

City of GRAND FORKS: DMAF PROGRAM CHARTER



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DMAF PROGRAM CHARTER

1.1 BACKGROUND

2018 Freshet Flood and Response

In the May of 2018, the City of Grand Forks and the outlying communities along the Kettle and Granby Rivers in the Regional District of Kootenay-Boundary (RDKB) experienced a 1 in 200-year flood event that significantly damaged large portions of the community's infrastructure, dwellings and economic base. A combination of late spring snow accumulation, rain on snow events, and high temperatures resulted in massive snowmelts in an extremely short period of time. Peak flows through Grand Forks reached 1,300 cubic metres per second, overtopping dikes and causing significant damage.

As forecasts predicted river rise above previously recorded highs, response preparation began for potentially catastrophic flooding. RDKB activated an emergency operations centre, the City of Grand Forks declared a state of emergency, and an evacuation order was issued for 1,471 residential and commercial properties in the North Ruckle, South Ruckle, Johnson Flats, and downtown areas as well as areas along the Kettle and Granby Rivers and tributaries in the Boundary Regional District.

More than 400 homes in those areas suffered moderate to major damage, and more than 50 were damaged beyond repair. Response measures such as public outreach, rescue operations, sandbagging, and the provision of needed services and supplies were undertaken collaboratively by local government officials, first responders, non-profit organizations, the Canadian Armed Forces, and hundreds of local volunteers.

Flood Recovery

The Regional District of Kootenay Boundary (RDKB) Emergency Program hired Don Dobson, a flood response expert, to prepare a technical report outlining flood impacts, safety concerns, and recovery options for flooded areas. The Boundary Flood Recovery (BFR) team and the City analyzed long-term flood-protection options provided in the report with technical peer review and internal and external stakeholder discussion of Dobson's report over a series of meetings. Staff submitted the preliminary expression of interest to the Disaster Mitigation and Adaptation Fund (DMAF) based on the outcomes of these analyses and workshops.

With input from all stakeholders through public meetings and a buyout survey, Grand Forks Councillors decided in early September, 2018, which flood-protection measures would best protect property and residents from future flood events and provide the lowest long-term risk. Council chose to increase Grand Forks' climate resilience by mitigating the effects of flooding using a combination of traditional grey infrastructure and innovative natural infrastructure.

The options adopted by Council included:

- Buying out approximately 130 properties in the high-risk floodplain areas such as North Ruckle, South Ruckle, Johnson Flats, and some downtown properties in order to construct dikes, green infrastructure, and create natural floodplains to provide more room for high water flows during flood events;
- Raising high-priority arterial roads;
- Restoring floodplains and riparian areas and protecting critical sites from erosion; and
- Helping affected residents relocate and find new homes and accommodations.

Estimated at close to \$57 million, these flood recovery measures were expected to unfold between 2019 and 2023.

In November 2018, the City hired Keystone Appraisals to estimate the values of properties identified for buyout. This information was needed to prepare an application for Infrastructure Canada's Disaster Mitigation and Adaptation Fund (DMAF). Two public meetings on December 13th, 2018 presented information to South Ruckle residents and the general public. The City also hired consulting engineers from Associated Engineering/Nor-Ex to provide cost estimates and create support documents related to the physical flood protection and floodplain restoration works in the DMAF grant application.

The BFR team, on behalf of the City, reported at late-January and mid-February public meetings that the City had applied for a \$49.9 million DMAF grant to cover the costs of property buyouts and flood protection infrastructure including wetlands, dikes, storm drainage, and riverbank stabilization. The City also applied for a \$3-million grant from the National Disaster Mitigation Program (NDMP) for flood protection and stormwater improvements on the east side of downtown.

In June 2019 Grand Forks received confirmation of \$51.6 million for flood response efforts, including Provincial funding for the work submitted under the NDMP program. The Federal government provided nearly \$20 million, and the Province pledged almost \$28.9 million with an additional \$2.6 million to secure the downtown, and the City committed to contributing \$1 million.

Recovery to Resilience

Through October to December 2019, the City issued an RFP for a consultant to lead the Land Acquisition Program (LAP), and approved implementation of a program Communications Plan developed by Alliance Communications (AC) to ensure all stakeholders and partners are well informed/engaged in discussions about important issues, efforts, and events as the LAP unfolded. This resulted in the City adopting the “Recovery to RESILIENCE” campaign to support community needs during the LAP and flood mitigation program

In January 2020, Council approved the Land Acquisition Program (LAP) design submitted by the Land Acquisition Team (LAT – Keystone Appraisals) on January 20th. Details of the plan, including the approved method for determining fair market value and additional compensation factors, were uploaded to Keystone’s website and shared via a letter to affected property owners the following week. Community engagement and information meetings were also held with potential “buy-out” homeowners throughout this period. As of today, current trends are very positive with respect to the voluntary “buy-out” program, with an anticipated acceptance of initial offers trending well above 90%.

