

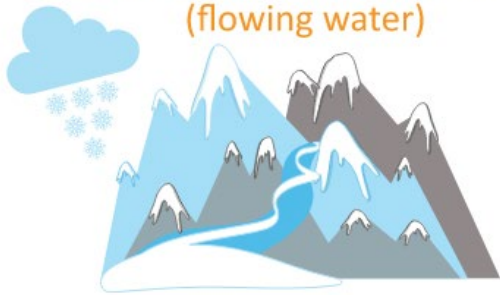
MAIN CAUSES OF FLOODING

These result from accumulation of ice fragments that build up to restrict the flow of water causing a temporary obstruction. They form during the freeze-up and break-up periods, the latter having the greater flooding potential in Drumheller valley.

ICE JAMS (frozen water)



RAIN ON SNOWMELT (flowing water)



Most of the precipitation in winter is stored as snow or ice on the ground. During the spring melt, huge quantities of water are released causing a freshet, which is heavy spring runoff and flooding. When the ground is frozen, melting snow is unable to penetrate and runs off over the ground surface into the Red Deer and Rosebud Rivers and Michichi Creek. Flooding is a greater concern when rising snowmelt is compounded by runoff from heavy rainfall. The later the thaw, the more likely flooding can occur. This type of flooding in Drumheller typically occurs in late June.

Flash floods usually happen on small watersheds as a result of a torrential downpour, often caused by heavy thunderstorm activity. They are characterized by the occurrence of the peak of the flood within six hours of the onset of rainfall and can be extremely dangerous. The flood conditions develop rapidly because the rainfall is so heavy the ground is incapable of absorbing the water quickly enough, resulting in a very high runoff rate.

RAINFALL (falling water)



TYPES OF FLOODING

OVERLAND

Overland flooding happens when water overflows the Red Deer River, Rosebud River or Michichi Creek banks due to rain or extensive volumes of melted snow. This is a type of flood that results from the level of water outside of your dwelling rising, allowing water to enter your home.



STORMWATER

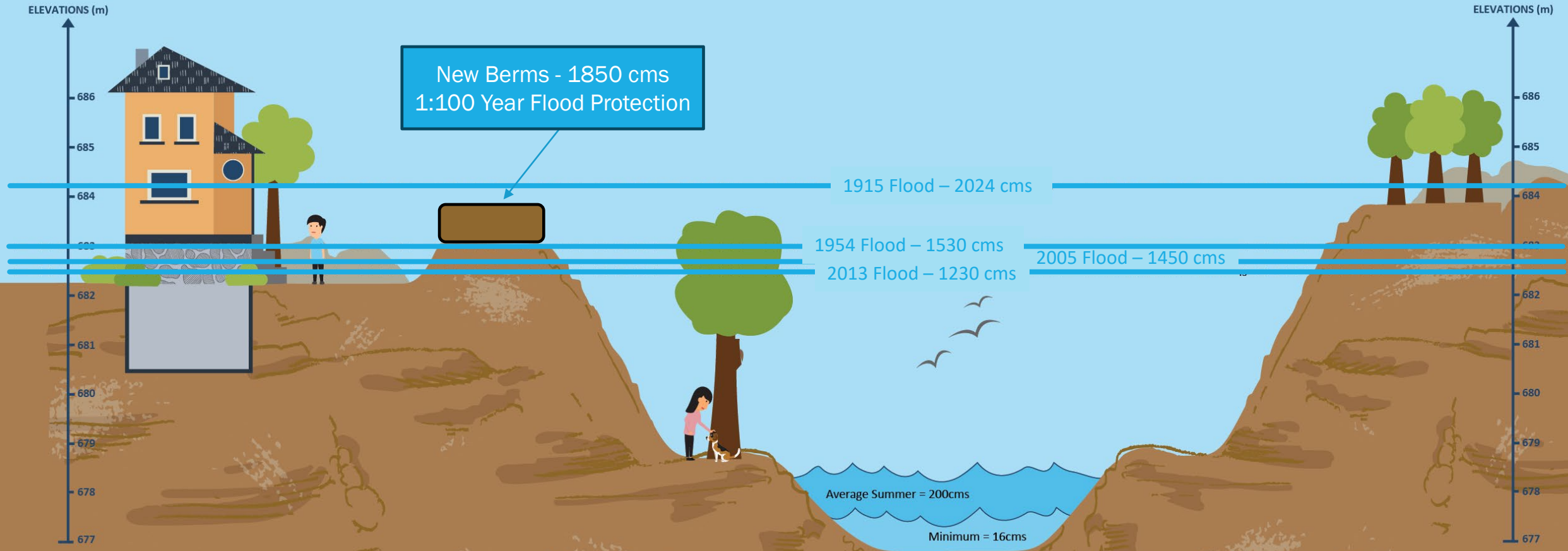
When the Red Deer River, Rosebud River or Michichi Creek rise, water can flow back into the stormwater pipe system. Water may spill back onto streets or basements through stormwater drains.

WASTEWATER

Water on flooded streets or high groundwater may drain into the sanitary sewer system. This overloads the sanitary sewer pipes and can force sewage back through the sewer line and into your basement.

