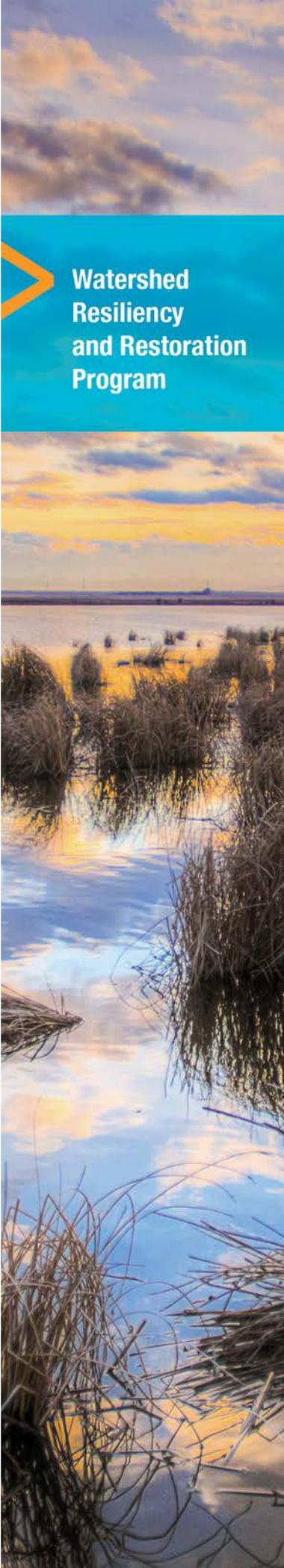




# Watershed Resiliency and Restoration Program

February 2017





## Watershed Resiliency and Restoration Program

### OVERVIEW: WATERSHED RESILIENCY AND RESTORATION PROGRAM

Flooding and drought have significant effects on the lives of Albertans, causing community and economic damage, as well as impacting the watersheds Albertans depend on for water and other environmental functions.

In June 2013, parts of southern Alberta were devastated by significant flooding. The Government of Alberta responded to this catastrophe with a number of funding programs to address a wide range of recovery activities. In order to maintain resilient and vibrant communities and well-functioning environmental systems, Alberta must prepare today for future floods or droughts. As the province moves forward with projects to improve community resiliency to floods and droughts, it is important to implement measures that increase overall watershed health and function as part of the strategy. Enhancing the natural mitigative function of watersheds is a critical element in the long-term mitigation of the environmental, social, and economic impacts of severe natural events on a watershed level.

Unlike traditional mitigation projects, which use large-scale physical construction, bank armoring and/

or engineered structures to reduce or avoid impacts, watershed mitigation approaches focus on the creation and/or enhancement of natural systems such as wetlands and riparian areas to improve watershed functioning.

Appropriate mitigation to natural events such as droughts or floods contributes to long-term community sustainability and resiliency. Mitigating impacts reduces risk to public safety, developments and infrastructure, provides environmental benefits and results in savings in tax dollars for post-event recovery costs.

Alberta Environment and Parks' (AEP) Watershed Resiliency and Restoration Program (WRRP) aims to improve natural watershed functions in order to build greater long-term resiliency to droughts and floods through restoration, conservation, education and stewardship, and research and data.



***“If managed properly, wetlands can provide water filtration and groundwater recharge, contribute to flood prevention, and provide habitat for numerous species of interest to [Albertans]”.***

Ecosystems Services Approach Pilot for Wetlands –  
Final Results Report October 2011.

## **RATIONALE: THE NEED FOR A NEW PROGRAM**

A watershed, or drainage basin, is an area of land that captures surface water and funnels it to a single point at a lower elevation. They are complex natural systems and Alberta has a number of them.

If appropriately managed Alberta's watershed systems will assist in mitigating severe natural events such as floods and droughts. Promoting the restoration of drained or degraded areas of the watershed, such as wetlands and riparian areas, enhances the watersheds' ability to be resilient to the effects of floods and droughts in the future. This will foster increased resiliency of Alberta's communities to the impacts from future flood or drought events. Further, sound stewardship and conservation ensure these areas are maintained and enhanced.

The health of riparian areas has declined dramatically in many areas of Alberta, partly because the functions and roles riparian areas provide to landscapes and communities are often not understood or fully appreciated.