1.2 GRAND FORKS DMAF PROGRAM GOAL

"To protect the community of Grand Forks and the Boundary Region against current and future overland flood and land erosion risk for the next 100+ years."

1.3 PROGRAM OBJECTIVES

The following Program Objectives represent a broad cross section of consensus driven discrete measurable deliverables that if achieved represent overall Program Success.

- (1) Remove and/or significantly reduce overland flood & erosion risk to Residential, Commercial and Industrial neighbourhoods within the City of Grand Forks as soon as prudently possible.**
- (2) Where feasible, leverage program opportunities to re-invest resources made available in the Program, and support the community through direct engagement of local companies and employment opportunities for local residents.**
- (3) Incorporate, expand and/or enhance natural infrastructure and community greenspaces (parks), community access (trails) and other direct and indirect outdoor activities for public use and enjoyment in conjunction with flood mitigation works.**
- (4) Minimize, as economically prudent, physical waste and environmental impacts of physical works and physical assets retained and/or obtained throughout the program, by re-using existing materials, recycling, and reducing the use of non-natural materials.**

1.4 GUIDING PRINCIPLES

The following guiding principles have been adopted to ensure that they align to objectives set out by the Program Sponsors. These principles provide strategic level guidance for all program staff, stakeholders and participants as it is delivered through its various stages. The following principles will help guide and orientate project stakeholders, managers, and staff as they navigate the difficult and sometimes divergent situations that may occur during the program to ensure the Program Objectives are delivered successfully.

(In order of importance)

- 1st Elimination and/or significant reduction of flood risk:** Design and implement effective and sustainable long-term mitigation works that eliminate and/or significantly reduce the overland flood and erosion risks to the residents of Grand Forks, as well as protect the residential, commercial, and industrial sectors of the City and their respective property and operations. Reduce erosion risk and increase floodplain resilience at key sites in the Boundary.
- 2nd Capital Preservation & Optimization:** The program will strive to preserve and optimize Capital Expenditures, as well as create a foundation to leverage, where possible, synergistic revenue generation strategies to ensure adequate funding is maintained to achieve program objectives and maximize the Return of Invested Capital (ROIC).
- 3rd Equity amongst Stakeholders:** The program will strive to provide a balance between all key stakeholders (City Residents, First Nations, Federal and Provincial Funding partners, RDKB) interests as outlined in these guiding principles, and the Program's Objectives. To ensure each stakeholder group has input into the process and are treated fairly, respectfully, and transparently. Collaboration to create WIN, WIN, WIN scenarios is to be aggressively pursued.
- 4th Environmental Stewardship:** The program will develop strategies that minimize environmental impacts at both the regional and local levels. Enhance and expand, where possible, the use of low maintenance and environmentally sustainable engineering and natural infrastructure works to meet program objectives.
- 5th Creation and enhancement of public greenspace opportunities:** The program, where applicable and aligned to the other guiding principles, will incorporate and/or expand opportunities to enhance the natural beauty of the flood mitigation works, and increase public access and enjoyment of the physical flood mitigation works (i.e. trails, park space, leisure spaces and other such indirect amenities).

1.5 OPERATIONAL STRATEGIES

The following operational strategies, along with others that may be developed and initiated from time to time throughout the life of the Program will be implemented, where applicable, to ensure Program objectives are met in accordance with the guiding principles outlined above:

1.5.1 Program Management / Procurement Strategies:

- Contractual procurement methodologies as may be applicable (i.e. Construction Management @Risk, Design-Build, Design-Bid-Build)
- Pre-construction supplier negotiation and/or bulk buying of materials
- Risk shifting through contractual terms
- Limited Bonding, Wrap-up Insurance policies
- Liquidated Damages and/or other performance related clauses

1.5.2 Financial Strategies:

- Investment of Front End Loaded (FEL) money to supplement existing funding
- Delayed City Contributions (where applicable)

1.5.3 Resources Strategies:

- Mandated local company participation and/or local resident employment opportunities
- Re-use and recycle opportunities with existing or purchased assets and materials (i.e. existing diking material/aggregate, purchased houses, etc.)
- Salvage opportunities to residents, non-profits, and/or for-profit companies
- 3rd party (non-profit, for-profit and educational) program participation

1.5.4 Environmental Strategies:

- Environmental offsetting strategies
- Natural vs. manufactured flood control structures (i.e. earth berms vs. flood walls, etc.)
- The ability to incorporate community access trails and greenspaces into or on-top of new constructed flood mitigation works (i.e. dikes and natural flood control structures)
- Erosion control that aids in terrestrial and aquatic and riparian habitat development

1.5.5 Communication Strategies:

- Social Media platforms
- Community engagement and program information sharing meetings
- Set Office hours & Static displays
- Face to Face meetings with key stakeholders (i.e. First Nations, community groups, etc.)

