

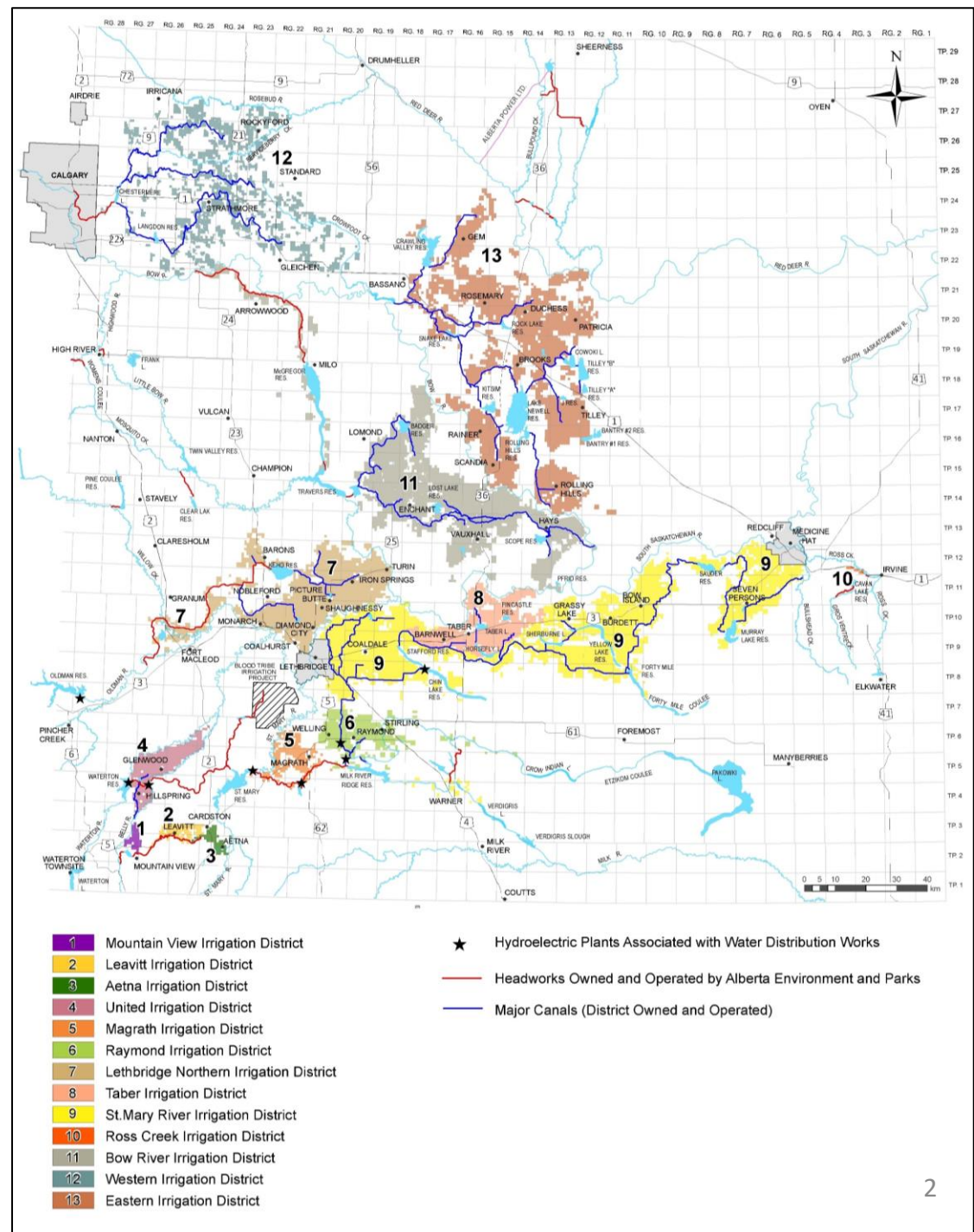
Alberta Irrigation Modernization (AIM) Program