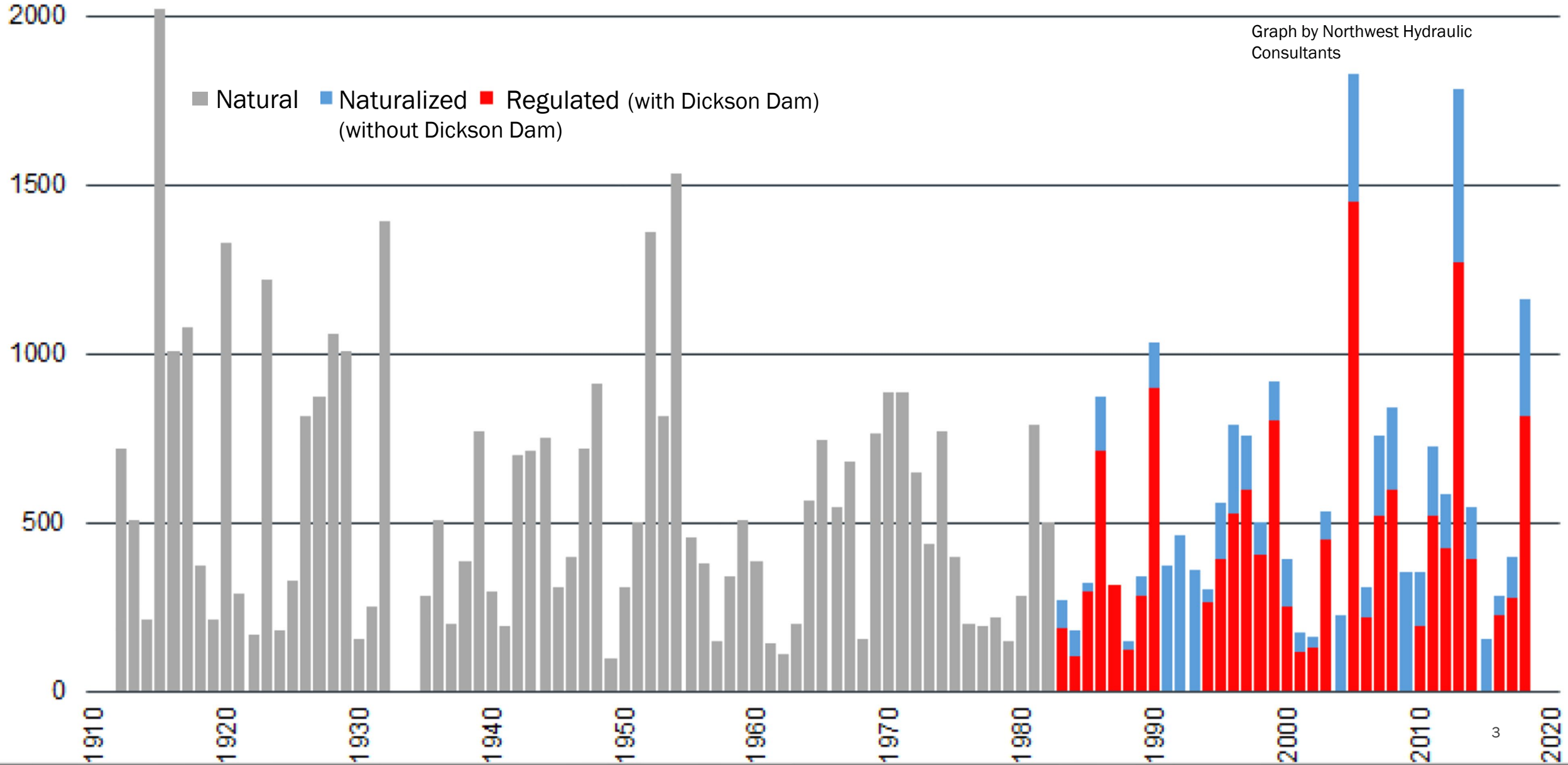


TOWN OF DRUMHELLER - HISTORY OF FLOODING



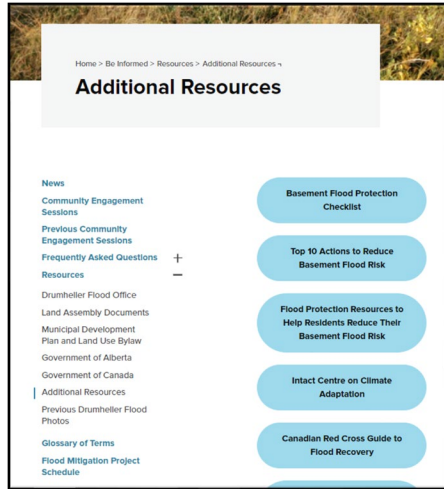
HISTORY OF FLOODING - DICKSON DAM STORAGE

Red Deer River Flood Peaks (m³/s)

