seepage reduction** – lining old canals, preventative maintenance program

Ratio of Diversion Volume to Irrigated Acres per Year



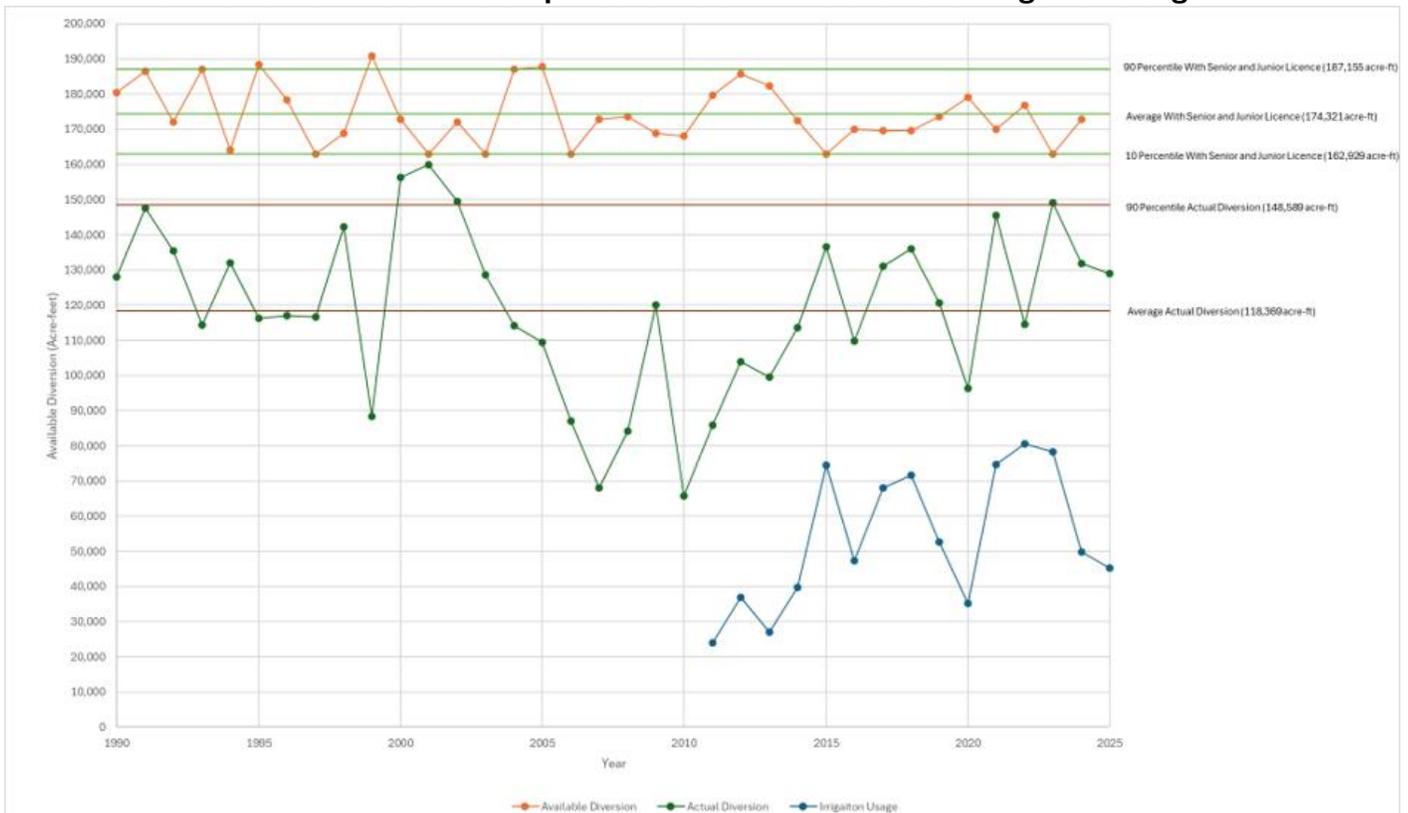
Comparison of Water Usage Ratios Between Southern Alberta Districts



Depth Used per Irrigated Acre



Annual Available Diversion Compared to Actual Diversion and Irrigation Usage



H. The present expansion limit

The WID’s present expansion limit is **110,000 acres**.

I. The number of acres on the current assessment roll

Assessed Acres in 2025

- Irrigation Acres - 104,335
- Terminable Acres - 230
- Annual Acres - 2,080.5
- TOTAL = 106,645.5 Acres

Year	Irrigation Acres	Term Acres	Annual Acres	Total Assessed Acres	
2020	88014.5	5672.5	2571.5	96258.5	
2021	88969.5	5647.5	2224.5	96841.5	
2022	89440.5	5527.5	5583.5	100551.5	**Includes 3,359 Annual Expansion Acres
2023	89460.5	5507.5	3664.5	98632.5	**Includes 2,192 Annual Expansion Acres
2024	98152.5	5424.5	2937.5	106514.5	
2025	104335	230	2080.5	106645.5	

J. The proposed expansion limit.

- The proposed expansion limit is 140,000 acres

K. A description of the areas in the district where additional irrigation will be allowed if the district will not allow additional irrigation in all areas of the district.

- The WID has no restrictions planned on where expansion will take place.

Conclusion

Results from the modelling exercise found that:

- None of the modelled expansion scenarios exceed the AFRED risk assessment guideline of irrigation demand deficits greater than 100 mm occurring more frequently than 1 in 10 years.
- Deficits greater than 100 mm occur in 4 of the 74 modelled years in the baseline scenario at the current WID area expansion limit of 110,000 acres., with less than a 4 % percent chance of this occurring.
- The WID license allocation of 190,500 acre-feet is not a limiting factor causing deficits.
- Continued improvements in water delivery and conveyance infrastructure and on-farm irrigation system efficiency have and will continue to increase water availability for WID.
- Based on the modelling results, 140,000 acres could be irrigated with limited additional risk and no significant concern to water security, which is equal with WID irrigating 110,000 acres, applying the average irrigation depth of 9.6”.

There is limited additional risk involved but major benefits include:

- **Improved Financial Stability through spreading costs over more potential irrigators.**
- **Expedited pace of modernization of irrigation works to improve water service efficiency.**
- **Re-investment of expansion funds into infrastructure.**
- **Improved water delivery, improved efficiency and greater water security**