Alberta's Irrigation Districts

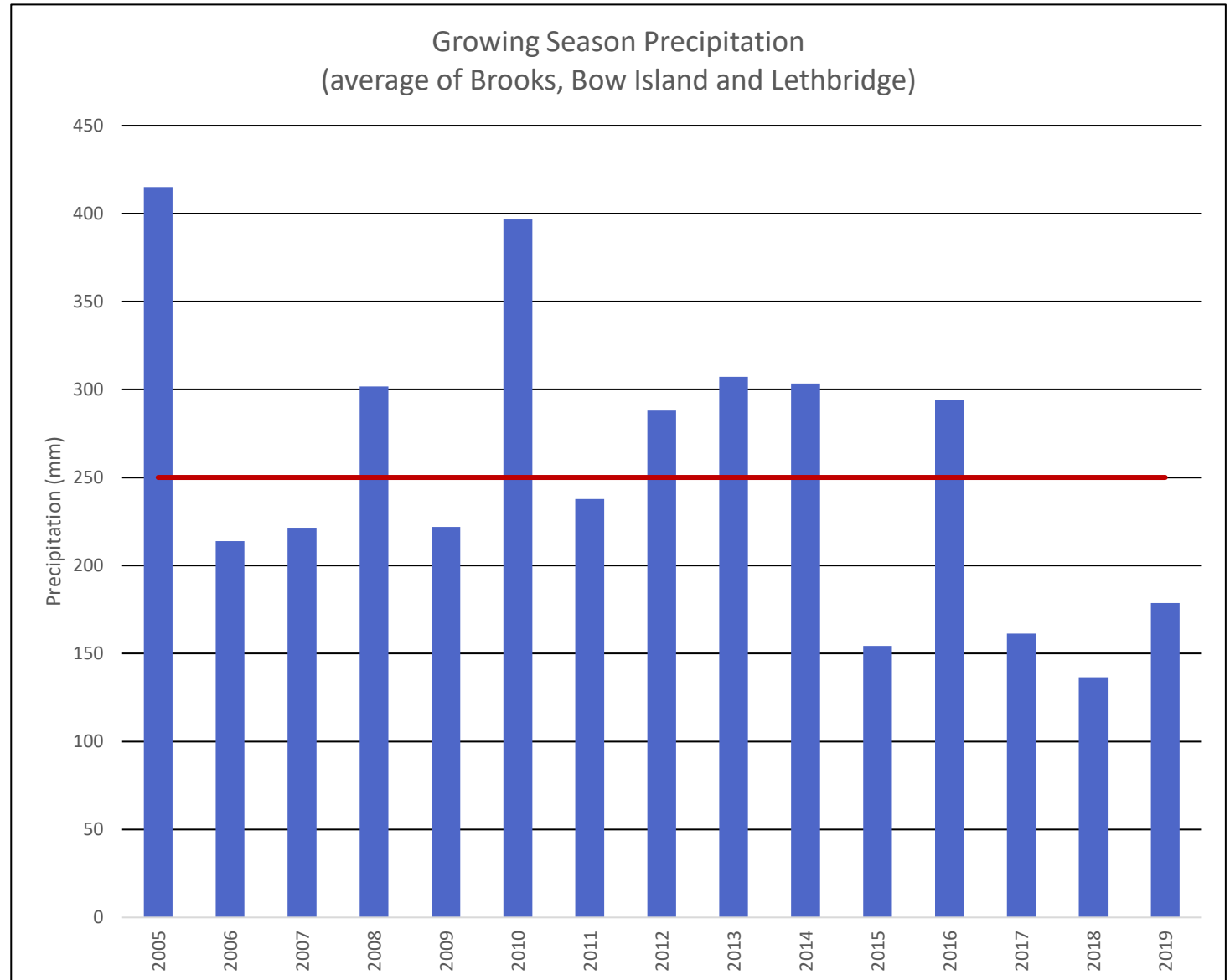
13 districts, 1.5 million acres

- 3 on the Bow River
- 1 on the Oldman River
- 8 on the St. Mary, Waterton, & Belly Rivers (Oldman trib.)
- 1 on Ross Creek (Cypress Hills)



Why Irrigate?

- Good soils, lots of sunshine
- Variable and frequently inadequate precipitation
- Rocky mountain snowpack
- Choice of crops
 - 60 vs. 25
- Productivity
 - Irrigated vs dryland



Why Irrigate?

- Near Vauxhall, Alberta July 30, 2021

Unirrigated grain



Irrigated grain



Why Irrigate?

- Near Vauxhall, Alberta July 30, 2021

Unirrigated dry peas



Irrigated dry peas

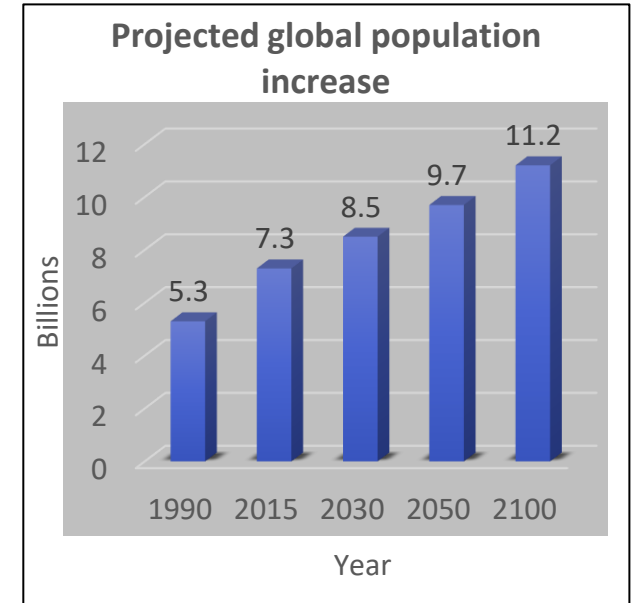


Why Irrigate?



Why Irrigate?

- Over 40% of the world's food supply is dependent on irrigation.
- Irrigation is the most reliable prevention for famine.
- Global population is expected to grow to 11.2 billion by 2100
- Canada is one of 5 countries identified as having the ability to significantly increase food production to support this growth.
 - Increase export of primary product
 - Increase production and export of value-added product



Why Irrigate?