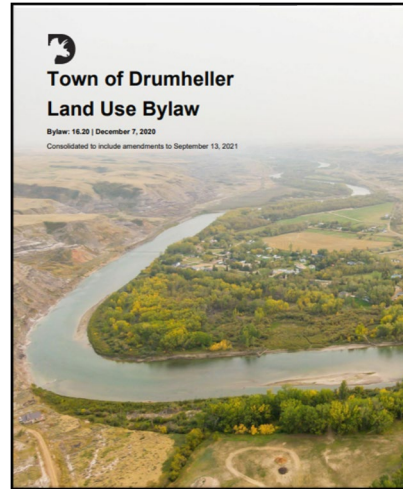


DRUMHELLER FLOOD MITIGATION PROGRAM COMPONENTS

1. Communication/Education



2. Policy



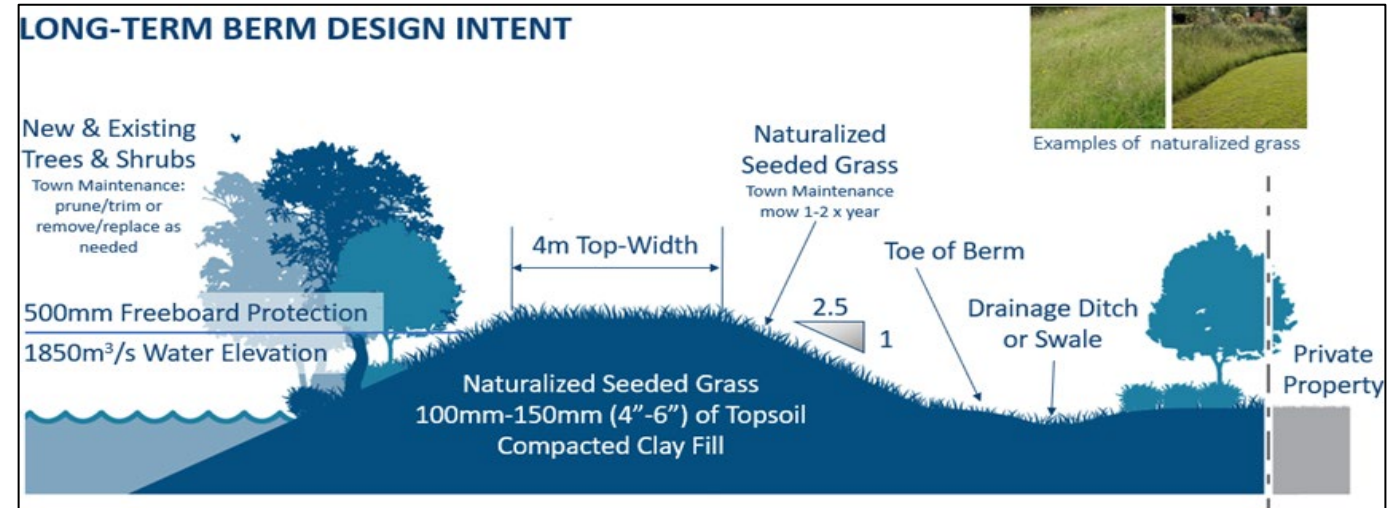
3. Flood & Emergency Preparedness



4. Buyouts in Floodway



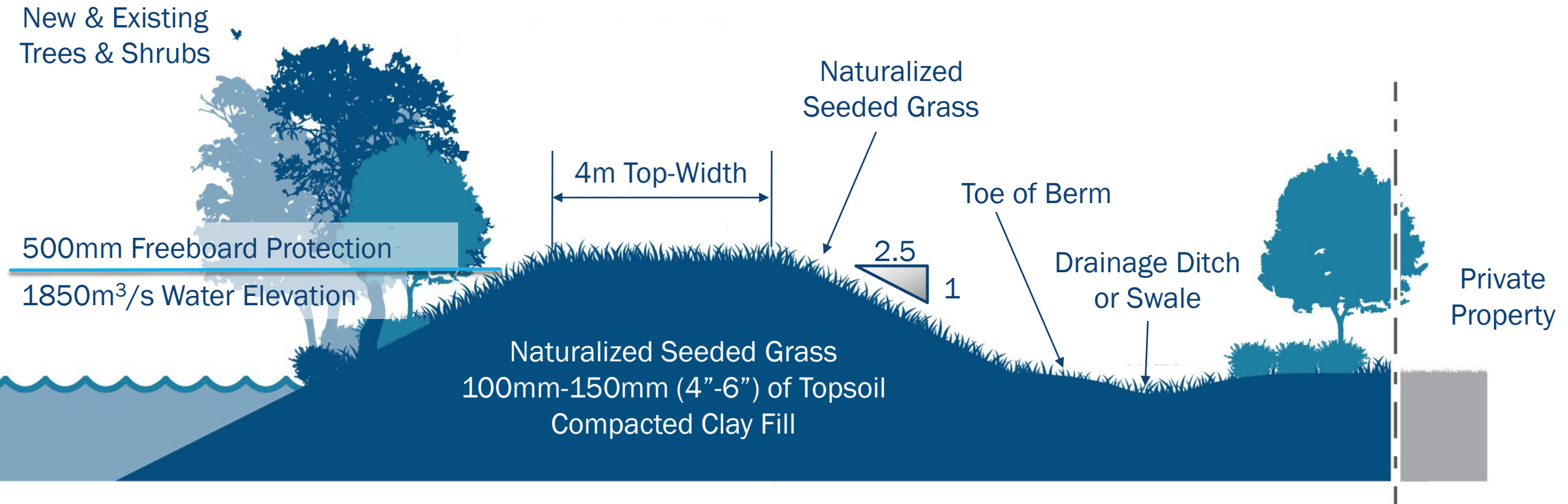
5. Structural Mitigation



LONG-TERM BERM DESIGN INTENT



EXAMPLES OF NATURALIZED GRASS



PROGRAM INITIATION & FUNDING

The Town began applying for grant funding for the Flood Resiliency and Mitigation program shortly after the June 2013 flood event, and starting in 2016 were successful in receiving funding commitments from:

- Government of Alberta - Alberta Community Resiliency Program ACRP (\$6.4M)

Further funding announced from 2018 to 2024

- Government of Canada - Disaster Mitigation and Adaptation Fund DMAF (\$22M)
- Town of Drumheller (\$5M)
- Government of Alberta - Buyout Program (\$20M)
- Government of Alberta - Watershed Resiliency and Restoration Program WRRP (\$75K)
- Government of Alberta - Community Resiliency Program (\$27.3M)
- Government of Alberta - Drought & Flood Protection DFPP (\$226K)



MONTHLY E-NEWSLETTER



Monthly E-Newsletter

DRUMHELLER
FLOOD OFFICE

January 2025



Exciting News for Nacmine, Rosedale, and West Rosedale Communities!

At the recent open council meeting on February 3rd, a major step forward was taken to complete flood protection in the Valley. Council has approved the construction of Nacmine, East Rosedale, and West Rosedale berms to protect the residents in these communities. Work is set to begin this construction season. The motion has passed, and the flood office, regulatory team & consultant teams are now coordinating with the awarded contractor, Pidherney's Inc., to get things underway. Stay in the loop! Follow us on social media and upcoming newsletters for real-time updates on the construction schedule and progress. Together, we're building a safer future!

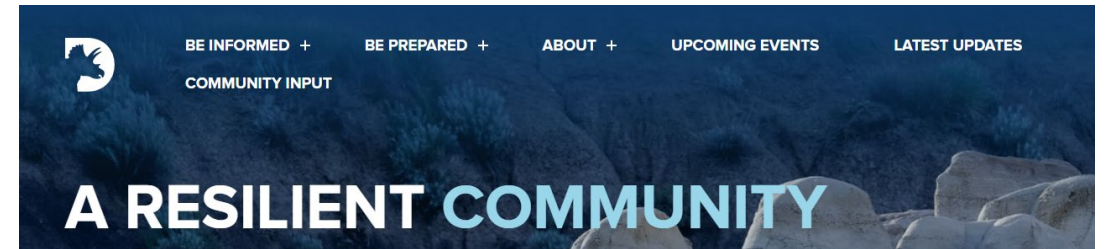
In this newsletter
you can expect:

Community
Updates

Our Next
Information
Event

2024 Highlights

FIND US ONLINE



Stay Informed:

- Construction Updates
- Temporary Road Closures
- Traffic Control Measures
- Environmental and Regulatory Compliance
- Engagement Sessions
- Emergency Preparedness
- Frequently Asked Questions

floodreadiness.drumheller.ca

Disaster & Emergency Preparedness



Getting Prepared for a Flood



PREPARING YOUR HOUSEHOLD

- Plan and practice your emergency preparedness plan
- Prepare a 'go bag' with emergency supplies for 72 hours



PREPARING KIDS AND YOUTH

- Get kids to pack their own 72 hour emergency 'go bag'
- Pack a few games, favourite stuffed animals in their 72 hour bag



PREPARING YOUR HOME, CONDO OR APPTMENT

- Assign floor wardens at your facility if you live in a condo or apartment
- Have a list of residents and know your muster point in the event the entire facility is evacuated
- Know who to call if utilities need to be shut off



PREPARING YOUR PETS

- Emergency kits should include pet photos, food, leash, collar and carrier
- Have a care plan and temporary residence in place for your pet's safekeeping



PREPARING FARM ANIMALS

- Have an emergency plan in place to evacuate your animals and an emergency kit ready to go
- Read the Alberta Emergency Preparedness for Farm Animals guide at www.aema.alberta.ca



PREPARING YOUR BUSINESS

- Create an emergency preparedness and business continuity plan and practice it with employees
- Think about how to protect critical assets and documents during a disaster



PREPARING YOUR NEIGHBOURHOOD

- Discuss a plan with neighbours to check everyone's safety during a flood
- Don't forget to talk to elderly neighbours, people living alone or with a disability about their plans and offer to assist



PREPARING SENIORS

- Have a trusted support network of 2-3 people to check in and assist in an emergency
- Emergency kits for seniors should have extra medication, medical and mobility devices



PREPARING PEOPLE WITH DISABILITIES

- Have a trusted support network of 2-3 people to check in and assist in an emergency
- Emergency kits should include all special needs items and those needs should be clearly outlined (difficulty hearing, dietary restrictions etc.)



