



WORKING TOGETHER FOR A FLOOD RESILIENT FUTURE

EPCOR'S STORMWATER INTEGRATED RESOURCE PLAN

May 2019

Intense storms can cause urban flooding, putting people, essential services and infrastructure at risk. Edmonton and other Canadian cities have experienced significant overland flooding in recent years, and extreme weather events are expected to happen more frequently. The impacts of flooding to citizens, the environment, society and property are substantial.

EPCOR is now proposing a plan to reduce the risk of flooding in Edmonton due to extreme weather. Our Stormwater Integrated Resource Plan envisions all stakeholders — citizens, businesses, industry, the City of Edmonton and EPCOR — working together to build a more flood-resilient future.

- We identify and characterize risk based on weather patterns and what we already know about the drainage system and environment;
- We engage the community to frame our plan around shared priorities;
- We build a plan to slow, move, secure, predict and respond to flood waters in the community; and
- We empower home and property owners to help flood-proof private property.

Priorities for protecting against floods

As detailed in our October 2018 update, we conducted public engagement in summer 2018 to understand citizens' priorities for protecting against floods. We used a comprehensive survey that asked Edmontonians to make difficult tradeoffs among social, environmental, financial, and health and safety impacts.

The risk ranking model we adopted was driven by this public research. The higher risk areas that we are targeting for flood mitigation projects are based on Edmontonians' priorities:

- Protection of hospitals and urgent care facilities, and essential services such as fire, police, EMS and utilities;
- Protection against risks to human life and agencies that provide support for vulnerable populations; and
- For the city overall, prioritizing protection against health and safety and social impacts from flooding while also considering financial and environmental impacts



HOW WE'RE REDUCING THE RISK OF OVERLAND FLOODING

EPCOR has been active in addressing stormwater flooding in parts of Edmonton where there has already been significant flooding. For example, flood mitigation improvements in the Millwoods area are ongoing, and four dry ponds in Parkallen and Steinhauer/Erminskin are in development.

Future flood mitigation work will include a combination of homeowner programs, drainage system improvements, green infrastructure and planning. In addition, we are creating a smarter stormwater network that will allow us to anticipate and react to storms in real time using monitoring and control technology.

The goal is to **slow, move, secure, predict, and respond** to flooding events to prevent or reduce the impact of flooding. The plan is detailed in the May 2019 Utility Committee report, available at epcor.com/floodmitigation.



SLOW

We slow the entry of stormwater into the drainage network by absorbing it in green infrastructure and holding it in ponds, creating space in the collection system during storm events.

- 1 Dry ponds — 31 proposed sites
- 2 Low impact development — rain gardens, bioretention basins, box planters and tree soil cells that have both flood mitigation and climate change mitigation benefits to reduce impacts of drought and heat waves

MOVE

We move excess water safely away from areas at risk, quickly and efficiently, by increasing capacity in the drainage system to handle peak water flow.

- 3 Tunnels and trunks
- 3 Separation of storm and sanitary sewers

SECURE

We help secure individual properties in higher risk areas against sewer backups, overland flooding and river flooding.

- 4 Enhanced Building Flood Proofing Program for residential, multifamily and commercial properties (6,000 high-risk properties) coordinating their flood-proofing with EPCOR investments on adjacent public lands
- 4 Engage and educate owners of 40,000 homes in targeted high and medium-high risk areas to identify and implement flood-proofing measures on their properties, including backwater valve installation
- 5 Additional control gates at outfalls
- 6 Increased maintenance and repair priorities on higher risk assets to reduce inflow/infiltration

PREDICT

We predict and manage the movement of stormwater through smart sensors and technologies that integrate into the collection system.





- 7 Sensors and automatic controls at ponds, underground storage pipes and underpasses
- 8 Real time operational dashboard incorporating data from sensors, controls and weather radar stations

RESPOND

We respond through the fast rollout of flood barriers, traffic diversions and public communications to protect life, safety and property.

- 8 Emergency response in coordination with the City of Edmonton Office of Emergency Management