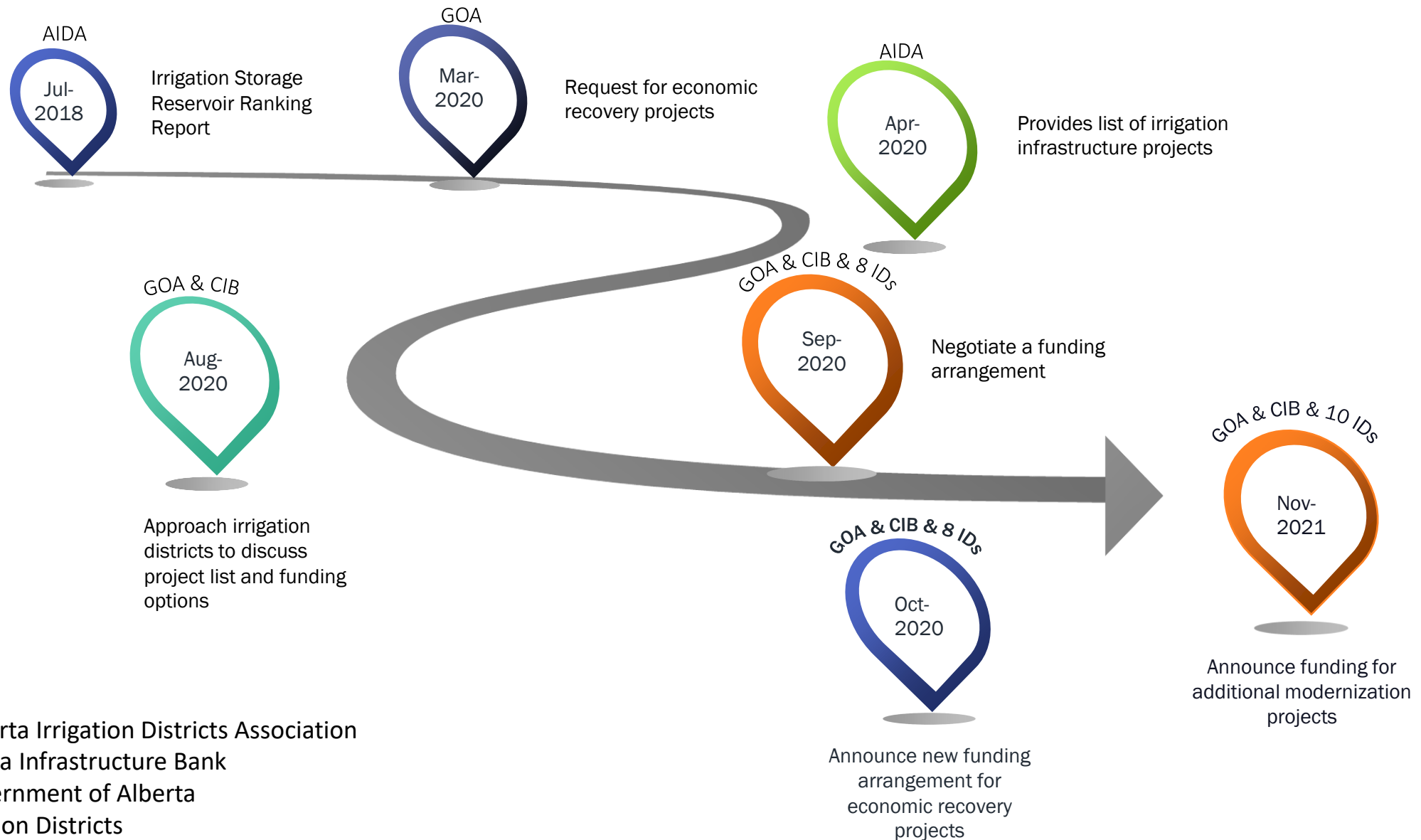
“Economic Value of Alberta’s Irrigation Districts” by Acera Consult Inc. was released in November 2021. Key findings include:

- Sales of crops and livestock produced within irrigation districts accounted for 27% of total primary agricultural sales in Alberta, even though the districts contain only 4.4% of the province’s cultivated land base.
- Irrigation districts annually generated \$5.4 billion to the provincial GDP. 20% accrued to irrigation producers, and 80% to the region and province.
- Every dollar invested by the GoA in irrigation districts returned \$3.56 in direct revenue to the GoA.
- 46,000 full time equivalent employment positions are attributable to irrigation districts.

AIM Program Background



Program Timeline



AIDA – Alberta Irrigation Districts Association
CIB – Canada Infrastructure Bank
GOA – Government of Alberta
IDs – Irrigation Districts

Program Considerations/Complications

CIB would only deal with a single large entity, not individual irrigation districts (IDs)

- Participating districts formed Irrigating Alberta Inc.