PREPARING YOUR HOME 72 HOUR KIT INFO

See next page for your printable 72 Hour Emergency Checklist

72-HOUR Emergency Checklist



BASIC SUPPLIES

- First aid kit
- Water (12 L per person)
- Non-perishable food items
- Can Opener
- Multi-purpose tool
- Lighter
- Flashlights
- Extra batteries
- Essential electronics (phone & charger)
- Hand-crank radio
- Whistle
- Garbage bags
- Moist towelettes

PERSONAL ITEMS

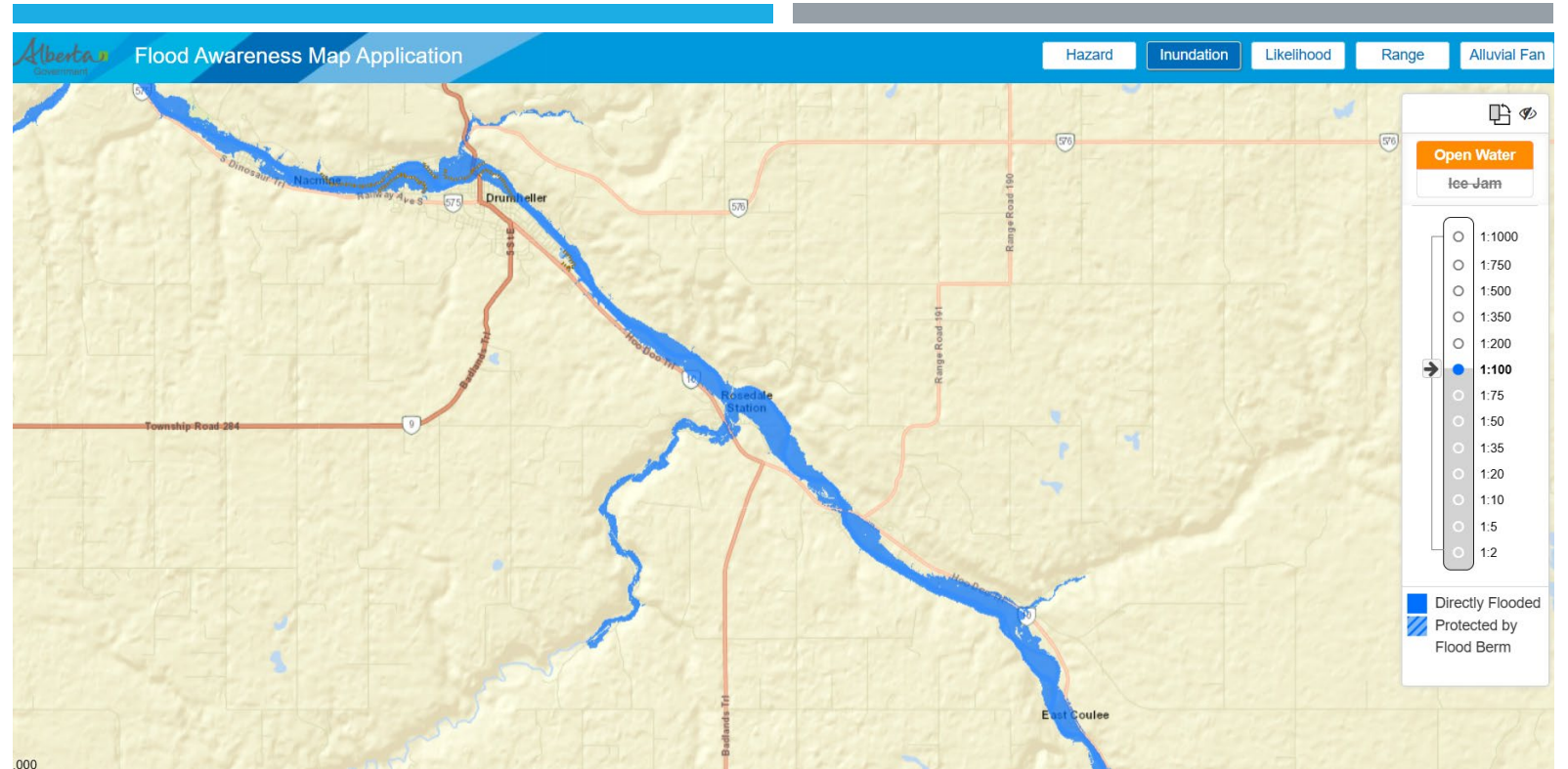
- Personal medication
- Medical equipment and devices
- Eyeglasses & hearing aids
- Vitamins
- Cash
- Blankets & sleeping bags
- Warm clothing and change of clothes (more socks & undergarments)
- Footwear
- Essential hygiene items
- Infant formula, diapers, etc.
- Pet registration, info & photos
- Pet food, spare leash, collar & carrier

CRITICAL INFORMATION

- Passports
- Birth & marriage certificates
- Insurance policies
- Diplomas & educational records
- Household inventory list
- Will & power of attorney
- Emergency contact information
- Social Insurance number
- Driver's license & medical card
- Immunization & medical records
- Financial information (income tax returns)
- Bank account/credit lines/credit card numbers & contacts



HAZARD & INUNDATION MAPS



Flood Awareness Map Application
-ONLINE NOW-
foods.alberta.ca

BENEFITS OF THE FLOOD PROGRAM

PROTECTION

Protecting the people, property, infrastructure and environment in the Drumheller Valley.

RESILIENCE

Building a resilient community and protecting future generations.

GROWTH

Future development opportunities and economic growth by protecting against the high cost of disaster recovery.

