Floodway Policy & Flood Hazard Mapping

December 11, 2014

River Forecast Section

Operations Infrastructure Branch, Operations Division
Environment and Sustainable Resource Development

Evan Friesenhan, M.Eng., P.Eng.
Acting Director, River Forecast Section
Environment and Sustainable Resource Development
evan.friesenhan@gov.ab.ca

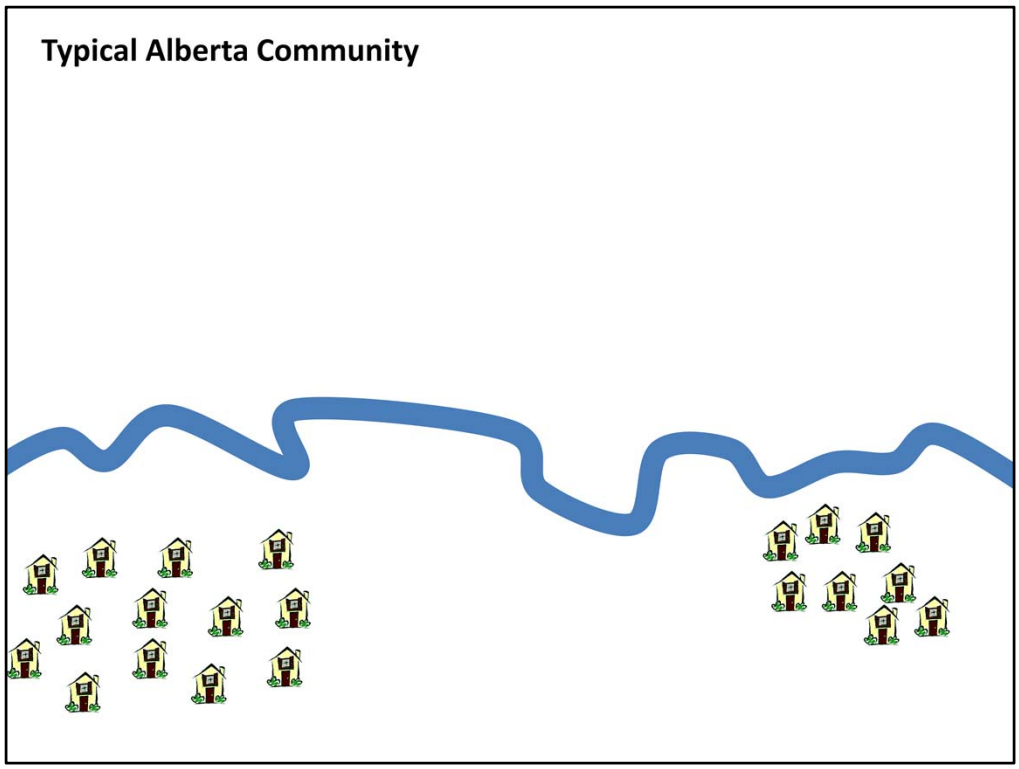
Bryce Haimila, B.Sc., CFM
Manager, River Hazard Management Team, RFS
Environment and Sustainable Resource Development
bryce.haimila@gov.ab.ca