Confidentiality regarding the negotiation process and subsequent finalization of legal agreements after the project announcement required parties to sign non-disclosure agreements

- This resulted in limited communication to the public
- Details of the loan agreements cannot be disclosed

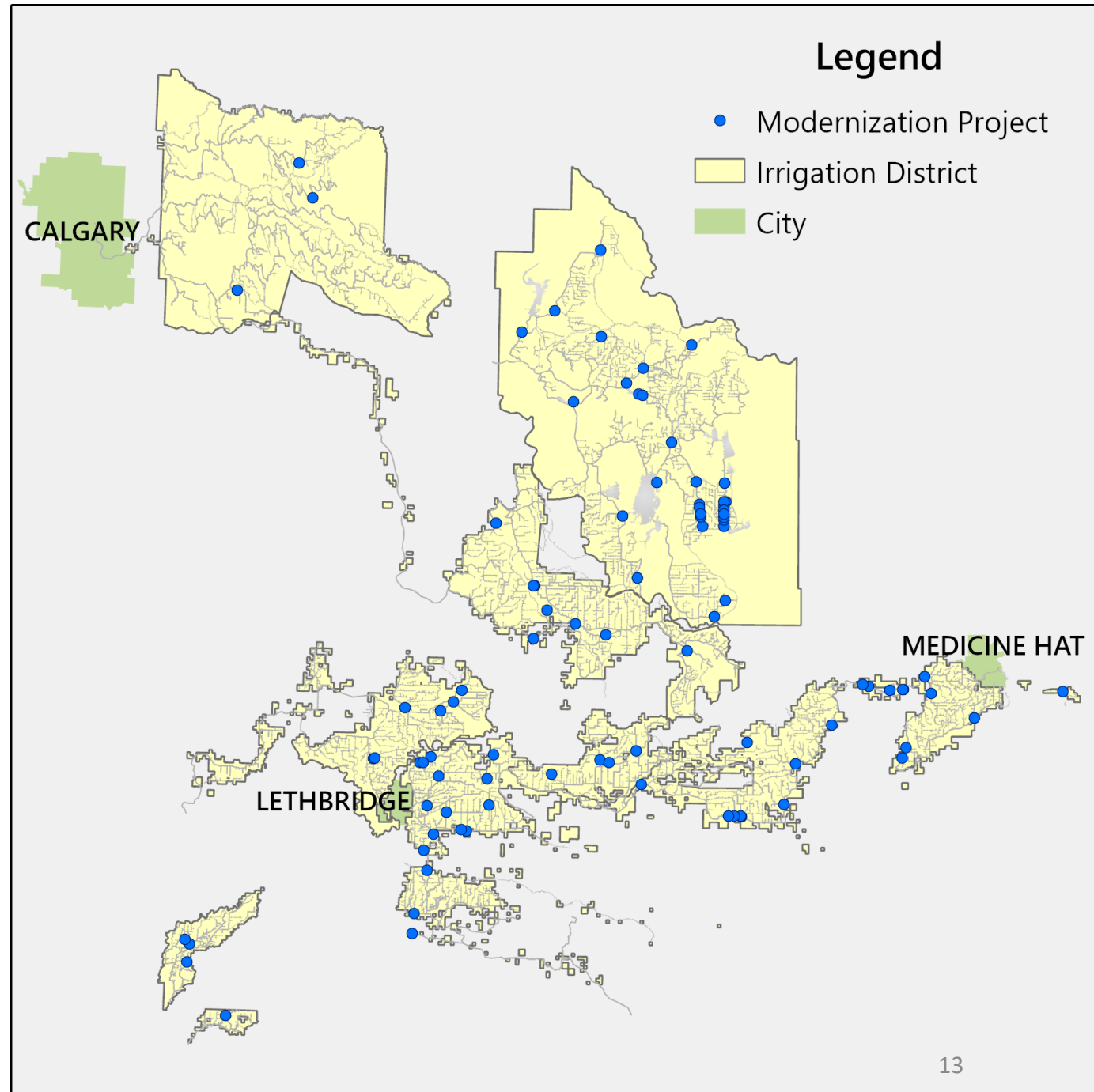
Program Overview

- Ten irrigation districts participating:

| Irrigating Alberta Inc. Members | |
|------------------------------------|---|
| Bow River Irrigation District | Eastern Irrigation District |
| Leavitt Irrigation District | Lethbridge Northern Irrigation District |
| Raymond Irrigation District | Ross Creek Irrigation District |
| St. Mary River Irrigation District | Taber Irrigation District |
| United Irrigation District | Western Irrigation District |

- Alberta Irrigation Modernization Program
 - A new funding program
 - Not one big project
 - Sum of many large and small projects
- Most projects involve replacing canals with pipelines. Projects are not designed to convey water to new areas.

Location of AIM Projects



Program Funding Details

- \$933 million investment
 - 70% of costs covered by irrigation districts
 - Districts pay 20% up front, with 50% as an interest-bearing loan from the CIB
 - 30% of costs are a grant by GoA
 - Any cost overruns are covered 100% by irrigation districts

| Participant / Role | Portion | Type |
|--|-----------|------------------------------------|
| Irrigation Districts – developers/owners/funders | 20% + 50% | Initial payment + loan repayment |
| Government of Alberta – funder | 30% | Grant |
| Canada Infrastructure Bank - lender | 50% | Interest bearing loan to districts |

Modernization Projects

92 modernization projects

- Replacement of canals with buried water pipelines (81 projects)
- Modernization of canals (8 projects)
- Upgrading automation of canal structures
- Modernization/ replacement of major water control structures

Benefits

- Water savings
 - Reduction of evaporation and seepage
 - Reduction of spill
 - On-farm application improvements
 - Climate change adaptation