TREE REPLACEMENT STRATEGY

To preserve the Drumheller Valley urban tree canopy, healthy trees removed for berm construction will be replaced according to the following guidelines: pg 1 of 2

ENHANCE THE URBAN FOREST

5 new trees or shrubs will be planted for each healthy tree removed

1 x REMOVED

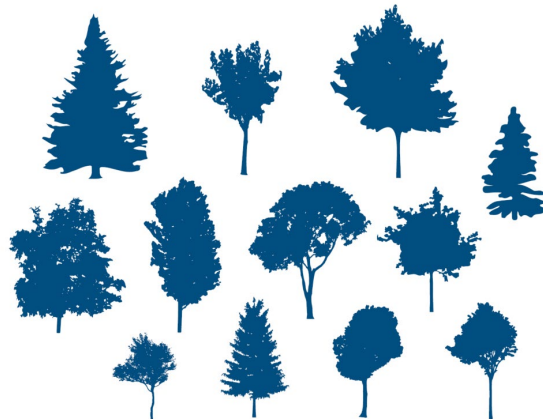
5:1



5 x REPLACED

DESIGN FOR BIODIVERSITY

plant a range of species to promote long-term success and resiliency



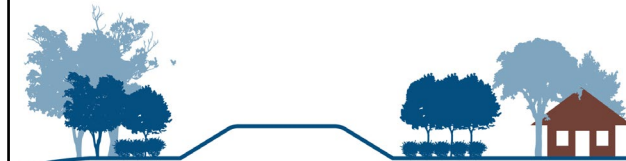
ENHANCE EXISTING PLANT COMMUNITIES

prioritize species that are similar to those that are currently thriving in the local area



ENHANCE THE URBAN FOREST

prioritize revegetation near the berm, where feasible, and in public areas within the local community



TREE REPLACEMENT STRATEGY

To preserve the Drumheller Valley urban tree canopy, healthy trees removed for berm construction will be replaced according to the following guidelines: pg 2 of 2

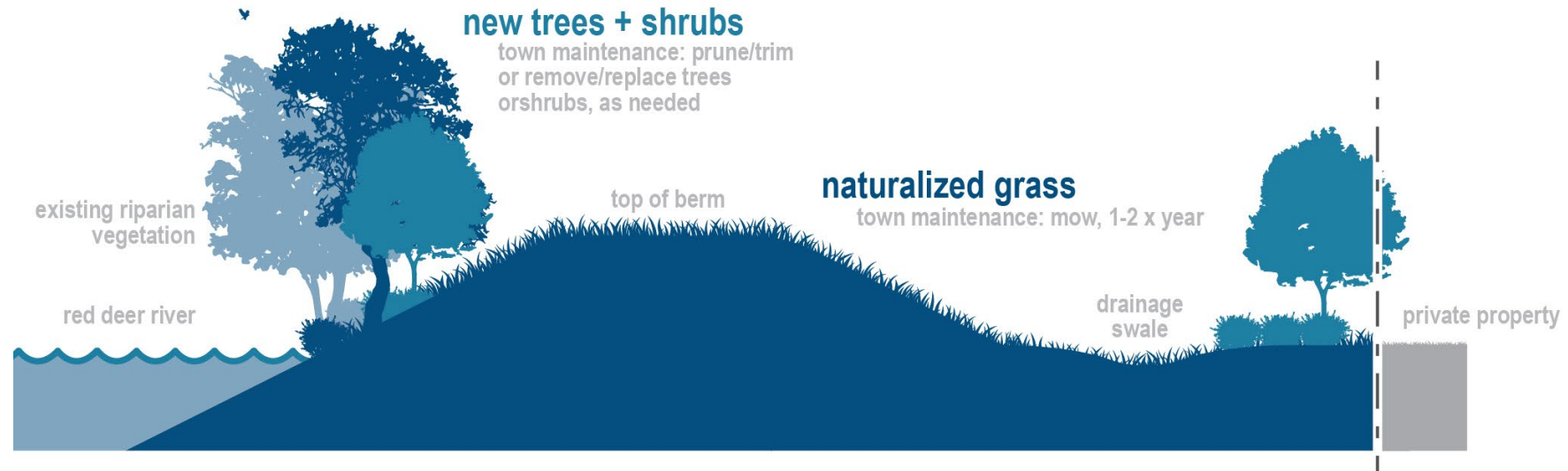
PRIVATE TREES

for healthy trees removed from private property, we will work with the affected owner to provide one replacement tree to be located on the affected property and four trees on public lands

1 x removed
1 x replaced



LONG-TERM BERM DESIGN INTENT



Examples of naturalized grass

PROPOSED TREE & SHRUB SPECIES



american elm



amur cherry



trembling aspen



colorado blue spruce



white spruce



coyote willow



golden currant



green ash



balsam poplar



mugo pine



mountain ash



scots pine



laurel leaf willow



hydrangea



juniper



high bush cranberry



red osier dogwood



saskatoon



lodgepole pine



tree lilac



white spruce



wild rose



wild raspberry



potentilla

NATURALIZED GRASS & ENVIRONMENTAL RESERVES

You may have noticed that grass and other pioneering species are a little taller in certain areas than others. The grass is allowed to grow uninhibited around some parts of the Valley and around some parts of the newly constructed berms because these areas are considered Environmental Reserves. It can look shaggier at times but will make sure there is good establishment in those areas. The tall grasses retain moisture in the soil and create shade allowing for germination underneath. Continual mowing of natural areas will inhibit growth of native grass species going into the heat of the summer as the grass will burn and may not recover or if cut before the species go to seed, inhibiting spreading of intended species.

The Town of Drumheller and the Flood Office try to keep these areas as natural as possible which have benefitted from the rainfall this spring and will soon go to seed. Selective trimming of weeds to remove seed heads prior to flowering is best practice as an intermediate step and weeds will become less prevalent as the native grasses fully establish and choke out any uncovered soil. Residents can elect to mow a strip of land outside their property line but please note herbicides are not suitable to be used near any body of water. Areas designated as Environmental Reserve (e.g. newly constructed berms) are meant to remain natural once established. A reminder that native species can take multiple growing seasons to fully establish but once established will require no additional nutrients or water and will remain greener longer.



Beware of Construction Zones



URGENT MESSAGE FROM THE FLOOD OFFICE!

We want to remind everyone of the risks associated with entering construction work sites.