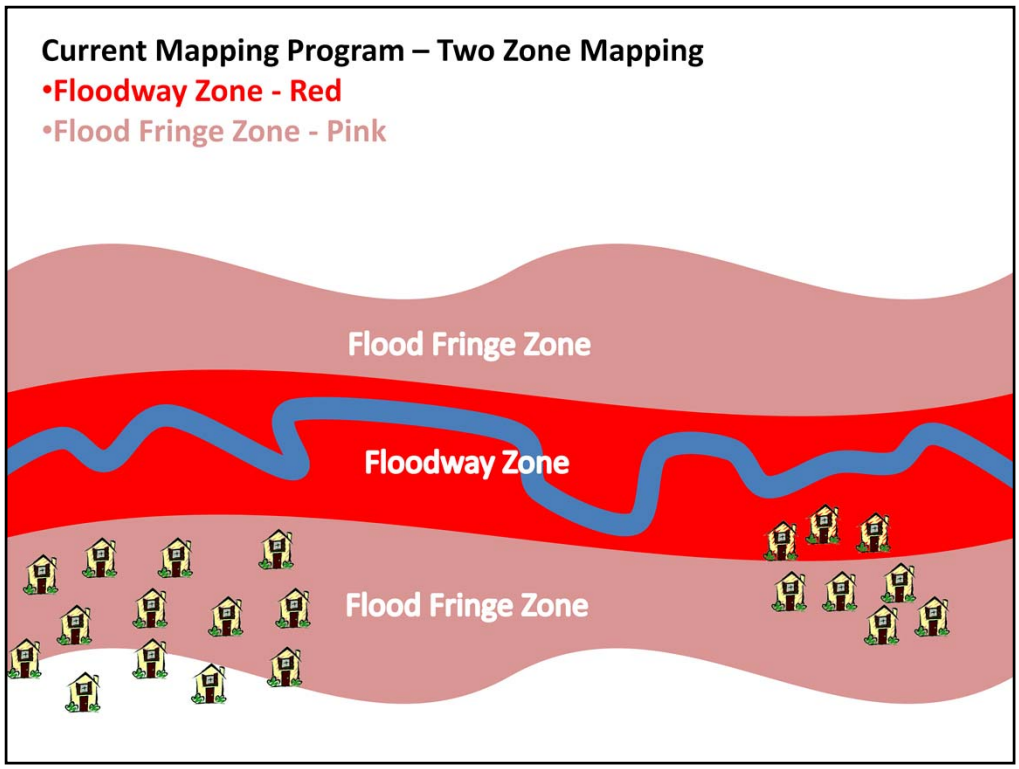
Government of Alberta

Floodway Policy

- Albertans expect Floodway Policy (and associated regulations) that achieves the appropriate tension between:
  - Public Safety;
  - Property Rights;
  - Provincial Economic Efficiency; and
  - Risk Tolerance.
- This tension must ensure the proper apportionment of flood risk between the province, municipalities and the individual Albertan.
- Does the current mapping tool need to be adjusted to meet these emerging needs and expectations?