IMPACTS PRIORITIZED BY PUBLIC OPINION

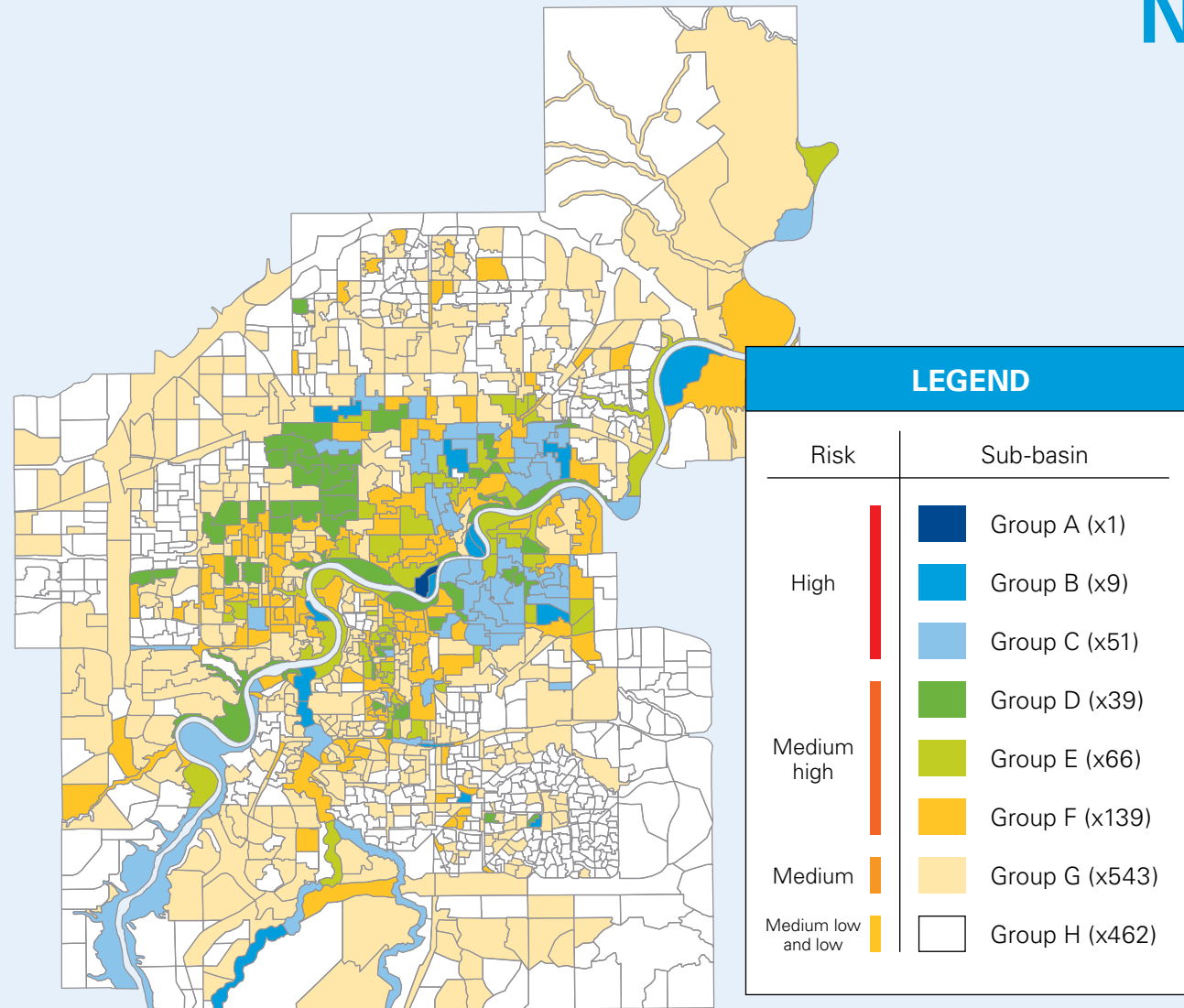
-  Health and Safety | **30%**
-  Environment | **15%**
-  Social | **30%**
-  Financial | **25%**

Risk is weighed based on public opinion.

We are investing in flood-resiliency in areas with high risk of flood impacts, and targeting drainage improvements and homeowner programs to reduce the risk. This includes medium-high and high-risk area (Groups A – E) as well as social service agencies, hospitals and essential services.

Groups F - G will be included in conjunction with other construction activities such as Building Great Neighbourhoods