Reservoir Projects

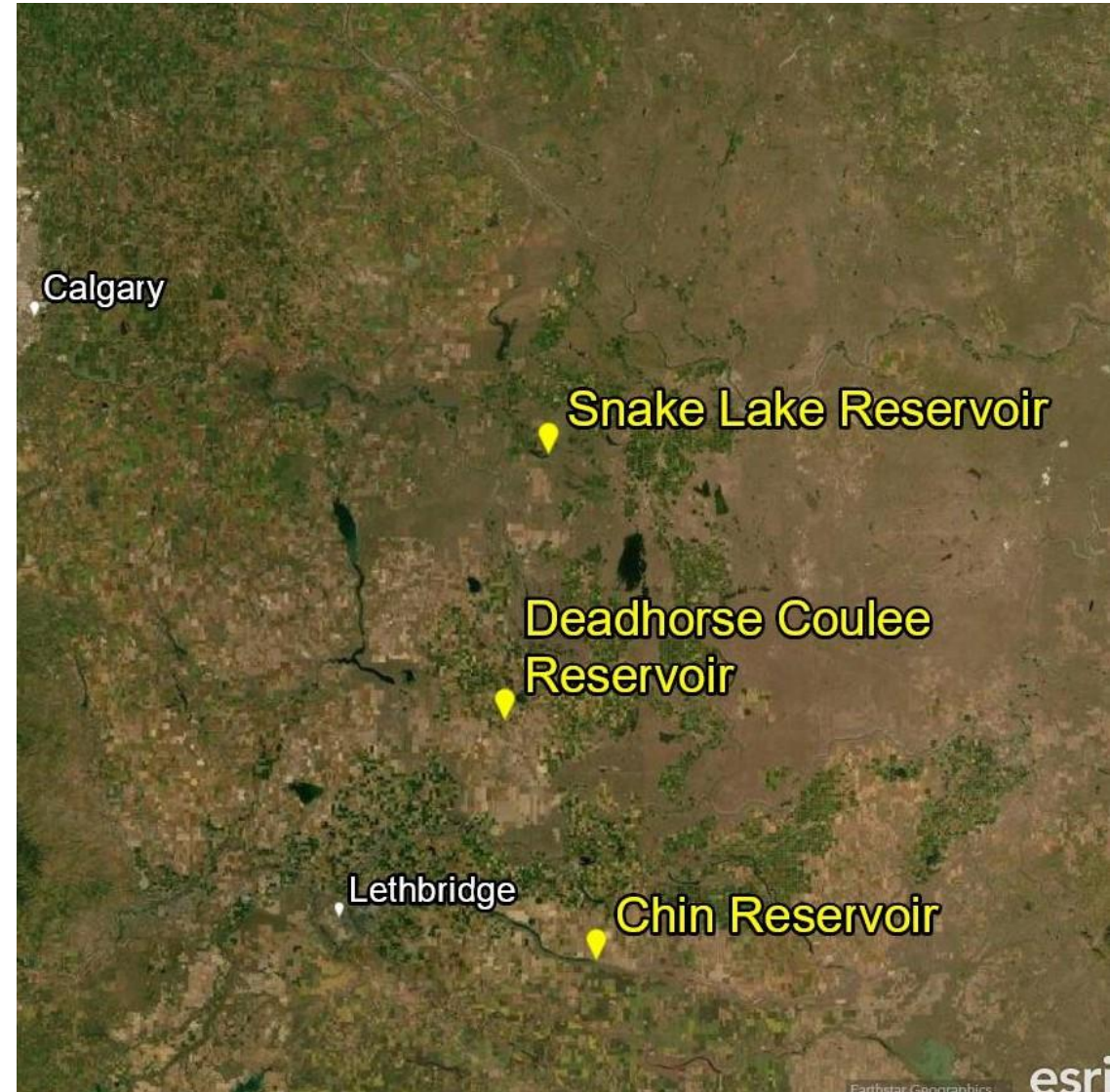
Investment in up to 4 reservoir projects

- Off stream
- Current land use is agricultural
- Footprint on privately owned lands

Disclosed projects

- Expansion/Enlargement of existing
 - Chin Reservoir (SMRID/TID/RID)
 - Snake Lake Reservoir (EID)
- New construction
 - Deadhorse Coulee Reservoir (BRID)

Increasing storage helps mitigate increasing variability in the water supply





Travers Reservoir

**Irrigation Reservoirs:
More than just water storage**

- Fisheries
- Wildlife habitat
- Recreation



Scope Reservoir



Little Bow Provincial Park – Travers Reservoir



Project Completion Timelines

- All modernization projects must be completed by spring 2025; some were started fall 2020 and completed by spring 2021.
- All reservoir projects must be completed by spring 2028
- These timelines are tight

Regulatory/Permitting Requirements

- All applicable regulatory processes must be followed for all projects
- Reservoirs will be subject to significant regulatory review as determined by the GoA and Federal regulators
- No new water licenses or allocations will be issued.