Alberta

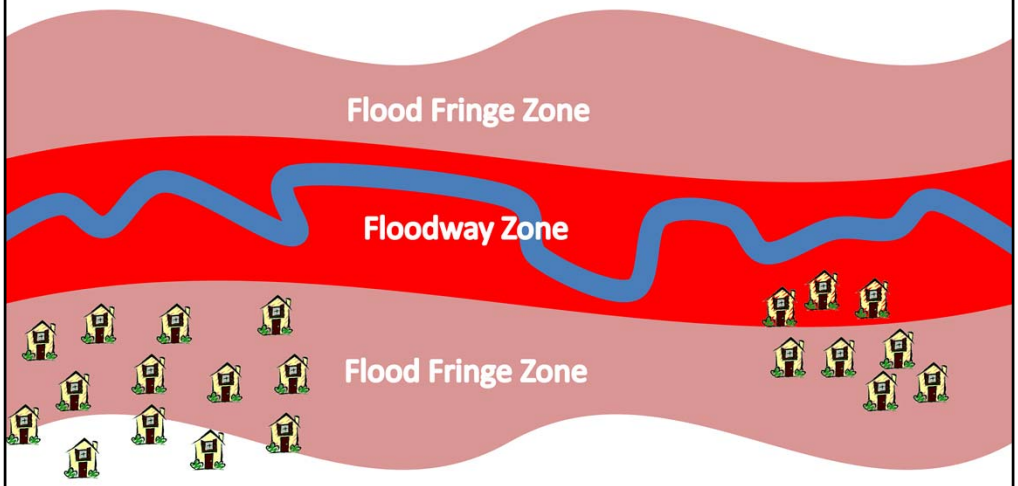

Typical Alberta Community

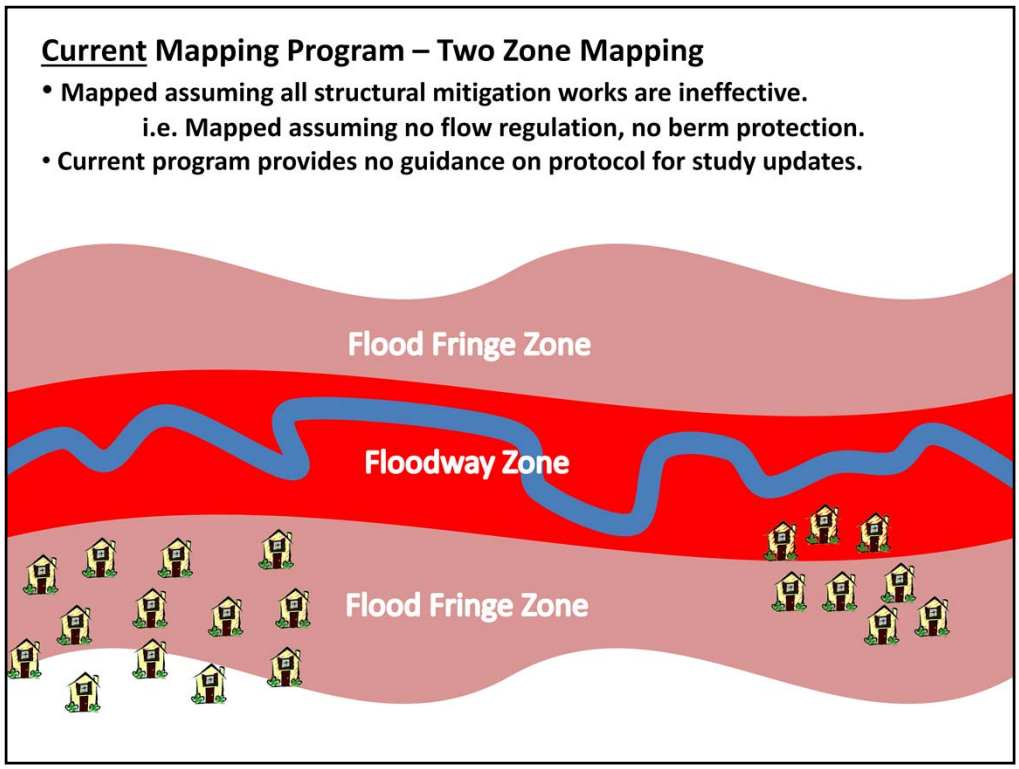


The Floodway zone is where the water is deeper and faster. Development in the Floodway zone is typically discouraged or not allowed. The Flood Fringe zone still has water in it during the design flood event, but it is generally speaking, shallower, slower moving and the water does not do as much damage.

Current Mapping Program – Two Zone Mapping

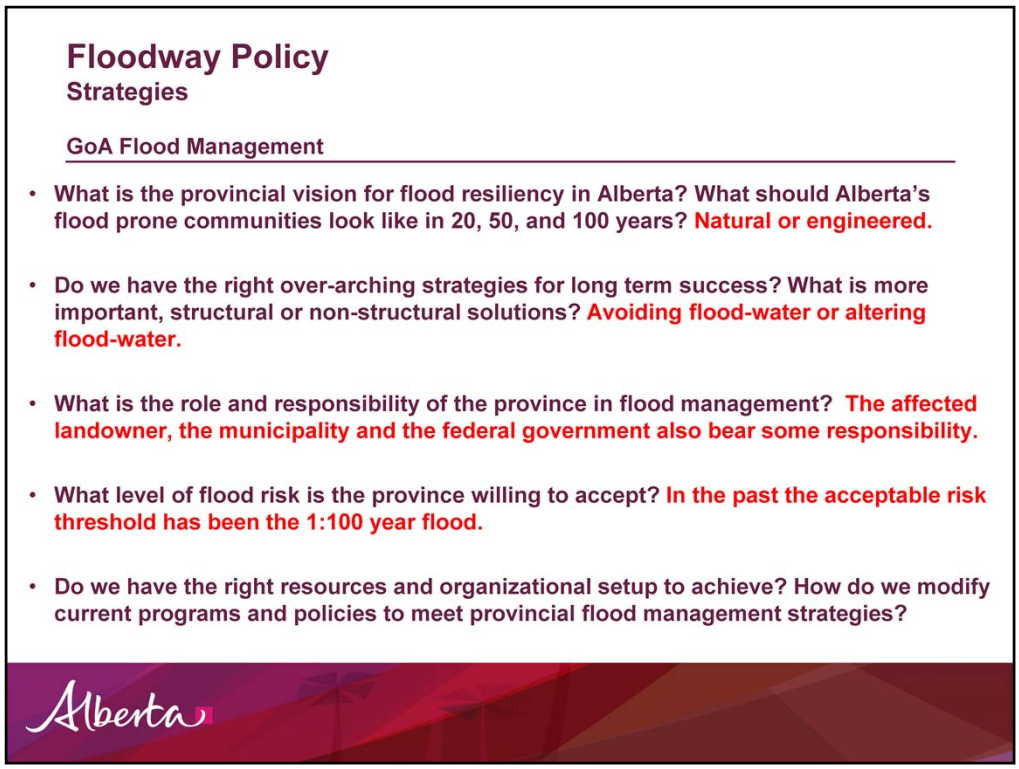
- Map represents a future case where the flood fringe is completely filled in.
- Design flood levels (development levels) are calculated under the assumption that the floodway zone can convey the entire flood today and in the future.