## **OBJECTIVES**

AEP has established the WRRP to promote the long-term ability of watersheds to mitigate the effects of future flood and drought events. The primary objective of the program is to increase the natural ability of the province's watersheds to reduce the intensity, magnitude, duration and effects of flooding and drought through watershed mitigation measures. Additionally, the program aims to address impacts of past flooding and/or droughts through the restoration of degraded priority areas of watersheds which will enhance communities' ability to withstand future flooding or droughts. Finally,

the program seeks to promote the ongoing stewardship and preservation of key components of Alberta's watersheds.

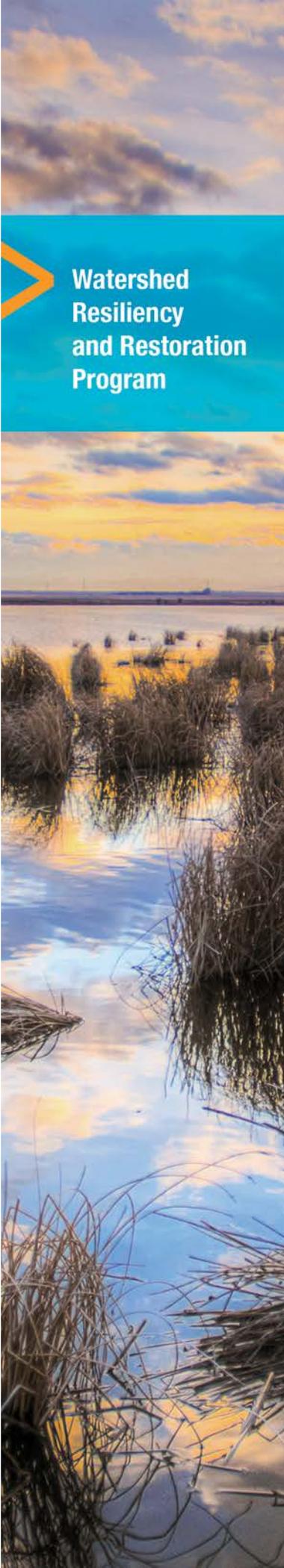
This program is being implemented with the help of partners who have expertise in watershed management, from habitat restoration and fisheries improvement, to natural hazard mitigation and wetland enhancement. AEP will be looking to these partners to help identify priority projects and lead the implementation of the WRRP in collaboration with the Government of Alberta. Through collaboration with stakeholders, natural watershed functions are improved and sustained to build greater long term resiliency to droughts and floods utilizing an integrated watershed approach.

## **OUTCOMES**

Accepting the desire to increase the natural ability of the province's watersheds to reduce the intensity, magnitude, duration and effects of flooding and drought to the benefit of Albertans, the WRRP will focus on the following outcomes:

- ▶ Identification and ranking of priority areas for wetland and riparian restoration and conservation;
- ▶ Advancing flood and drought resiliency in priority areas within watersheds in Alberta to enhance communities and improve environments;
- ▶ Restoring and enhancing ecological connectivity and function in critical areas;
- ▶ Increasing knowledge, awareness and participation by program participants and the public in activities that restore and sustain watershed functions; and
- ▶ Enhancing community capacity to restore and maintain critical watershed features for future generations.





## Watershed Resiliency and Restoration Program

### SCOPE

The WRRP is provincial in scope, with a focus on priority areas within the province and within individual watersheds. The WRRP is limited to non-structural watershed mitigation efforts that promote the long-term ability of watersheds to mitigate the effects of future flood and drought events. Watershed mitigation efforts relate to the creation and/or enhancement of natural systems such as wetlands and riparian areas to improve watershed function.

Examples of eligible projects include:

- ▶ Riparian enhancements (e.g. fencing, plantings, grazing management, off-stream watering, weed control, invasive species control, or pest control)
- ▶ Wetland enhancements (e.g. wetland creation, conservation or restoration)
- ▶ Floodplain/river improvements (e.g. channel naturalization, removal of old structures, removal of flow impediments, re-vegetation, floodplain storage capacity enhancements)
- ▶ Impervious surface removal
- ▶ Creation/increase of absorptive capacities
- ▶ Removal of existing drainage projects or works
- ▶ Onsite water retention efforts
- ▶ Conservation initiatives
- ▶ Data collection efforts for the purpose of research, evaluation and assessment

### PROGRAM ELEMENTS

#### RESTORATION AND ENHANCEMENT

Restoration, enhancement and/or creation of healthy wetland and riparian areas are at the heart of the WRRP. This mitigation approach will restore or re-introduce functionality to natural features that have been compromised or altogether lost. Restoration and enhancement activities that improve the watersheds' function and enhance the watersheds' ability to be resilient to future floods and droughts are the primary focus of the program.