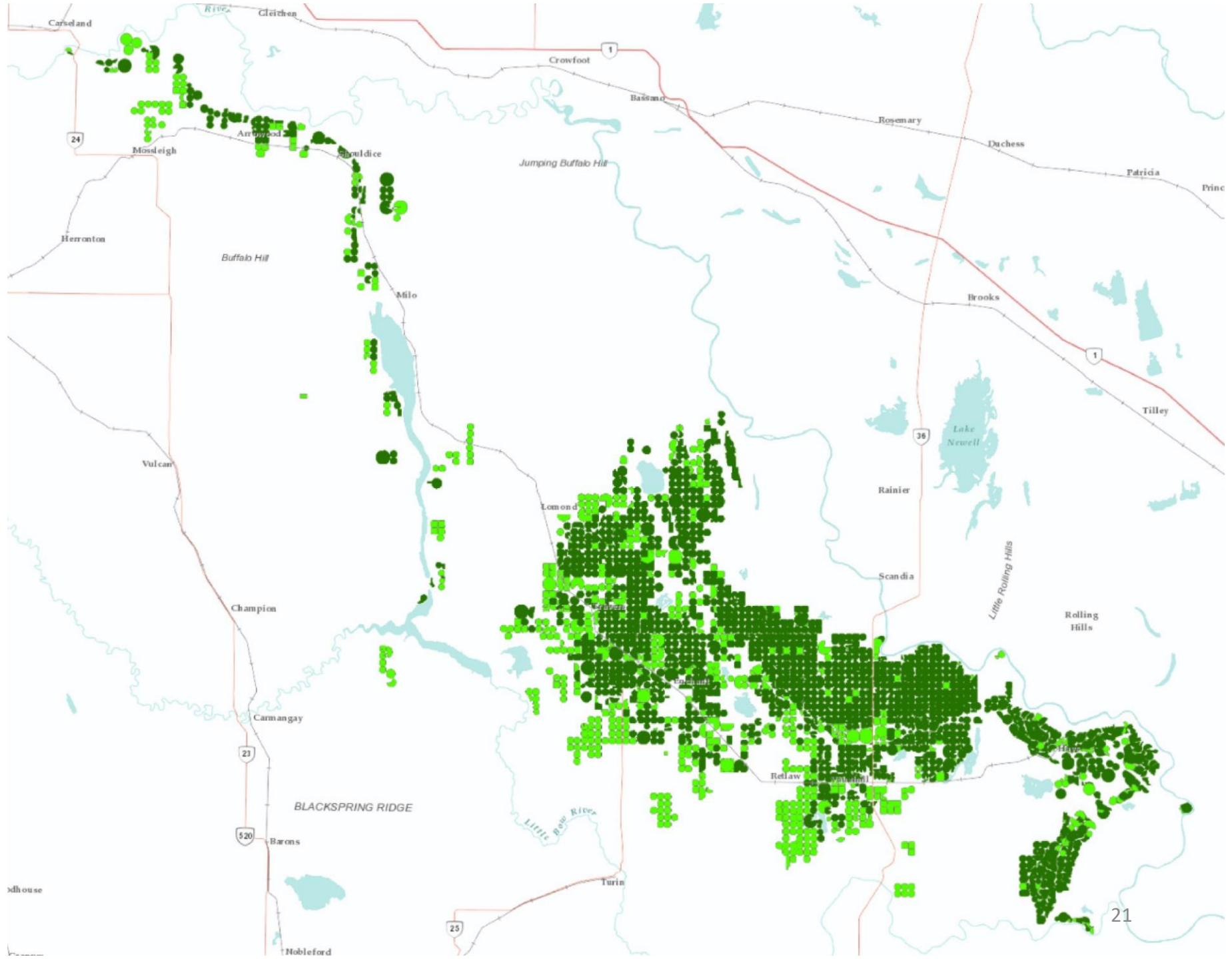
Irrigation Expansion

- This is an infrastructure modernization program, not an expansion project
- There is no requirement for irrigation expansion, but it is likely to occur in most participating districts
- Completion of projects could expand the irrigated area within the irrigation districts by over 200,000 acres
- How is expansion possible?
 - Due to improved water security attributable to the projects
 - improved efficiencies from modernization projects
 - increased storage and improved efficiencies from reservoirs
- No specific areas are designated for new irrigation; if expansion occurs it will be throughout the districts as has happened through previous expansion

BRID Expansion Example

Dark green parcels
were irrigated prior
to 2004

Light green parcels
were added from
expansions approved
in 2004, 2012, and
2018



Expansion Process

District expansion limit = the maximum number of irrigation acres allowed

- In order to increase its expansion limit, a district must:
 1. Determine how the proposed expansion will affect water availability, including changes to the frequency and magnitude of water shortages
 2. Make this information publicly available
 3. Hold one or more public meetings
 4. Hold a plebiscite where all irrigators can vote whether or not to expand

Expansion considerations

Most irrigators do not want any additional irrigation themselves

Irrigators do not want increased risk of water shortage

Irrigators only vote in favor of expansion if efficiency gains have created water for expansion

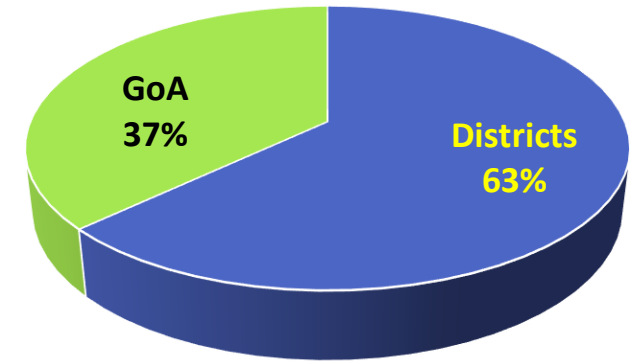
How is AIM different from the past?