Map last updated October 2018



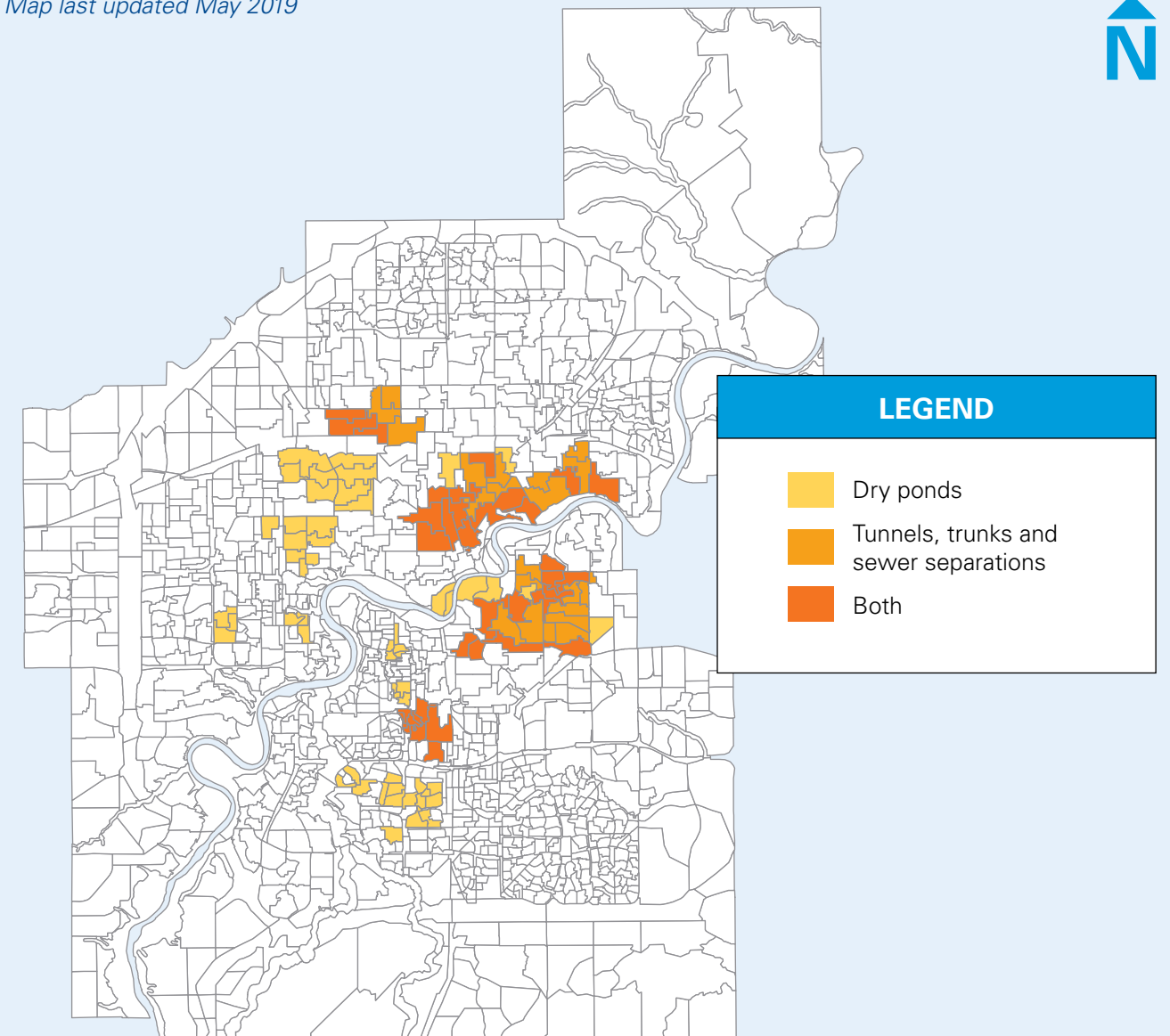
MAJOR FLOOD MITIGATION CONSTRUCTION PROJECTS

EPCOR's Stormwater Integrated Resource Plan includes significant improvements to Edmonton's drainage system that are designed to slow and move stormwater away from high-risk areas. These projects will work in tandem with other strategies to slow, move, secure, predict, and respond to stormwater events.

These include:

- Dry ponds — green spaces that act as catch basins for excess stormwater during heavy rainfalls. We are proposing 31 dry ponds of varying sizes.
- Tunnels, trunks and sewer separations — where there are combined storm and sanitary systems in high-risk areas, we will separate them, increasing the amount of stormwater we can move in extreme weather and reducing the risk of backups to nearby properties.

Map last updated May 2019



Full-sized versions of these maps are available at epcor.com/floodmitigation.