#### Program Outcome:

*Restoration of degraded or lost wetlands, riparian areas and floodplains within priority areas of watersheds to improve flood and drought resiliency*

Strategies to achieve this outcome:

- ▶ Fund restoration and creation of healthy watersheds through a grant program and other activities by the Government of Alberta;
- ▶ Priority areas for this program were developed by major watersheds within Alberta and completed by December 2014. These maps are posted on our program [website](#);
- ▶ Increase capacity of existing organizations already engaged in watershed enhancement activities that will further build drought and flood resiliency; and
- ▶ Promote collaboration and ongoing communications between key stakeholders regarding restoration initiatives aligned with the WRRP.



## CONSERVATION

Conservation is aimed at the retention of existing habitats – maintaining the functionality of critical riparian and wetland areas.

### Program Outcome:

*Within priority areas, critical wetland, riparian area and floodplain features within watersheds are identified to decision makers and landowners, and greater consideration is given to conserving these areas/features*

Strategies to achieve this outcome:

- ▶ Provide data, tools and other support to land use decision makers to consider conservation and preservation in priority areas; and
- ▶ Promoting the “Stepping Back from the Water” Guidebook as a tool that can be used by land use decision makers.

## EDUCATION AND STEWARDSHIP

Education and stewardship with stakeholders, landowners and the public will be pursued to ensure that the imperative functions and roles of floodplains, riparian areas and wetlands are understood and fully appreciated.

### Program Outcome:

*Increase the understanding and awareness of the public, land use decision makers and other key stakeholders regarding the importance of improving watershed functions, and their relationship — to flood and drought mitigation*

Strategies to achieve this outcome:

- ▶ Targeted messaging to stakeholders, land use decision makers and the general public regarding the importance of wetlands, riparian and healthy floodplains in reducing the effects of flooding and droughts pursued through existing Government of Alberta and external partnership programs;
- ▶ Provide forums for information exchange and collaboration between key stakeholders in Alberta; and
- ▶ Explore opportunities to align existing programs and initiatives related to watershed restoration and resiliency.

## RESEARCH AND DATA

Underpinning all the above approaches is research and data, which is necessary to help define critical areas and provide direction to existing regulatory and planning systems. The WRRP uses scientific processes and tools to define the areas of highest priority and quantify losses, set targets, and apply the appropriate actions.

### Program Outcome:

*Ensure key data is available to support the WRRP and aid future decision making*

Strategies to achieve this outcome:

- ▶ Gather critical data necessary to complete a high level prioritization and additional refinement when possible;
- ▶ Encourage research and collaboration with academia; and
- ▶ Disseminate and share key program information.

## PROGRAM LINKAGES

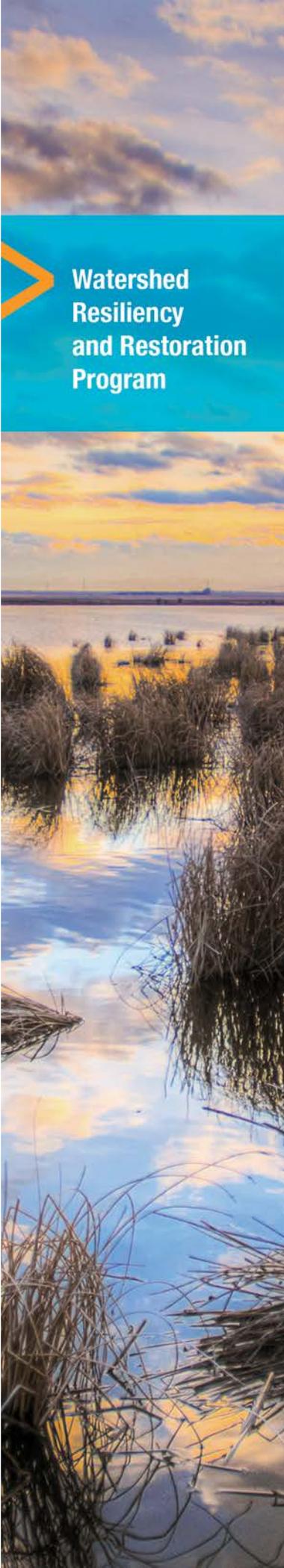
The Government of Alberta and other key partners are currently engaged in a number of initiatives, plans, programs and policies focused on the management of watersheds in Alberta, to improve the sustainability of the systems. To help ensure that entities are working in a coordinated manner, the WRRP’s outcomes were developed in alignment with the outcomes from various other initiatives, plans, programs and policies (e.g. Alberta Community Resilience Program).