Past Infrastructure Funding

- Irrigation Rehabilitation Program
 - Cost-share program → currently 75:25
 - Remains in place
 - Annual GOA contribution varies
 - Total funding since 1969
 - GOA - \$981 million
 - Districts - \$248 million
- Districts also invest in projects outside of IRP program → district funds
- 2011 to 2019 - \$474 million spent on irrigation modernization*
 - Districts provided 63% of the funding
 - GoA provided 37%

Financial Contribution Source
2011-2019



*Source: Economic Value of Alberta's Irrigation Districts (2021)

Past Major New District Reservoirs 1980-2020

| Year | Reservoir | Capacity (ac. ft.) | District |
|-------------|------------------|-------------------------------|-----------------|
| 1984 | Crawling Valley | 76,450 | Eastern |
| 1985 | Badger | 46,300 | Bow River |
| 1987 | Forty Mile | 81,420 | St. Mary River |

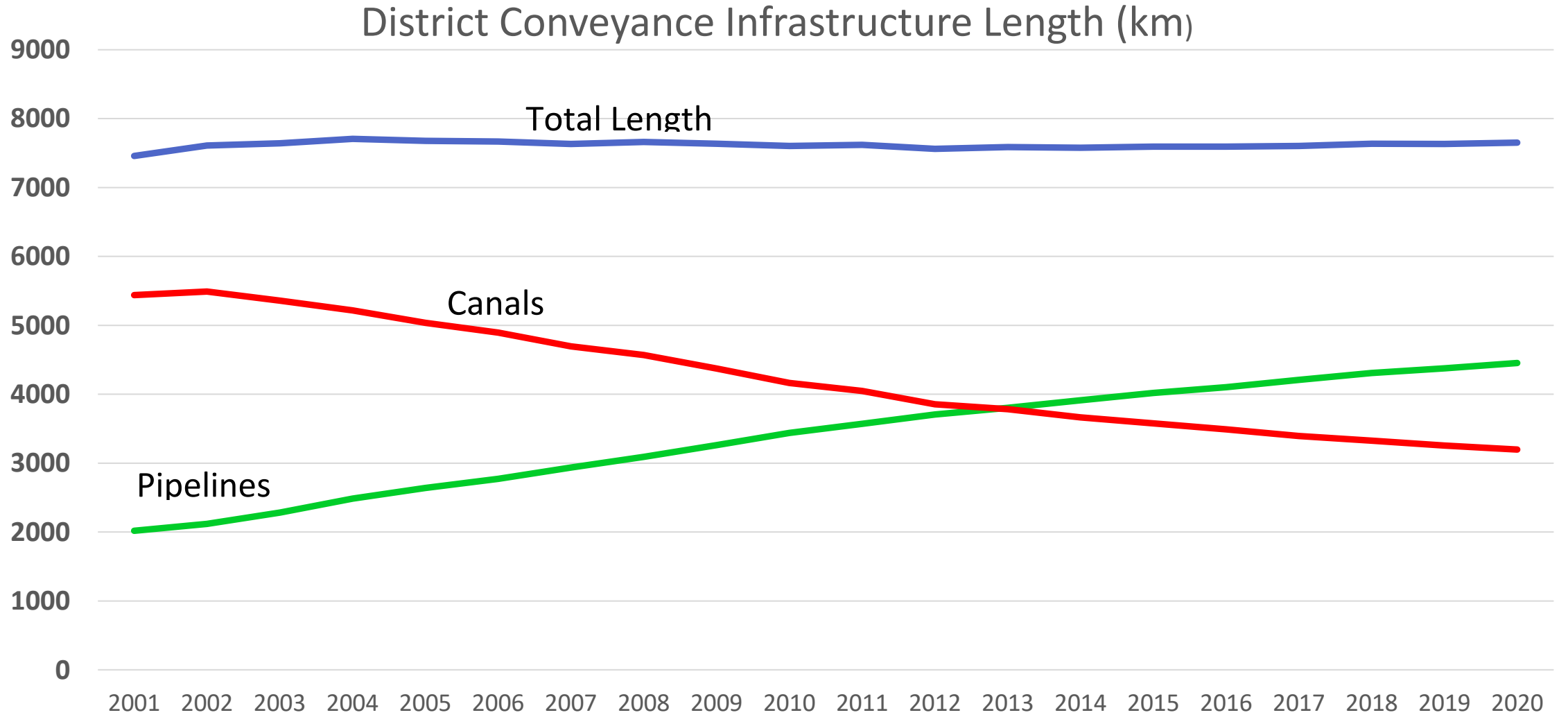
Past Major Reservoir Expansions 1980 - 2020

| Year | Reservoir | Increase (ac. ft.) | District |
|------|---------------|-----------------------|----------------------|
| 1981 | Sauder | 25,250 | St. Mary River |
| 1981 | Stafford | 9,000 | St. Mary River |
| 1985 | Keho | 37,500 | Lethbridge Northern* |
| 2003 | Rolling Hills | 18,750 | Eastern |
| 2008 | McGregor | 25,000 | Bow River* |
| 2014 | Langdon | 6,400 | Western |
| 2017 | Little Bow | 17,670 | Bow River* |