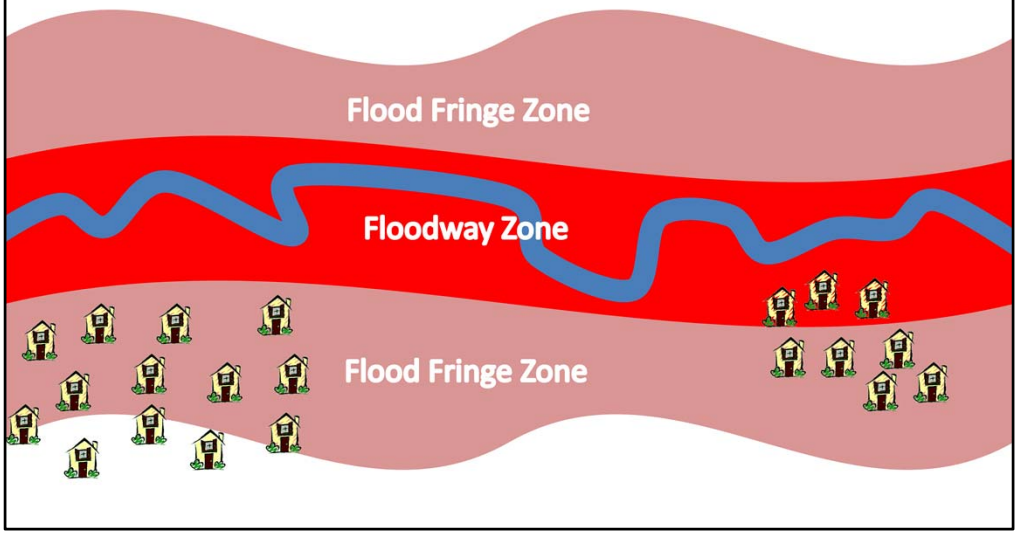
The assumption that all structural mitigation works are ineffective is the most conservative case. It assumes that any upstream water management structures will be unable to appreciably reduce the peak flow and that local flood mitigation structures (e.g. berms) are over-topped or fail. Examples of structural mitigation works include dykes, dams and berms.