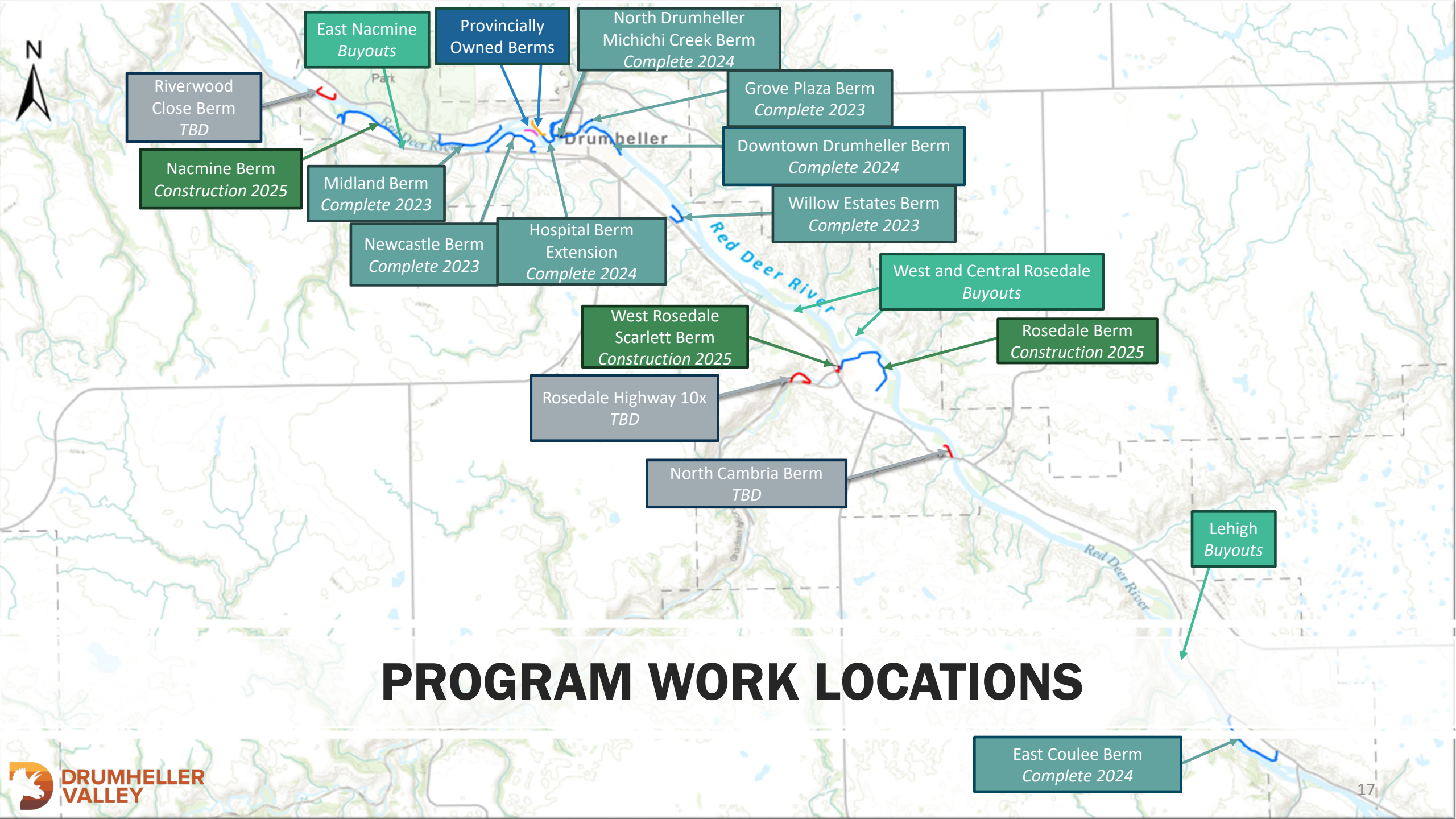
Construction sites are hazardous areas, and unauthorized entry can result in serious injury or harm to oneself and others.

The Town of Drumheller and its contractors prioritize safety and have implemented strict safety protocols to ensure the well-being of workers and visitors on the site. These safety measures include the use of safety gear, installation of barricades, and prominent warning signs.

We ask all residents to respect and adhere to these safety protocols. Unauthorized entry into the construction site without proper authorization is strictly prohibited. By doing so, you not only put yourself at risk but also jeopardize the safety of others.

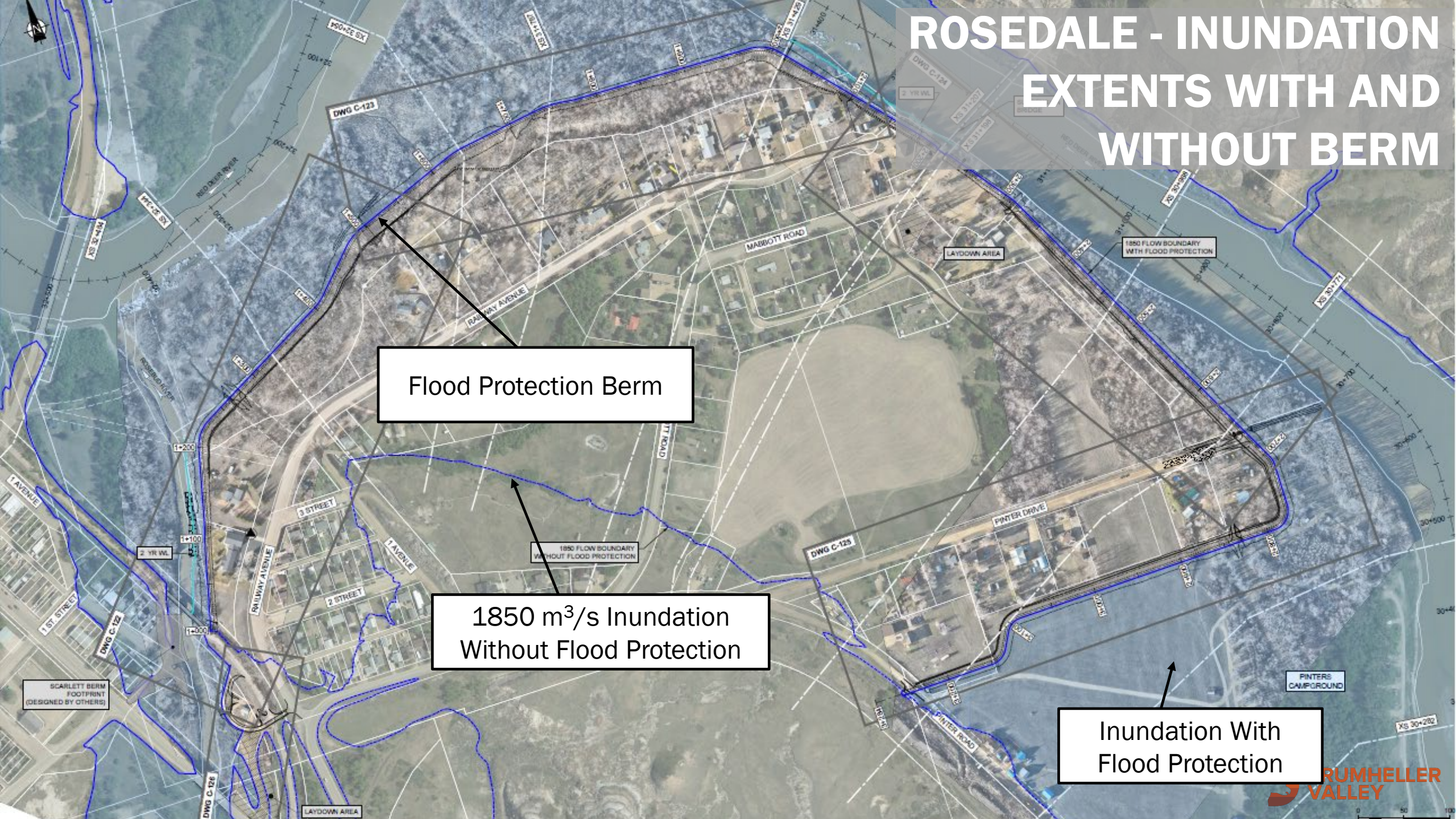
If you have any questions or concerns regarding the Flood Mitigation Project or the safety protocols in place, please feel free to contact us at floodreadiness@drumheller.ca.