1.6 PROGRAM SCOPE

1.6.1 In Program Scope

The overall scope of the Program will include the construction of both Hard Engineering (Dikes, Flood walls, etc.) and Soft Engineering (vegetative plantings, erosion control, etc.) mainly located within the city limits of Grand Forks. However, some works will be located within the rural areas of the RDKB and encompass site specific erosion control measures. (Please reference attached Section 1.6.3 - Scope of Work Map Reference Map below for more details)

The objective of these individual scopes of work is to first and foremost cumulatively remove or significantly decrease the exposure to overland flood events and associated damage to critical infrastructure systems (electrical distribution, wastewater collection and treatment, water distribution, road and rail transport), as well as protect sensitive land use areas in commercial, industrial and residential areas through-out the City.

The Program will also increase the stability and function of riparian and floodplain environments and decrease the risk of erosion and land loss in rural residential, agricultural and natural ecosystems both within the City and the greater RDKB regional areas.

Specifically, the program will utilize a combination of floodplain re-establishment and the construction of flood mitigation infrastructure to achieve these goals, creating over 40 ha of new floodplain and constructing over 3 km in dikes and flood barriers. Additionally, a new stormwater main will be constructed on the East side of downtown to support drainage during flood events as part of the flood mitigation program. For the erosion protection, riparian restoration techniques will be utilized to reduce erosion and improve natural riparian function throughout the Kettle River Watershed.

To undertake this work, it has been determined that the neighbourhood of North Ruckle due to its high flood risk location is to be “bought-out” and returned to a natural flood plain state, thus increasing short term flood volume capacity at the confluence of the Kettle and Granby Rivers in order to permanently reduce risk in that area and reduce high water flows and minimize overland flooding of more critical areas within the City during annual freshet season. The City will strive to achieve this buyout through an entirely voluntary program, and work to provide fair market value and compensation factors that, as much as feasible, mitigate losses to net worth. However, in order to be equitable to all community residents and stakeholders the program will not provide betterment to these property owners.