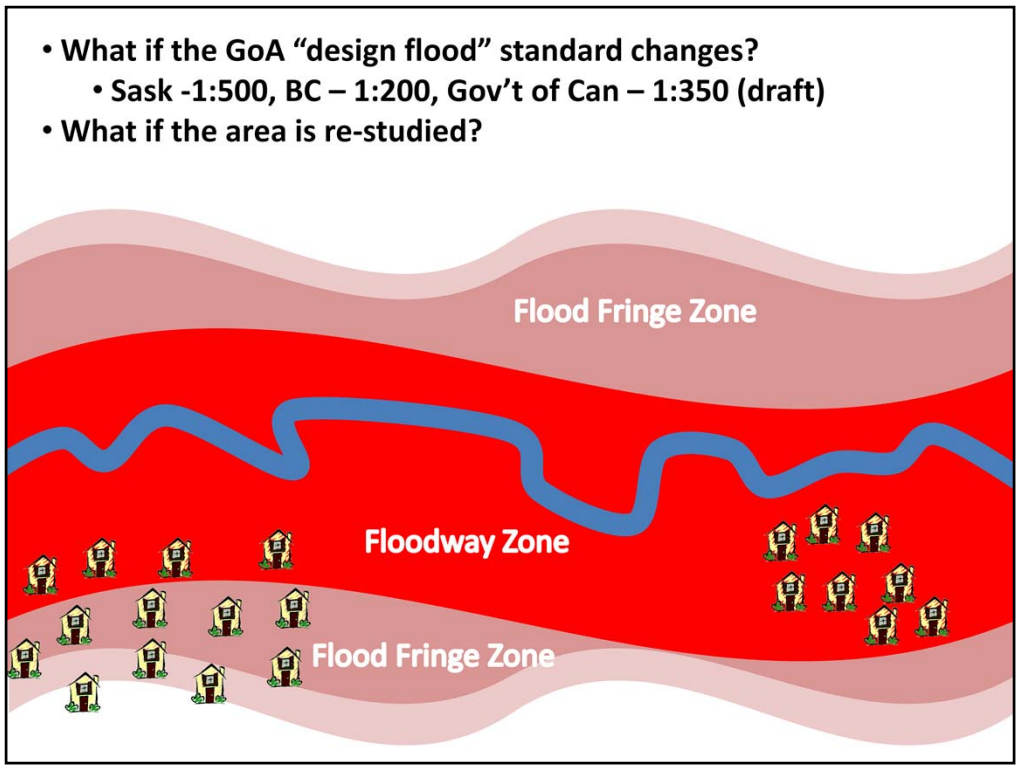
When a study is updated, it is reasonable to assume that the Floodway Zone and Flood Fringe Zone will change in size and that the boundaries of the zones will need to move. The current program does not provide guidance on what the impact of this change would be on regulations within these zone (i.e. a home that was in the Flood Fringe Zone in the previous study is now considered to be in the Floodway Zone of the updated study – How should this be dealt with?).



Alberta's approach to flood mitigation (Respecting our Rivers) outlines Seven key elements that guide our approach to mitigation. Part of this is understanding that we will never be able to completely eliminate the flood risk faced by some communities, but we can take steps to manage it. Part of this is accepting that sometimes it's more practical to keep people away from water, rather than trying to keep water away from people.

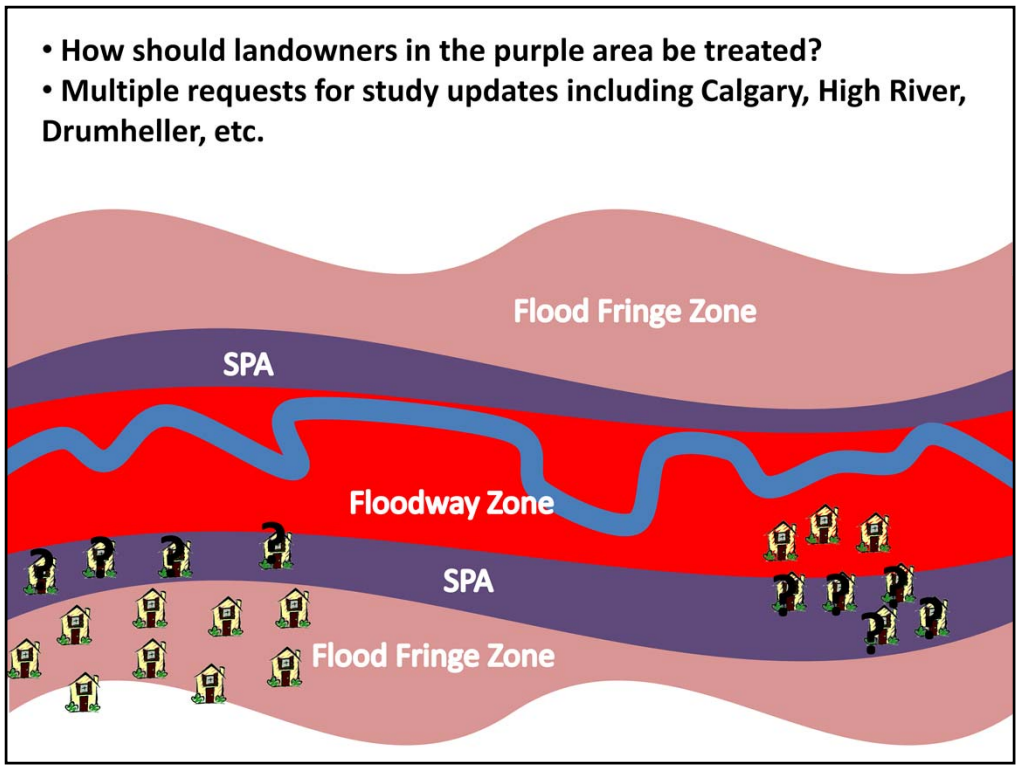
Current Mapping Program – 2 Zone Mapping