Your safety is our utmost priority, and we appreciate your cooperation in ensuring a secure work environment for everyone.



PROGRAM WORK LOCATIONS

ROSEDALE - INUNDATION EXTENTS WITH AND WITHOUT BERM

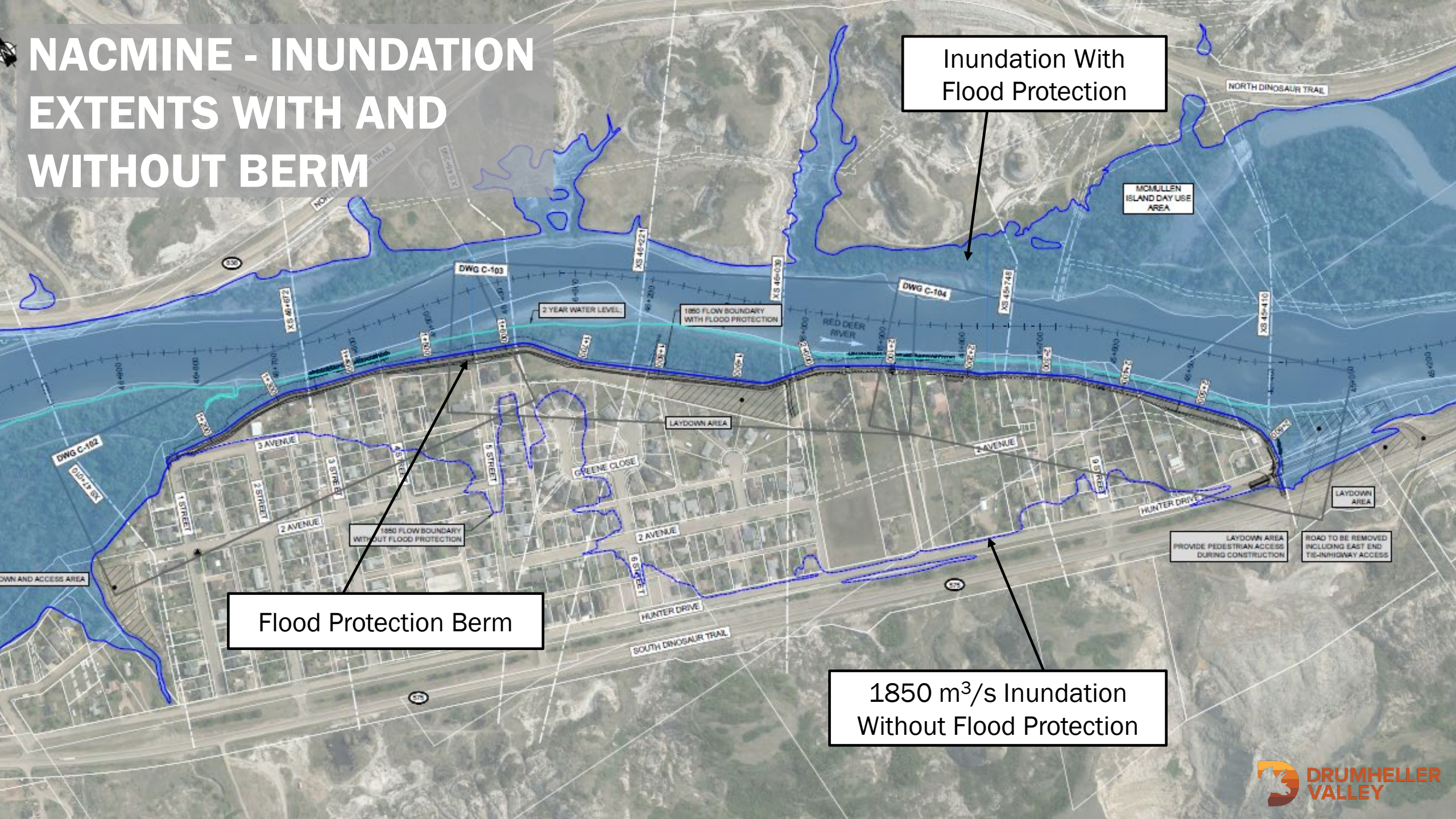


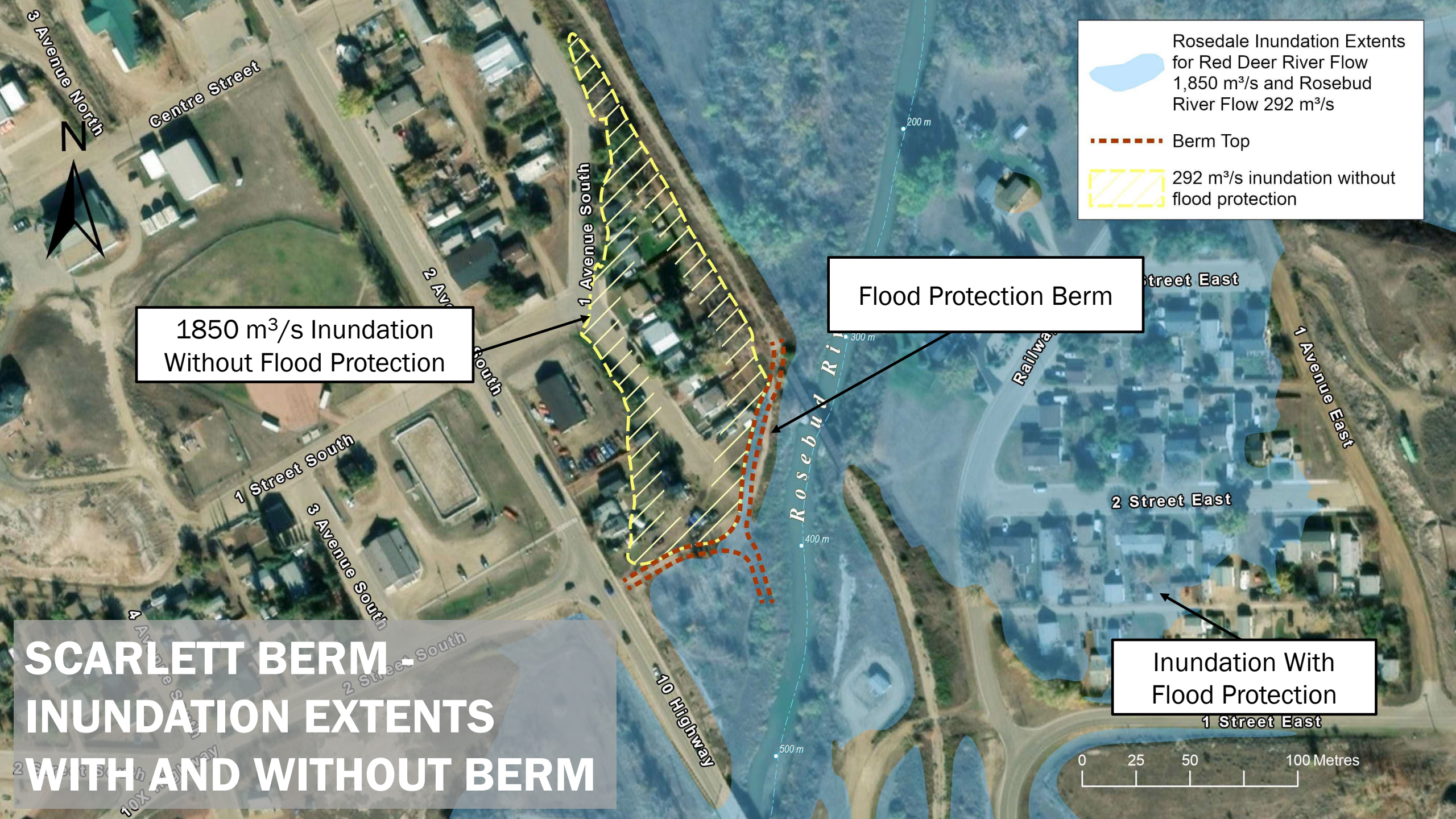
Flood Protection Berm

1850 m³/s Inundation Without Flood Protection

Inundation With Flood Protection

NACMINE - INUNDATION EXTENTS WITH AND WITHOUT BERM





Rosedale Inundation Extents
for Red Deer River Flow
1,850 m³/s and Rosebud
River Flow 292 m³/s

----- Berm Top

▨ 292 m³/s inundation without
flood protection

1850 m³/s Inundation
Without Flood Protection

Flood Protection Berm

Inundation With
Flood Protection

**SCARLETT BERM -
INUNDATION EXTENTS
WITH AND WITHOUT BERM**





**NORTH DRUMHELLER
FLOOD IMPROVEMENTS
– COMPLETE 2024**



**NORTH DRUMHELLER
FLOOD IMPROVEMENTS
– COMPLETE 2024**

DOWNTOWN BERM - COMPLETE 2024