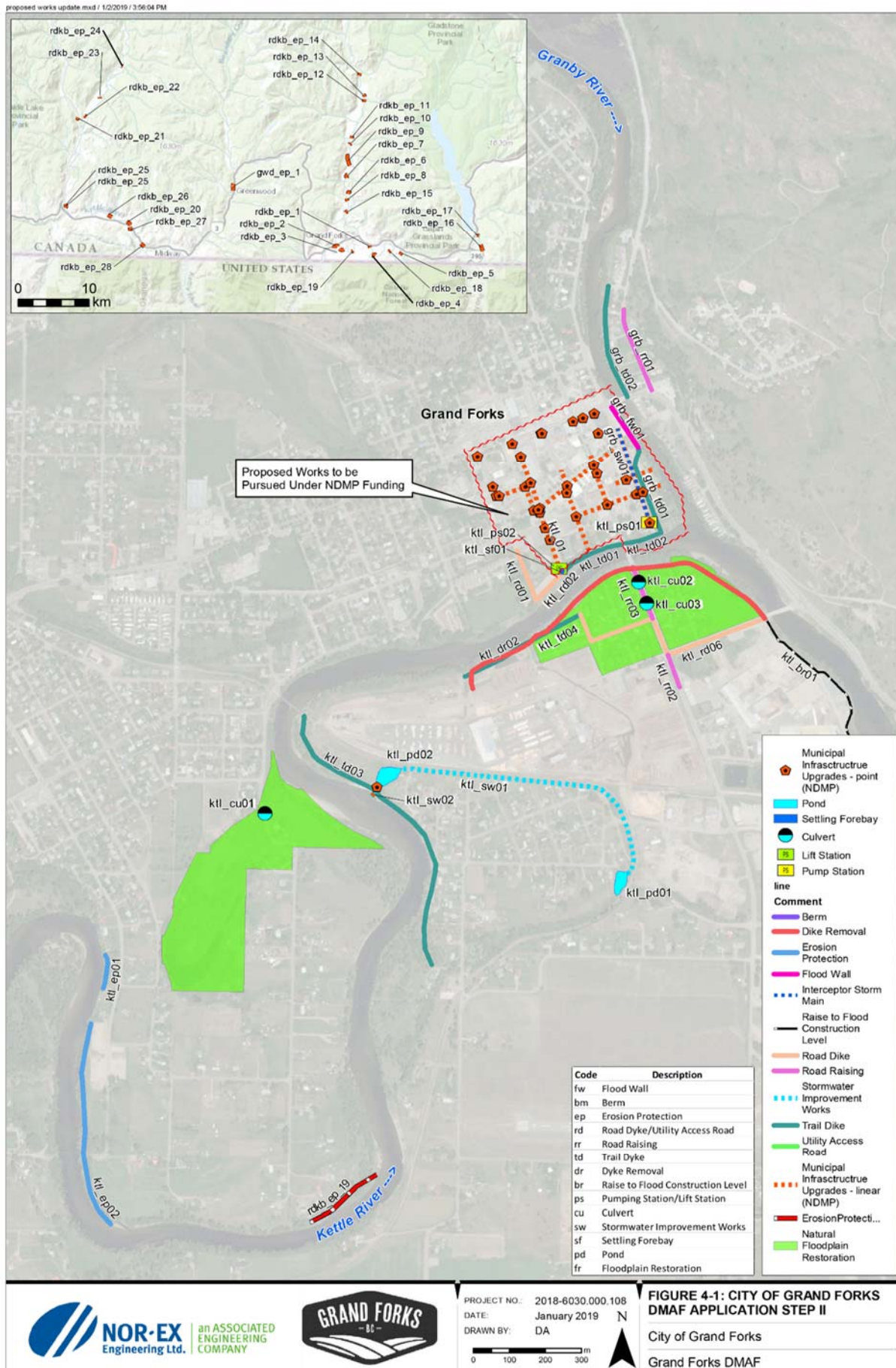
Direct disposal of retained or purchased assets for cost recovery, and/or salvage value for the program is included within this program. (See Out of Scope Section for further clarifications with respect to this element)

1.6.2 Out of Program Scope

The following specific scenarios, opportunities, and works are to be excluded from this Program's scope of work, although the Program may provide the foundations, and fundamental supports necessary for these opportunities:

- Direct or indirect utilization (moving, sale, or disposal) of purchased or retained assets to create affordable, market, or other development opportunities.
- Creation of 3rd party development of social, affordable, or other housing programs.
- Parcel specific, or commercial, industrial and/or residential parcel property flood protection works that are outside of, or not aligned with the broader flood mitigation works

1.6.3 SCOPE OF WORK REFERENCE MAP



1.7 PROGRAM ASSUMPTIONS

The following assumptions are deemed incorporated and understood in the drafting and acceptance of this charter. If the following assumptions materially change, or prove otherwise incorrect, the resulting outcomes, deliverables, and estimations may also change accordingly.

Market Conditions – It is assumed that current construction market condition remain relatively stable at $\leq 2\%$ per annum.

Short Term Flood Risk – It is assumed that the City will not encounter a flood event equal to or greater than 1 in 20yr event prior to 2023 freshet.

Voluntary Land Acquisition Program Success – It is assumed that the voluntary land acquisition program maintains a high degree of success, specifically relating to high priority acquisitions, as so not to delay the Flood Mitigation Project physical start dates.

Funding Security – It is assumed that current COVID-19 environment will not materially affect funding amounts and/or funding commitments as the longer-term impacts of the pandemic become clearer.

Climate Change – It is assumed that longer term climate change impacts with respect to causation, duration, and magnitude of regional flood events of will not substantially change from what has been and will be allowed for in the Flood Mitigation Works designs.

Regulatory Permitting & Approvals – It is assumed that once final detailed designs are complete, Permitting and Approvals to proceed with the works will take no longer than 140 days from Application submittal to final approval to proceed.

COVID-19 Pandemic – It is assumed that the economic, social distancing, supply-chain interruptions, labour and regulatory resources and other general direct and indirect impacts of the current pandemic will not last longer than 4 months in duration, and that the disposition of such activities will generally be similar to that of the pre-pandemic environment.

1.8 PROGRAM CONSTRAINTS

1.8.1 Cost Related Constraints

Program Budget – The program as approved under this Charter in conjunction with our Federal and Provincial funding partners has a limited funding envelope and budget. Possibilities of further funding from our partners, if required, is very low. Given this, there is a budget constraint across the program with respect to the Flood Mitigation Program, especially given that pre-cursor LAP spending trends are above target budgets at the current time.