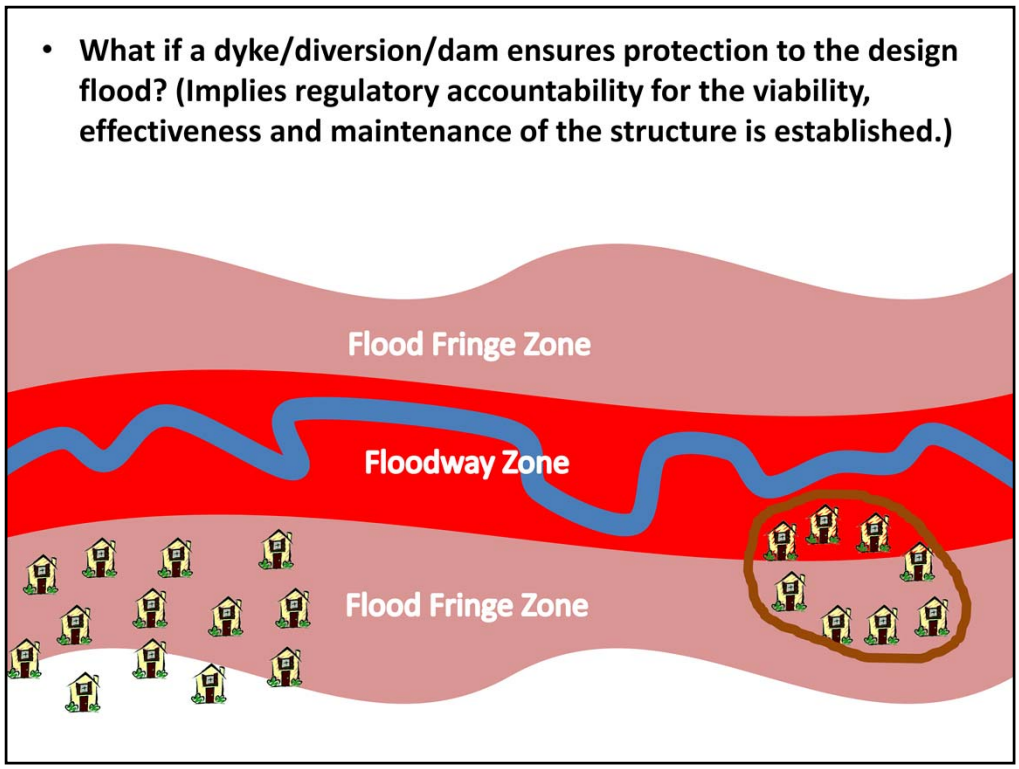


In this example the Flood Hazard Area increases in size (due to an increase in the ‘design flood’ standard or the study simple being updated or both). This would necessitate a change in the boundaries of the Floodway and Flood Fringe zones.