An aerial photograph of a residential neighborhood. In the foreground, a wide river flows from the bottom left towards the center. A prominent stone berm, constructed from large grey rocks, runs along the riverbank, separating the water from a grassy area. Behind the berm, a dirt road curves through the property. The rest of the image shows a dense residential area with various houses, some with swimming pools, and many trees. The houses are mostly single-story or two-story structures with different roof colors. The overall scene is bright and clear, suggesting a sunny day.

**NEWCASTLE BERM
– COMPLETED 2023**

LEHIGH FLOODWAY BUYOUT LOCATION



**MIDLAND BERM
- COMPLETED 2023**





WILLOW ESTATES BERM
– COMPLETED 2023



**GROVE PLAZA BERM
- COMPLETED 2023**

**EAST COULEE PHASE 1 BERM
- COMPLETED 2024**

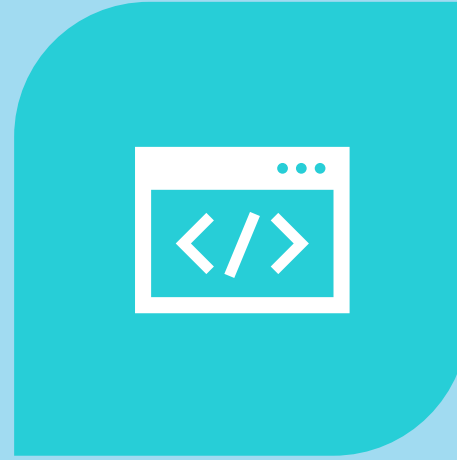




**ROSEDALE FLOODWAY
BUYOUT LOCATION**



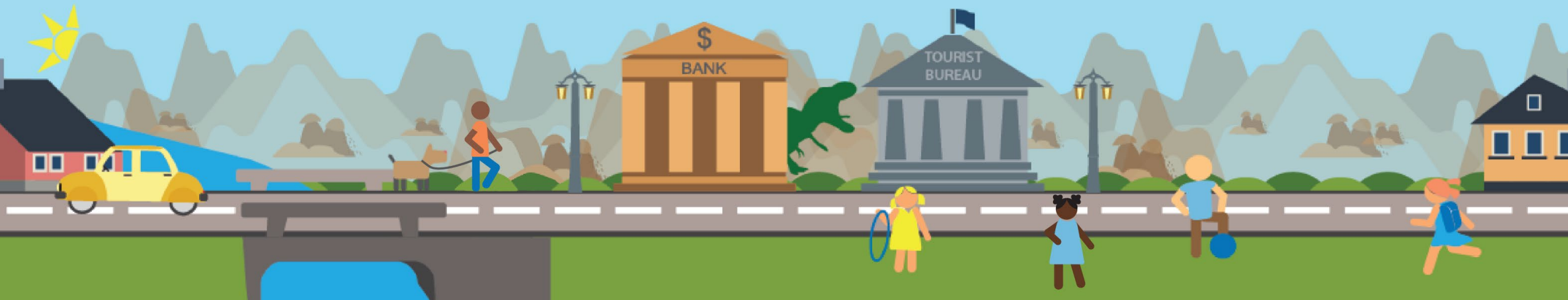
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THANK YOU TO OUR FUNDERS