While the WRRP was established with the primary purpose of improving and maintaining flood and drought resiliency of watersheds, it is imperative to leverage and build on existing knowledge to ensure that key partners are working in a harmonized manner.

### ALBERTA COMMUNITY RESILIENCE PROGRAM (ACRP):

The ACRP is administered by the Resilience and Mitigation Branch of AEP and provides grants to municipalities for the design and construction of projects that protect critical municipal infrastructure from flooding and drought. In efforts to ensure work under the WRRP and the ACRP are coordinated, regular communication between the programs will occur and ensure





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that the overall watershed functions are considered. AEP will employ a centralized monitoring database for both programs to increase efficiency.

### **ALBERTA RIPARIAN HABITAT MANAGEMENT SOCIETY PROGRAM (COWS AND FISH):**

The non-profit society, commonly known as Cows and Fish, works with landowners and communities to promote the improvement of riparian areas through voluntary actions. Cows and Fish's robust riparian health assessments and health inventories will help inform the WRRP's research and data collection, and will be consulted when prioritizing areas for riparian restoration and conservation under the WRRP.

### **ALBERTA WATER COUNCIL'S RIPARIAN LAND CONSERVATION AND MANAGEMENT REPORT AND RECOMMENDATIONS:**

The Alberta Water Council, a not-for-profit multi-stakeholder partnership, has made recommendations to improve riparian conservation and management in the province. The WRRP will consider these recommendations and the Council's "Best or Beneficial Riparian Management Practices" in advancing flood and drought resiliency in priority areas. The Council's health assessment methodology will also be consulted in support of the WRRP's prioritization methodology.

### **ALBERTA WETLAND POLICY:**

The Alberta Wetland Policy provides a strategic framework for conserving, restoring and protecting Alberta's wetlands and establishes various functions performed by wetlands, including flood reduction. Building on this, the WRRP provides further specificity on the flood mitigation value criteria. The Wetland Policy's guiding principles of wetland mitigation systems were consulted, and alignment was sought where appropriate in the creation of the

WRRP. The policy's wetland inventory will serve as a resource for the WRRP's research and data collection. Additionally, when the replacement of a wetland is necessary, the Wetland Policy will be adhered to with respect to the Wetland Replacement Matrix.

### **BACKCOUNTRY TRAIL FLOOD REHABILITATION PROGRAM:**

ESRD's Backcountry Trail Flood Rehabilitation Program seeks to restore and repair backcountry trail systems on public lands as a result of the 2013 flood events. Among the program's priorities, the re-establishment of trail systems outside of sensitive riparian areas will be pursued. In order to do so the trails program will need to have a clear understanding of the location and prioritization of riparian areas, in order to avoid them. The WRRP may serve as a valuable resource towards this end, providing the identification and prioritization of riparian areas to inform trail repair decision within the trails program.

### **WATERSHED MANAGEMENT PLANS**

#### **For example—Bow River Basin Council's Bow Basin Watershed Management Plan:**

The Bow River Basin Council has developed a watershed management plan for the Bow Basin to provide guidance and recommendations regarding land and water resources in the watershed. The Council promotes information sharing, education and engagement towards more informed decision making; a shared outcome with the WRRP. Following from this, partnership opportunities may be present for the WRRP to connect with the Council's awareness workshops, which focus on existing wetland and riparian conservation and management tools. Additionally, the Council's defined performance management system will help guide the WRRP's reporting, and alignment will be sought where possible.



### **GROWING FORWARD 2:**

Growing Forward 2 is a federal-provincial-territorial partnership focused on strategic programs for the agricultural industry. Programs vary in topic and scope, though the partnership has focused on agricultural watershed enhancement previously. To avoid duplicative efforts, the WRRP has been working closely with Alberta Agriculture and Forestry to administer a joint programs approach to assess all project proposals and encourage complementary projects.

### **REGIONAL PLANS**

#### **For Example—South Saskatchewan Regional Plan:**

The Regional Plan offers strategic directions for the South Saskatchewan Region over the next 10 years, focused on growth, community, and the environment. The WRRP will work within the regional outcomes and objectives set by all regional plans within the province. The regional plan sets strategies for enhanced integrated watershed management, which are well aligned with the WRRP. The regional plan also outlines a commitment to establishing regional wetland management objectives, providing an opportunity for further collaboration between the two groups.