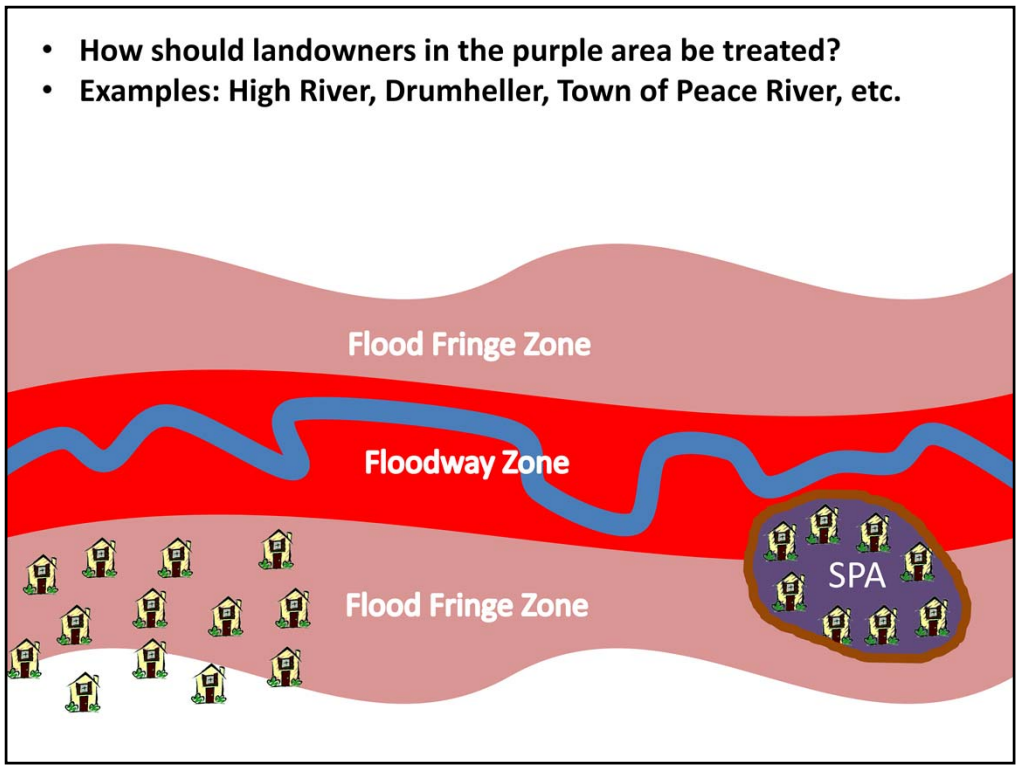
Please note that the 1:350 referred to in this slide is not being actively pursued, to our knowledge, at this time. Currently, it is simply a point of discussion.



Because of this change in zone boundaries, we need to determine how to handle that change from a policy perspective that achieves a reasonable apportionment of risk between the province, the local authority and the individual Albertan. A possible way of defining the change in boundaries is through a third zone (referred to as an 'SPA or 'Special Policy Area' here). It must be noted that the criteria for determining an SPA would need to be developed. In concept, at this time the SPA would only be used for existing development and not as a way to allow new development in flood prone areas.



Should the mapping provide acknowledgement of the risk reduction provided by structural mitigation? If so, how and to what end? This is less conservative, however it would acknowledge the mitigation that is put in place.



A possible way to acknowledge the positive impacts of structural mitigation on the mapping would be through a third zone (referred to as an 'SPA or 'Special Policy Area' here). It must be noted that the criteria for determining an SPA would need to be developed. In concept, at this time the SPA would only be used for existing development and not as a way to allow new development in flood prone areas.

Floodway Policy

Policy and Program Change Options

1. Cross-Ministry Working Group will develop a strategy for FHIP Activities and Inform Broader Flood Management Work in the GoA

2. Possible creation of Special Policy Areas for managing floodway development

Special Policy Areas could be created

- if the design flood definition across the GoA is altered from the current 100-year level, resulting in a map with different floodway and flood fringe zones

OR

- if a re-calculation of the design flood using the current design flood definition but newer technical data, results in a map with different floodway and flood fringe zones.