Macro & Micro Construction Market Conditions – Notwithstanding the current direct impacts of the COVID-19 Pandemic on the regional construction market, there are always typically peaks and valleys with respect to the Macro & Micro Construction Markets. Such natural swings will no doubt be exacerbated by how the markets choose to react to the post-pandemic environment, as such a increase in project costs associated to labour, equipment, and material scarcity is must be considered, and as such could pose a significant budgetary constraints to the program.

1.8.2 Scheduling Constraints

Fish Windows – Perhaps the biggest constraint to scheduling of the physical flood mitigation works is the regulatory requirements as it pertains to working in and in close-proximity to the river. As a large portion of the considered flood mitigation works will require working within the actual river water, work will need to be scheduled around pre-determined “fish windows.” Such windows are regulatory approved timeframes where such works within a stream, river, or water body can occur. Typically, these windows are quite limited and are typically 6-8 weeks long usually starting in the month of August. As such works within a stream or river even though it could be started earlier, will need to be delayed until such a “fish window” occurs. Even though other works such as design, pre-construction, mobilization, and out of stream works can be undertaken, such “fish windows” will provide constraints to optimizing the Programs schedule.

The Boundary fish windows are available from this link.

https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/working-around-water/timing_windows_boundary_may2018.pdf

Freshets – The annual snow melt event known as “freshet” can also cause a constraint to the Program schedule as its timing, duration and magnitude are not normally known until only a few days prior to an event. As such physical works around a river that is experiencing Freshet, can be impact from a scheduling point of view, as the high water table may saturate sub-surface streambanks and surrounding areas making them unstable(dangerous to operate in safely), and/or pose continuous water infiltration issues while excavation and sub-surface works are underway.

Land Acquisition – As logically follows, the higher priority projects from a risk mitigation perspective are those that are situated in the higher risk of flood areas. This situation obviously necessitates the acquisition of those lands prior to physical flood mitigation works starting. The speed and timing of when these properties are acquired also provides a scheduling constraint, in such an event that a property has not been acquired prior to flood mitigation works in that area starting.

Permitting – As stated previously in this Charter, Permitting and Approvals from the various regulatory bodies are estimated to take between 90 to 140 days from application submittal to final permit approval. Such durations when coupled with investigation, design, pre-construction activities may create sub-optimal schedule constraints, as opportunities to start necessary in-stream works during a “fish window” may be missed in a given year.

1.8.3 Scope Related Constraints

Construction Complexity & Interconnectivity – Although the specific projects considered within the program can be considered to be relatively straight forward civil construction projects when viewed independently, their intra-connectivity and relationships with existing public/private infrastructure, each other, and the daily activities of the residents of Grand Forks as they go about their daily activities in the City make the Program much more complex. Such inter-relationships pose their own unique Program and Project level constraints. Ideally, the majority of the projects could be undertaken simultaneously to expedite risk reduction to the City, however, such a plan is fraught with risk, and must be carefully balanced and constrained against the other significant risks and constraints outlined previously. It should be noted that if such a en-masse plan were to be adopted, other very significant negative risks and challenges would like be encountered. Issues such as:

- Overall disruption to City and resident activities as disruptive work commences in multiple areas through-out the City (ie. dust, noise, debris)
- Overall safety relating to industrial traffic moving through-out, into and out of the city, and the necessity for enhanced traffic control measures;
- Related traffic congestion for resident industrial and commercial activities;

- Large scale disruption across the City in economically critical seasons such as summer and fall, thus risk to viability of tourist season;
- The availability of already strained resources such as people, contractors, equipment, and supplies to take on the volume of work, thus creating cost containment/financial risks, etc.
- The ability to City staff to effectively coordinate multiple sites (span of control), and effectively deal with project-specific issues, and interactions with adjacent properties, residents, businesses, etc. (prioritize efforts by greatest impact and scale)

1.9 PROGRAM SYNERGIES

The following synergies (opportunities) have been identified within this Program:

- 1.9.1 Scope Overlap** – Upon review of the various scopes and areas of work contemplated within the program, it was noted that there is potential for the Program works to overlap and/or be undertaken complimentary to other Non-DMAF related planned City works. As such, synergies exist to undertake these works in coordination with each other to leverage economies of scale, optimizing timings of works, reduce disruption, and/or decrease costs associated to set-up, access, material purchase and mobilization.
- 1.9.2 Leveraging of retained Assets** – Although out of the DMAF Program Scope, it has been identified that as properties under the LAP are purchased, the improvements (i.e. Houses, sheds, garages, shops, etc.) do hold value. As such, this creates an opportunity to repair, sell and/or relocate some of these assets for profit and for non-profit when considered and combined with some City investment and other 3rd party benefactor programs (i.e. MDS, Red Cross, Fortis, Habit for Humanity, etc.). Such a Program could feasibly be foundational to developing creative cost-effective solutions to a multitude of affordable housing strategies within the community. Additionally, the City could pursue For-profit Development opportunities and/or Joint Ventures with the private sector to increase housing supply within the community, and boot-strap other development opportunities.