### **SOUTHERN ALBERTA FISHERIES HABITAT ENHANCEMENT AND SUSTAINABILITY PROGRAM (FISHES):**

The FISHES Program works towards restoring and mitigating impacts to fish habitat. Riparian health factors are considered in selecting projects under the FISHES Program, and as such, the potential for knowledge sharing is present with respect to the identification and ranking of priority areas.

### **STEPPING BACK FROM THE WATER GUIDEBOOK:**

ESRD's handbook provides decision makers with recommended setback widths and buffers for healthy riparian areas. The WRRP will encourage the use of the guidebook to inform and engage stakeholders, landowners and the public on the functions and roles riparian areas provide to landscapes and communities.

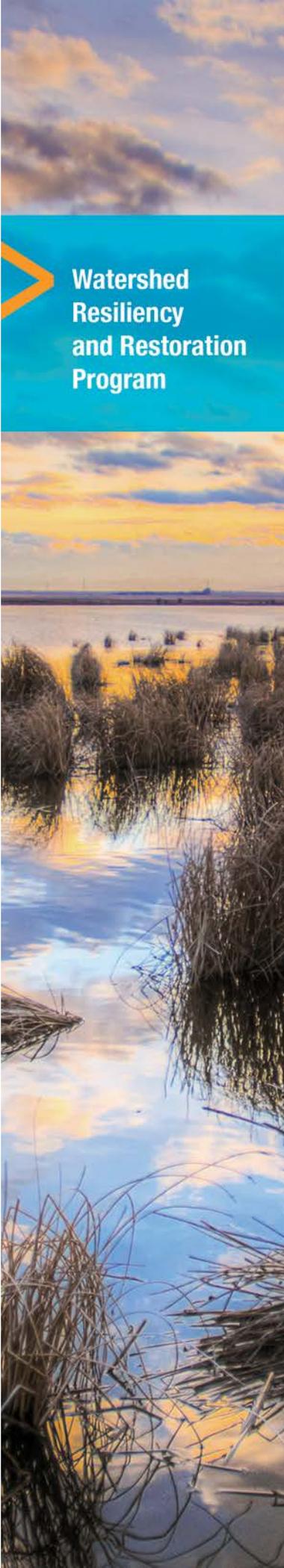
### **WATER FOR LIFE STRATEGY:**

The provincial Water for Life Strategy sets direction and provides strategies for safeguarding water sources in Alberta and accelerating actions. The strategy defines criteria and identifies critical aquatic ecosystems, which can be leveraged by the WRRP to further bolster priorities and outcomes. Additionally, the strategy utilizes public communication tools that are well recognized, such as the Water Information Centre. These communication tools can be leveraged by the WRRP to increase public and partner knowledge, awareness and participation in an efficient manner.

### **CLIMATE LEADERSHIP PLAN:**

Alberta's Climate Leadership Plan was introduced in November 2015, as a made-in-Alberta strategy with the aim of reducing greenhouse gas emissions and diversifying the economy. Several aspects of the plan are moving forward, including implementing an economy-wide price on greenhouse gas emissions, developing more renewable energy, capping oil sands emissions to 100 megatonnes per year and reducing methane emissions. The plan also highlights the need for future work on adaptation to climate change. WRRP will work closely with Alberta's Climate Change Office to ensure strong linkages as adaptation planning evolves.





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### FUNDING

A total of \$35 million in funding is allocated to WRRP, which is being distributed over seven years until March 2021. Priority is given to areas where risk and opportunity are highest.

Non-governmental organizations, WPACs, stewardship groups and other not-for-profit organizations, municipalities, First Nations and all local authorities are eligible to receive funds under the program, provided that the project is undertaken in partnership with single or multiple landowner(s) such as government, municipalities or private landowners who will “own” the works long-term. As the health and state of watersheds are affected by a number of different parties, such partnerships for the collaborative projects are highly encouraged under the WRRP.

While municipalities are eligible under this program they are encouraged to seek opportunities for watershed resiliency and restoration under the Alberta Community Resiliency Program (ACRP) as part of their Community Resiliency Plan to be funded under the program.

Private entities, whether it is an individual or enterprise, are eligible to participate and contribute to projects as a partner, but are not eligible to receive funding directly under the WRRP.

### IMPLEMENTATION

#### Established Third-Party Grants

Implementation of the WRRP is underway with thirty-five projects aimed at improving watershed resiliency in priority watersheds throughout Alberta. Many projects are multi-year initiatives and span over two or three fiscal years. Projects will be evaluated and reported on annually as progress is made. Future rounds of WRRP will be considered based on available funding.