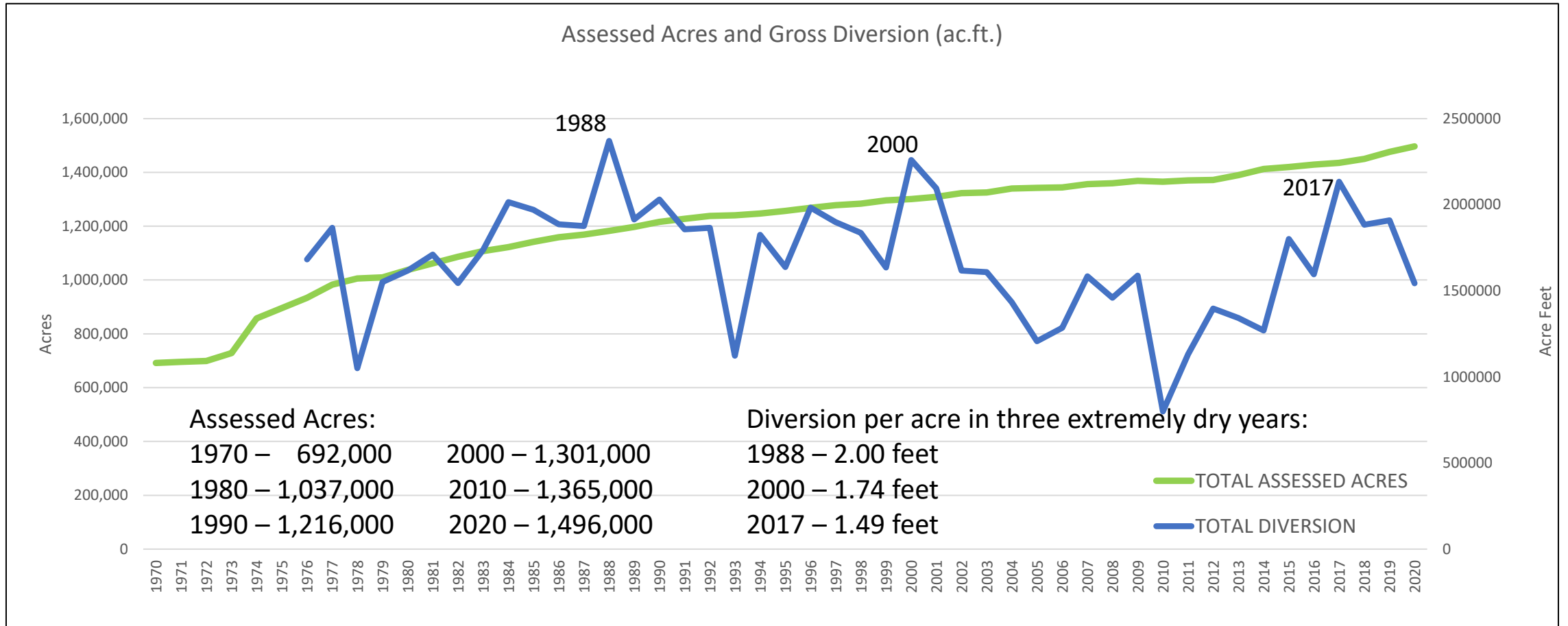
* - owned by GoA



Past Modernization (Pipelines)



Past Expansion Comparison



Summary

AIM is a new funding program to accelerate modernization of irrigation districts, which will save water.

Most projects will replace canals with pipelines. Additional water storage will be created at four reservoirs.

These are important climate change adaptations that will enhance food security.

Improved water security should lead to irrigation expansion, subject to approval by current irrigators. This will benefit the economy.

Looking for more information?

Modernization project information can be found on the Alberta WaterPortal:
<https://albertawater.com/topics/irrigation>

ALBERTA WaterPortal SOCIETY

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Irrigation

PUBLISHED: 05 AUGUST 2021

Why Alberta Irrigation Matters

With more irrigated agricultural land than the rest of Canada combined, Alberta is the 'capital of irrigation' in Canada. Irrigation provides agricultural producers with a supply of water to supplement natural precipitation through the growing season supporting consistent crop growth and yields.

Water Allocations in Alberta*
by Specific Purpose (2009)

| Category | Percentage |
|-----------------------------|------------|
| Ag - Agriculture | 1.8% |
| Ag - Irrigation | 42.5% |
| Com - Commercial | 6.0% |
| Com - Cooling | 23.5% |
| Ind - Industrial (Oil, Gas) | 6.2% |
| Ind - Drilling | 0.07% |
| Ind - Injection | 2.2% |
| Mun - Municipal | 11.3% |
| Othr - Recreation | 0.22% |

Across Alberta's more than 625,000 hectares of publicly and privately irrigated land, irrigation producers grow more than 60 different types of crops including 29 specialty crops, which allows them the flexibility needed to sustain viable farm