1.10 PROGRAM RISKS

1.10.1 Financial / Budget

The current estimated budget including contingencies is just under \$56.9 Million dollars inclusive of contingencies. Just over \$5.2 Million of this represents the City's current financial exposure within the program. Notwithstanding the contingencies within the budget, and given the overall complexity, duration, and liabilities associated to the Land Acquisition Program, there remains a significant risk with respect to budget across the program, as it is highly unlikely that further funding will be granted from either the Provincial or Federal government. As such the Program team will be extremely prudent in allocation of this funding and have developed strategies to mitigate Financial / Budget risk throughout the Program to ensure adequate funding is available to meet the Program Objectives.

1.10.2 Resources both external and internal

Although as stated previously, the individual projects are relatively small from a physical construction perspective, the overall Program administration, management, and Governance of the Program is complex. As such, the Program requires asymmetric internal resource allocations to ensure it is completed competently and efficiently. Further given the physical distance to large urban commercial areas it may be difficult to find external consultants and contractors willing to undertake the work in a efficient and timely manner, and if so, there will most likely be a cost premium thus increasing the financial risks to the program.

1.10.3 Schedule

The program as stated is complex and thus requires a significant amount of pre-planning, permitting and consultation with stakeholders to ensure positive program outcomes. Although this has been scheduled into the overall program, each area of the pre-construction planning if delayed could pose a schedule "knock-on" effect to program schedule and its associated deliverables.

1.10.4 Continued Flood Risk - Starting in late 2019

The overall program length is estimated to be 5 years in duration with the majority of the physical flood mitigation works occurring in years 2-4. For the city to be fully protected from flood risk, most of flood mitigation work will need to be completed as they work in conjunction and are interrelated to various degrees. As such the City and surrounding areas will continue to experience physical flood risk for the next 1 to 2 years. Given this continued risk, this charter sets out priorities and guiding principles which will inform program staff as to the which sectors of the City are to be protected from future flood risk during the duration of the Program.

1.10.5 Liability Risk associated to Buy-out

One of the key guiding principles of the program is to remove or significantly reduce flood risk to the Community. In alignment with this principle the North Ruckle Neighbourhood is to be bought-out from current homeowners and returned to a natural flood plain. This will be undertaken through the Land Acquisition Program as described in this Program Charter. Although this completely eliminates flood risk to these residents, and indirectly to the City, the Buy-out program is voluntary in nature, and thus a risk arises from Legal Liability to the residents of North Ruckle and other buy-out areas as the program moves through this process.

1.10.6 Covid-19 Pandemic

The current Covid-19 Pandemic has brought unique and never before encountered risks to the Program. The actions by governments pose both positive and negative risk to the Program. Although construction is still considered to be an essential service at this time, the uncertainty around spread, the requirement for social distancing, and the overall general commercial supply chain disruption, among other less direct means pose a significant risk to program administration, design, and physical construction operations, thus potentially exacerbating other negative risks outlined above. Conversely, there is a potential positive risk that given that commercial enterprise has been curtailed for such a period of time, the applicable industry market-place may see significant cost reductions for design and engineering services as well as construction services as it seeks to recover and re-constitute itself immediately after the pandemic passes.

1.10 PROJECT PRIORITIZATION

The specific projects are to be evaluated and prioritized for execution based on the following weighted key criteria, and geographically grouped for economies of scale and mitigation of disruption to day to day City activities:

