

Flood Mitigation Plan Update

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Presenter: Dawny George
Director, Engineering Department

Flood Mitigation Summary

- 2007 - Council approved Flood Mitigation to an elevation of 248.5 metres (current estimated 1:40 year)
- Prairie Loop Boulevard and Saline Creek Parkway are built to the current estimated 1:40 year elevation
- In response to Provincial Legislation, an updated Flood Mitigation strategy to 250 metres (current estimated 1:100) began in the fall of 2013
- In 2014, Council approved dike construction to 250 metres as part of 2015 Capital budget

Flood Mitigation Summary (cont'd)

- April 2015 – Council approved requesting a 1 year deferral from the Province in implementing flood mitigation while alternative solutions were investigated
- Design and construction of flood mitigation and Prairie Loop Boulevard were placed on hold
- November 2015 – Council approved the completion of Prairie Loop Boulevard and flood mitigation to 248.5 metres

Flood Mitigation Summary (cont'd)

- Province recently began to update its Flood Hazard Analysis to confirm the elevation of the 1:100 which is expected to be complete in March 2018
- August 2016 – Administration presented a comprehensive presentation on flood mitigation, the history, provincial and municipal policies and various mitigation methods

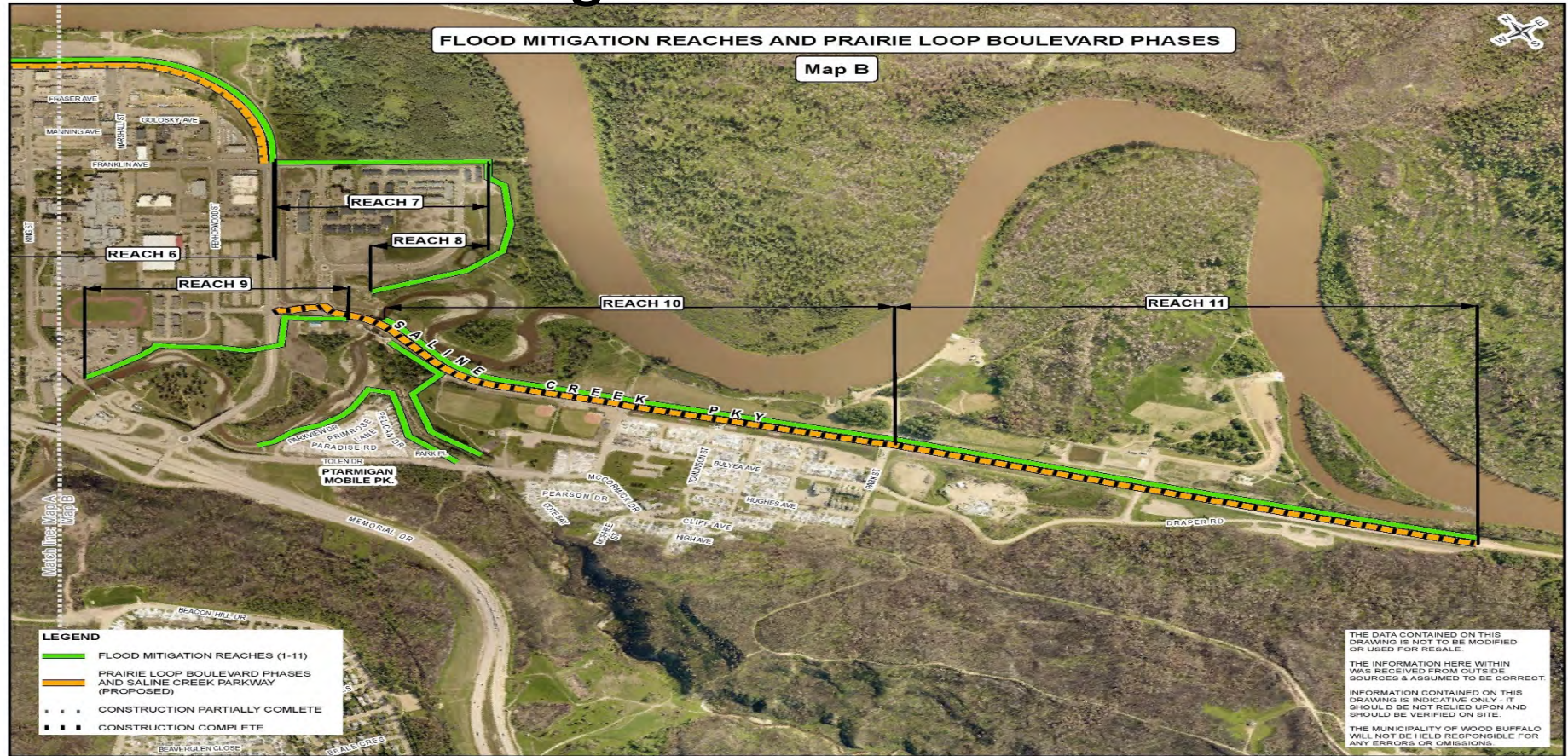
Flood Mitigation - Where We Are Today

- In October 2016, Administration commissioned IBI/Golder to complete a Benefit Cost Analysis of the flood mitigation options for the Lower Townsite, Waterways and Ptarmigan Court
- Flood Mitigation predesign/design is on the funded list and construction for 1:100 is deferred by Council to 2017 and as such is being proposed in the 2017 Capital Budget Plan
- Design of Prairie Loop Boulevard to 248.5 metres is nearly at completion stage for the remaining phases

Flood Mitigation - Reaches



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Benefit Cost Analysis – Criteria & Assumptions

- Analysis assessed both structural (dike, concrete wall, demountable wall) and non-structural (self insurance and third party insurance) flood mitigation measures
- Report is based on the pre-fire condition of residential and commercial assets in the study areas
- Report assumed a full build out post-fire for Waterways and Ptarmigan Court
- Non-structural mitigation options only includes insurance in the current report

Benefit Cost Analysis – Key Outcomes

- A 100 year flood event has an estimated pre-fire total flood damage cost of \$809 million for the Lower Townsite, Waterways and Ptarmigan Court
- Doing nothing to address the risk of flooding introduces perceived disregard on behalf of the Municipality
- Cost of flood insurance is difficult to anticipate with accuracy
- Self-Insurance and Third Party Insurance options both carry significant risks

Benefit Cost Analysis – Key Outcomes (cont'd)

- A demountable wall option for a 1:100 year event proved most favourable for the Lower Townsite and Waterways considering the triple bottom line
- None of the structural alternatives considered for Ptarmigan Court resulted in a favourable benefit/cost ratio

Flood Mitigation and Post Fire Rebuild

