

# REQUEST FOR DECISION

— REGULAR MEETING —



**To:** Mayor and Council  
**From:** Manager of Development & Engineering Services  
**Date:** May 29, 2017  
**Subject:** Approval to proceed with applying for grant funding for floodplain protection.

**Recommendation:** **RESOLVED THAT** Council directs staff to proceed with preparing and submitting an application for the Gas Tax Strategic Priorities Program Grant for 100% funding of phase one of a three-phase, multi-year floodplain study and flood protection program for the Grand Forks floodplain.

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**Background:** The 2017 Gas Tax Strategic Priorities Fund is available for infrastructure and capacity building projects that are either large in scale, regional in impact or innovative, and align with the project objectives of productivity and economic growth, a clean environment and strong cities and communities.

The SPF provides up to 100% funding for projects to a maximum of \$6 million per project, and each applicant may submit up to two capital applications and one capacity building application.<sup>1</sup>

Staff have identified the opportunity to submit a proposal in support of a long-term floodplain study and floodplain protection program in support of capital improvements to dike and flood protection infrastructure and related planning and emergency management needs. This report identifies the project rationale and scope of work presented in the grant application, which is due on June 1<sup>st</sup> 2017.

**Rationale:**

- A significant portion (30%/325 hectares) of Grand Forks as well as 1523 hectares of the surrounding Area 'D' / Rural Grand Forks lies within the designated 200 year floodplain (see attached map).
- The Kettle and Granby Rivers both have active river areas with ongoing risks of channel avulsion (river migration) across the floodplain.
- Recent flooding (less than 20-year flood magnitude) tested emergency response and coordination efforts and highlighted uncertainty around current flood hazards and their effects on property and critical infrastructure.

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<sup>1</sup>

<http://www.ubcm.ca/assets/Funding~Programs/Renewed~Gas~Tax~Agreement/Strategic~Priorities~Fund/2017-SPF-Application-Package.pdf>



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### Scope of Work:

- Phase 1 – Assessment and Scoping
  - Update statistical hydrological characterization and prepare future hydroclimatic data using downsampled climate model results
  - Update maps of floodplain areas using new surveyed cross-sections, LiDAR data, and updated hydrology
  - Prepare models to evaluate inundation, streamflow velocity, and potential for channel avulsion under current and future hydrological conditions
  - Research tradeoffs of development / diking vs floodplain & wetland function
  - Determine scope of flood protection measures under consideration for design and construction
  - Preliminary survey and engineering
- Phase 2 – Design and Preparation
  - Detailed survey and engineering
  - Legal arrangements
  - Land acquisition
  - Detailed planning
- Phase 3 (year 3 +) – Construction - staged as prioritized in detailed planning

Due to information gaps, no recommendations can be made about the required nature or extent of flood protection measures until completion of phase 1 studies.



Figure 2. Active flooding in Johnson Flats, May 7



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- Two standard dikes protect parts of Grand Forks (one 200-year flood magnitude dike and one 50-year dike). There are known deficiencies in these dikes, and they were designed according to older standards and their suitability for protecting from future flooding is unknown.
- Floodplain mapping is now over **25 years old** and is based on even older hydrology and surveying data. Modeling was sufficient for engineering standards at the time, but new flood assessments need to incorporate new modeling methods and information on climate change and land development.
- Updated floodplain hazard and risk maps are necessary because hydrological patterns, river channel shape, and development in the floodplain has changed significantly since mapping was completed.
- The Kettle River Watershed Management Plan recommended the following action: ACTION 3.1.2 Consider updating floodplain maps in areas at risk of flooding to address changes in hydrology related to climate change, incorporating higher resolution elevation data (*i.e. Lidar*) (*local government, Province, Implementation Team; by 2017*).
- In order to provide due diligence and sound planning, and provide the detailed input required for upgrading flood protection infrastructure, the department recommends using this funding opportunity to begin undertaking the proposed scope of work.



Figure 1. Functional floodplain with floodwater storage and sediment and pollutant reduction (2017 flood)



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**Next Steps:** A Council resolution indicating support for the application is required. The Department is seeking additional letters of support from Regional District of Kootenay Boundary and other stakeholders, and will submit the application on June 1<sup>st</sup>.

**Benefits or Impacts of the Recommendation:**

**Policy/Legislation:** Floodplain Bylaw; Official Community Plan; Asset Management Plan; Zoning Bylaw; Multiple provincial and federal acts.

-  Seeking full grant support for careful and accurate floodplain risk assessment and flood protection options analysis relieves current costs and reduces future liabilities
-  Flood protection and floodplain planning protects valuable property and infrastructure and supports investment in redevelopment in protected areas
-  Studies will provide the technical basis for thorough community engagement required for flood protection measures and planning
-  Increases the safety and security of residents and recognizes floodplain ecosystem function

**Attachments:** Map of Grand Forks Floodplain; Scope of Work memorandum from Urban Systems Limited

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**Recommendation: RESOLVED THAT** Council support staff proceeding with preparing and submitting an application for the Gas Tax Strategic Priorities Program Grant for 100% funding of phase one of a three-phase, multi-year floodplain study and flood protection program for the Grand Forks floodplain.

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- OPTIONS:**
1. COUNCIL COULD CHOOSE TO SUPPORT THE RECOMMENDATION.
  2. COUNCIL COULD CHOOSE TO NOT SUPPORT THE RECOMMENDATION.
  3. COUNCIL COULD CHOOSE TO REFER THE REPORT BACK TO STAFF FOR MORE INFORMATION.
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DEPARTMENT HEAD / CAO	CHIEF ADMINISTRATIVE OFFICER



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**Legend**

- Floodplain
- City Boundary



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