		Property Acquisition Required	Permitting Complexity	Economic Protection	Critical Infrastructure Protection	Public Safety Protection	Public Opinion	Work Seasonality	Final Total	Priority Ranking
	Weighting	10%	10%	20%	20%	20%	10%	10%	100%	
Work Package	Structural Projects [Hard Engineering]	Score (Weighted Score)								Priority Ranking
Work Package 1	Downtown East (Dike and Stormwater)	4 (0.4)	3 (0.3)	4 (0.8)	5 (1)	2 (0.4)	2 (0.2)	5 (0.5)	3.6	1
	Downtown Trail Dike	3 (0.3)	2 (0.2)	5 (1)	4 (0.8)	3 (0.6)	4 (0.4)	3 (0.3)	3.6	2
Work Package 2	Trail Dike (Rockwool) Raise to FCL	5 (0.5)	3 (0.3)	5 (1)	3 (0.6)	3 (0.6)	2 (0.2)	3 (0.3)	3.5	3
	North Ruckle Dike & Road Raise	5 (0.5)	3 (0.3)	4 (0.8)	4 (0.8)	3 (0.6)	2 (0.2)	3 (0.3)	3.5	3
Work Package 3	South Ruckle Trail Dike	3 (0.3)	3 (0.3)	3 (0.6)	3 (0.6)	4 (0.8)	4 (0.4)	3 (0.3)	3.3	5
	South Ruckle Storm Drain / Ditch	2 (0.2)	4 (0.4)	2 (0.4)	1 (0.2)	2 (0.4)	3 (0.3)	3 (0.3)	2.2	9
Work Package 4	Granby Road Raise	5 (0.5)	4 (0.4)	3 (0.6)	2 (0.4)	1 (0.2)	2 (0.2)	5 (0.5)	2.8	6
	Granby Trail Dike	3 (0.3)	2 (0.2)	3 (0.6)	3 (0.6)	1 (0.2)	2 (0.2)	2 (0.2)	2.3	7
Work Package 5	Johnson Flats Bank Protection	5 (0.5)	2 (0.2)	1 (0.2)	1 (0.2)	2 (0.4)	1 (0.1)	2 (0.2)	1.8	11
Work Package 6	Rural Bank Protection	5 (0.5)	3 (0.3)	1 (0.2)	1 (0.2)	1 (0.2)	1 (0.1)	2 (0.2)	1.7	12
	Natural Infrastructure Projects									
	North Ruckle Floodplain Restoration	0 (0)	3 (0.3)	2 (0.4)	2 (0.4)	3 (0.6)	3 (0.3)	3 (0.3)	2.3	8
	Rural Riparian Restoration	5 (0.5)	3 (0.3)	2 (0.4)	1 (0.2)	1 (0.2)	3 (0.3)	2 (0.2)	2.1	10
Scoring Legend		High [4-5pts]	Medium(2-3 pts)	Low(0-1pts)	Note: Despite being lower in priority, the South Ruckle Storm Drain / Ditch will be done at the same time as the South Ruckle Trail Dike due to the close proximity of the projects.					
Property Acquisition		0-1	2-4	>5						
Permitting		Moderate	Significant	Complex						
Economic Protection		High	Medium	Low						
Public Opinon Sensitivity (?)		High	Moderate	Low						
Critical Infrastructure Protection		High	Moderate	Low						
Public Safety Protection		High	Moderate	Low						
Seasonality Sensitivity (?)		4	2-3	1						

1.11 PROGRAM SUMMARY SCHEDULE

Phase	Description	Target Date(s) & Timeframes
DMAF- Initiation	DMAF Application Submission	Jan 2019
DMAF - Initiation	DMAF Grant Approval	Jun 2019
DMAF - Initiation	Provincial Funding Agreement	Dec 2019
DMAF - Initiation	Federal Funding Agreement	June 2020
Land Acquisition Program		
LAP - Consultant Procurement	LAP Consultant Award	Sept – Nov 2019
LAP - Design	LAP Program Development and Approval	Nov 2019 – Jan 2020
LAP – Execution	Perform Fair Market Value Assessments	Nov 2019 – Jul 2020
LAP – Execution	Formulate and Present Purchase Offers	Jan – Oct 2020
LAP – HAZMAT Review	Assess Houses for Hazmat	Apr – Sep 2020
LAP – Monitor & Control	Process accepted Offers & take possession	April – Mar 2021
LAP – DEMO, Move, Other	DEMO, Sell, or relocate purchased	Oct 2020 – Jan 2021
LAP – Close-Out	All Offers complete and all files finalized	Mar 2021
Flood Mitigation Program		
FMP Planning – Schematic Design	RFP for Program Schematic Design Phase	May 2020
FMP Planning - Detailed Design (Work Package #1)	Included in Schematic Design RFP Above for Downtown Dikes & Stormwater Interceptor	May 2020
Work Package # 1	Downtown – Design and Construction	Aug 2020 - Oct 2021
WP # 1.3 (A)	Riverside Stormwater Interceptor (RSI)	Aug 2020 – Mar 2021
- Design	RSI Design Phase	Aug – Dec 2020
- Permitting	RSI Permitting Phase	Dec 2020 – Jan 2021
- Tender and Construction	RSI Tender and Construction	Dec 2020 – Mar 2021
WP # 1.3 (B)	Downtown Dikes (DD)	Sep 2020 – Oct 2021
- Design	DD Design Phase	Sep - Dec 2020
- Permitting	DD Permitting Phase	Dec 2020 - Jul 2021
- Tender and Construction	DD Tender and Construction	Jul – Oct 2021
Work Package # 2	North Ruckle - Design & Construction	Oct 2020 - Jun 2022
WP # 2.0 - Design	North Ruckle Dike Design Phase (Road Raise & Trail Dike)	Oct 2020 – April 2021
WP # 2.1	North Ruckle Road Raise	Oct 2020 – Oct 2021
- Permitting	North Ruckle Road Raise Permitting	Apr - May 2021
- Tender and Construction	North Ruckle Road Raise Tender and Construction	May - Oct 2021
WP # 2.2	North Ruckle Trail Dike	Oct 2020 – May 2022
- Permitting	North Ruckle Trail Dike Permitting Phase	Apr - Oct 2021
- Tender and Construction	North Ruckle Trail Dike Tender and Construction	Oct 2021 – May 2022