OR

- if structural flood mitigation infrastructure alters either the natural flow amount or location of flood water during the design flood, resulting in floodwater not located in some areas during the design flood.

Alberta

Floodway Policy
Policy and Program Change Options

1. Cross-Ministry Standing Committee will develop a strategy for FHIP Activities and Inform Broader Flood Management Work in the GoA

2. Possible creation of Special Policy Areas for managing floodway development

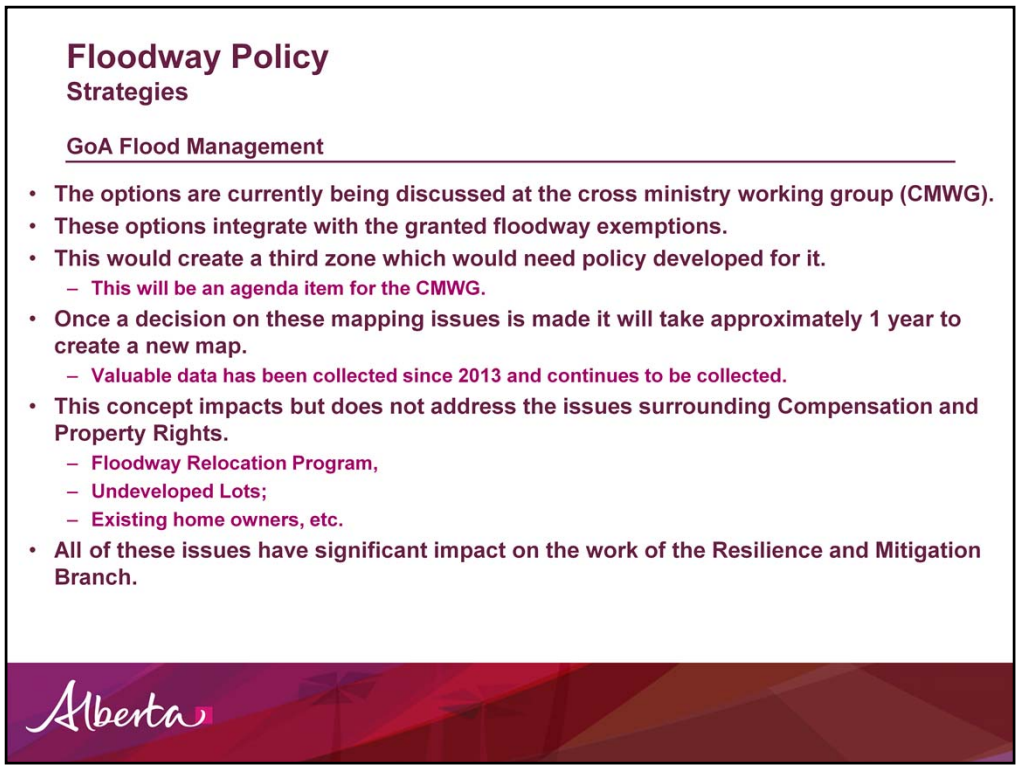
   Special Policy Areas could be created for

   - New or Re-studies using a different GoA Risk Level Standard

   - Re-Studies Using More Recent Data

   - New or Re-Studies with Dykes/Diversions/Dams

Alberta



Further discussion on the current mapping tool, whether it needs to be adjusted and if so how it should be adjusted, needs to occur. This is a live policy discussion should take place with all stakeholders.

Floodway Policy & Flood Hazard Mapping

QUESTIONS?

River Forecast Section

Operations Infrastructure Branch, Operations Division
Environment and Sustainable Resource Development

Evan Friesenhan, M.Eng., P.Eng.
Acting Director, River Forecast Section
Environment and Sustainable Resource Development
evan.friesenhan@gov.ab.ca

Bryce Haimila, B.Sc., CFM
Manager, River Hazard Management Team, RFS
Environment and Sustainable Resource Development
bryce.haimila@gov.ab.ca

Government of Alberta