#### Collaboration with Alberta Agriculture and Forestry

Under Growing Forward 2, Agriculture and Forestry is implementing the Agricultural Watershed Enhancement Program directed towards local producers to improve water quality within agricultural areas throughout the province. While the Agricultural Watershed Enhancement Program has a different focus (i.e. water quality vs. the WRRP’s drought and flood resiliency focus), collaborating and working together to support both programs ensures a more robust watershed approach that supports work at all scales of the watersheds. AEP and Agriculture and Forestry will be working in partnership to ensure alignment between the Agricultural Watershed Enhancement Program and WRRP.





## EVALUATION AND REPORTING

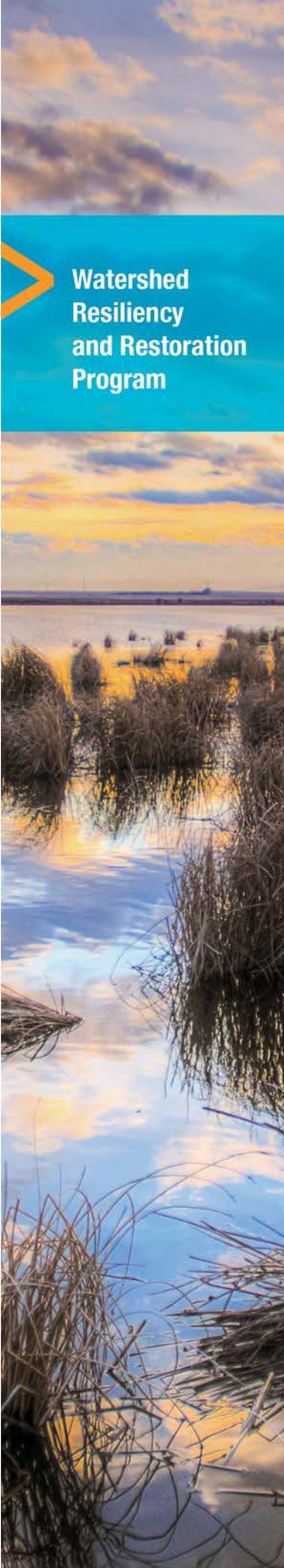
The following evaluation and reporting criteria will be considered:

- ▶ Increased improvements in the metrics of landscape health
- ▶ Projects completed and their benefits to flood or drought mitigation
  - Number of projects that benefit watershed resiliency
  - Measureable decreases in linear drainages and degraded portions of the watershed
  - Improvements in riparian areas and overall riparian health
  - Increase amount of wetland hectares and numbers and ecological services provided
- ▶ Community literacy regarding value of investment in watershed function
- ▶ Increase partnership and collaboration around watershed restoration and resiliency
- ▶ Consideration of projects within the watershed in a cumulative perspective
- ▶ Increased information and forums made available to decision makers to support future decision making

## PROGRAM PRINCIPLES

- ▶ On the ground focused with demonstrable and meaningful results
- ▶ Community driven
- ▶ Collaboration with the Government of Alberta, municipalities, environmental non-governmental organizations, communities, landowners and experts
- ▶ Open and transparent
- ▶ Support current wetland and riparian work and build capacity where needed
- ▶ Ensure alignment with other policies, programs and plans
- ▶ Watershed/landscape scale emphasis
- ▶ Provincial in scope but targeted to priority areas within the watersheds
- ▶ New habitats (e.g. wetland, riparian, etc.) funded under this program may be used by the Government of Alberta for future offsets





## Watershed Resiliency and Restoration Program

## GLOSSARY OF TERMS

**WATERSHED MITIGATION:** Mitigation approaches that focus on the creation, enhancement and conservation of natural systems such as wetlands, enhancing floodplains and riparian areas to improve watershed functioning. These approaches do not use large-scale physical construction.

**STRUCTURAL MITIGATION:** Large scale engineering projects to reduce or avoid impacts.

**RIPARIAN:** Riparian areas are the lands adjacent to streams, rivers, lakes and wetlands where the vegetation and soils are strongly influenced by the presence of water. They are the place where water and land meet and interact.

**WATERSHED SYSTEMS:** A watershed, or drainage basin, is an area of land that captures surface water and funnels it to a single point at a lower elevation. They are complex natural systems, and Alberta has a number of them.

**WETLAND:** Land saturated with water long enough to promote wetland or aquatic processes as indicated by the poorly drained soils, hydrophytic vegetation, and various kinds of biological activity that are adapted to a wet environment.