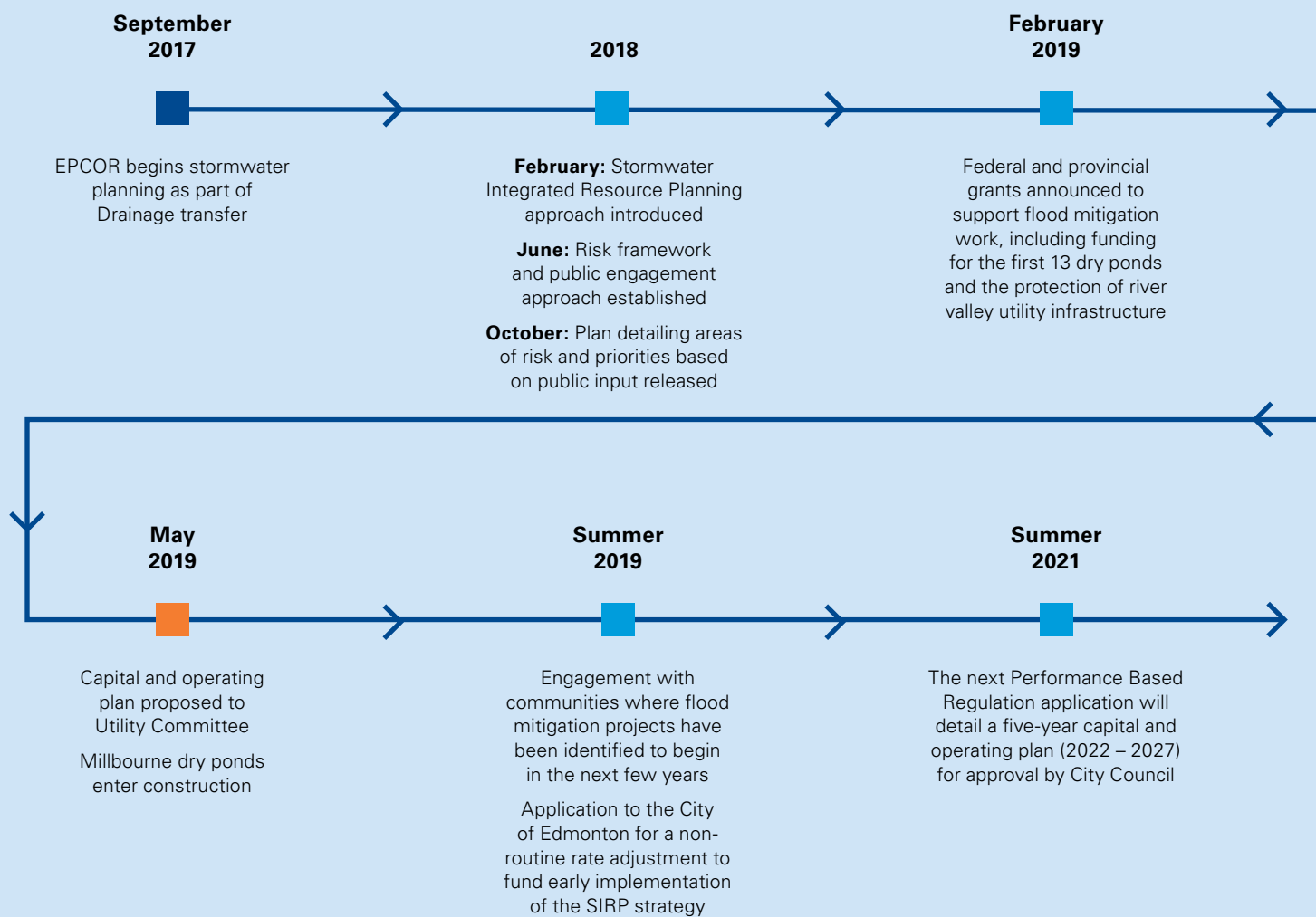
NEXT STEPS

EPCOR is proposing a capital and operational plan to the City of Edmonton's Utility Committee, and asking for the committee's feedback on our preferred timeline and approach.

We are recommending a scenario that implements capital and operational changes over 20 years at a cost of approximately \$1.6 billion in capital investment. This includes the recently approved \$59 million in flood mitigation grants from the provincial and federal governments to support this plan.

In addition, we will be recommending to the City of Edmonton a non-routine rate adjustment for 2020/2021 to fund early implementation of the SIRP strategy prior to the next formal Performance Based Rate application for 2022-2027.

TIMELINE FOR ACTION



WHAT YOU CAN DO TO PROTECT YOUR HOME OR BUSINESS

Every Edmontonian has a stake in flood mitigation for our city. Beyond addressing risk, we have an opportunity to make our city stronger and greener, while protecting life and what matters most to us.

EPCOR's currently planned flood mitigation projects will take 20 years to complete — drainage projects are often complex and take time to design and construct. Where there is significant community impact we will be taking time to engage the community on the project options. However, you can take action to reduce your own flood risk **today**.

We offer:

- Resources for home maintenance at epcor.com/floodprevention
- Subsidies for backwater valves, which help to prevent sewer water from backing up into your home. *(Note: homes built after 1989 will have a backwater valve; anything prior to that year will not likely have one).*
- Free home flood protection inspections that will provide homeowners with information on how best to protect their property from flooding their properties, in coordination with EPCOR work on adjacent public property.

HAVE YOUR SAY

Community involvement is integral to the flood mitigation process, which will evolve over time as we continue to receive input. We commit to consulting with communities on flood mitigation options where projects could have significant impact.

Have your say and stay connected:

- Contact us with any questions or feedback at epcordrainage@epcor.com or **780-509-8080**.
- Visit epcor.com/floodmitigation for details of our plan and reports to the City of Edmonton's Utility Committee.
- Find out more about how to flood-proof your property and get support through homeowner programs at epcor.com/floodprevention.
- Watch for notices regarding any major projects planned in your area for details on how to get involved.





For more information, visit
epcor.com/floodmitigation