Ptarmigan Court:

- Other alternatives such as buy out and relocation for Ptarmigan Court were given consideration but did not result in a favorable cost comparison when compared to the structural mitigation option
- Recommendation is structural mitigation for Ptarmigan Court because many residents want to rebuild and this would help repair the social fabric
- Not fiscally prudent to do both structural mitigation and buy out/relocation

Flood Mitigation and Post Fire Rebuild (cont'd)

- The Province provided the Municipality with two letters regarding rebuilding and flood mitigation in the Waterways and Ptarmigan Court area in September, 2016
- Repeal of Flood Proofing Bylaw 13/032 and Overlay Bylaw 16/021 facilitated rebuilding of Waterways Ptarmigan Court

Flood Mitigation and Post Fire Rebuild (cont'd)

- Recovery Committee's recommendation to Council on December 7, 2016 states that Administration be directed to develop a long-term flood mitigation strategy
- Considering the above scenarios, Structural Flood Mitigation is recommended for Lower Townsite, Waterways and Ptarmigan Court to protect the residents to the current estimated 1:100 year flood event; 250 metres elevation

Recommendation # 1 & 2

- Proceed with the pre-design, design and construction of the demountable wall for the Lower Townsite, Waterways and Ptarmigan Court to the current estimated 1:100 year elevation (250 metres)
- Construction of the demountable wall that allows flexibility to increase by 1 metre the flood protection level based on anticipated changes to the Provincial regulation; allow foundation design for 251 metre elevation

Recommendation # 3 & 4

- Adoption of temporary flood mitigation measures up to the current estimated 1:40 year elevation until permanent flood mitigation measures are in place
- Rental of ice-breaking equipment (e.g. Amphibex) for use in the 2017 flood season for preventative ice breaking

Budget Implications

- Capital Investment for the demountable wall:
 - \$103 - \$126 million for pre-design, design and construction for the Lower Townsite
 - \$33 - \$43 million for the pre-design, design and construction for the Waterways and Ptarmigan Court
- Operational Investment for the rental of the ice breaking equipment based on a public procurement process

Rational for the Recommendations

- Proceeding with the demountable wall option:
 - Reduces the exposure to flood risk within FHA
 - Provides flexibility to Municipality in addressing anticipated increase in flood protection elevation by the Province
 - Eligibility for possible grant funding
 - Eligibility for DRP assistance if a flood event higher than the 1 in 100 year occurs (250 meters)
 - New development could be allowed in FHA

Rational for the Recommendations (cont'd)

- Proceeding with the demountable wall option:
 - Increases the chance to obtain third party flood Insurance for individual property owners
 - The Municipality's flood insurance premiums could be significantly reduced
- Proceeding with the preventive ice breaking:
 - Provides a more robust temporary flood abatement for an ice jam flood when combined with other operational efforts until a permanent flood mitigation is in place

Questions?