Phase	Description	Target Date(s) & Timeframes
Work Package # 3	South Ruckle - Design & Construction	Mar 2021 – Nov 2022
WP # 3.0 - Design	South Ruckle Design Phase (Culvert and Erosion Protection)	Mar – Aug 2021
WP # 3.1	South Ruckle Culvert	Aug 2021 – May 2022
- Permitting	South Ruckle Culvert Permitting Phase	Aug – Dec 2021
- Tender and Construction	South Ruckle Culvert Tender and Construction	Dec 2021– May 2022
WP # 3.2	South Ruckle Erosion Protection	Aug 2021 – Nov 2022
- Permitting	South Ruckle Erosion Protection Permitting	Aug 2021 – Feb 2022
- Tender and Construction	South Ruckle Erosion Protection Permitting Tender and Construction	May - Nov 2022
Work Package # 4	Granby Road Raise & Dike (GRRD) - Design & Construction	Apr 4 2020 - Nov 2022
WP # 4.0 - Design	GRRD – Design Phase (Road Raise & Trail Dike)	Apr 4 2020 – Oct 2021
WP # 4.1	GRRD – Road Raise	Oct 2021 - Jun 2022
- Permitting	GRRD – Road Raise Permitting Phase	Oct – Dec 2021
- Tender and Construction	GRRD – Road Raise Tender and Construction	Jan – Jun 2022
WP # 4.2	GRRD – Trail Dike	Oct 2021 - Nov 2022
- Permitting	GRRD – Trail Dike Permitting Phase	Oct 2021 – Apr 2022
- Tender and Construction	GRRD – Trail Dike Tender and Construction	May – Nov 2022
Work Package # 5	Johnson Flats Erosion Control (JFEC) - Design & Construction	Apr 2021 - Nov 2022
WP # 5.0	Johnson Flats Erosion Control	Apr 2021 - Nov 2022
- Design	JFEC - Design Phase	Apr – Oct 2021
- Permitting	JFEC - Permitting Phase	Oct 2021 - Mar 2022
- Tender and Construction	JFEC - Tender and Construction	Mar - Nov 2022
Work Package # 6	Rural Erosion Control (REC) - Design & Construction	Apr 2022 - Nov 2023
WP # 6.0	Rural Erosion Control	Apr 2022 - Nov 2023
Design	REC - Design Phase	Apr – Oct 2022
Permitting	REC - Permitting Phase	Oct 2022 – Mar 2023
Tender and Construction	REC - Tender and Construction	Mar – Nov 2023

1.12 PROGRAM GOVERNANCE & ORGANIZATIONAL STRUCTURE

Summary Program Organizational Structure		
Role	Name	Function
Program Sponsors	City Council / CAO	<ul style="list-style-type: none"> The Program Sponsors provide strategic guidance and overarching Program Guidelines and Program Objectives to be achieved. The Sponsors also approve and allocate the specific resources required to complete the Program successfully.
Funding Partners	Province of BC / Govt. Of Canada / City of Grand Forks	<ul style="list-style-type: none"> The responsibility of these “funding” partners is to provide the funding to the program, and ensure the funds are expensed according to their specific respective programs’ requirements.
Program Steering Committee	Duncan Redfearn Dolores Sheets Graham Watt Justin Dinsdale	<ul style="list-style-type: none"> The Program Steering committee provides guidance and deals with issues and decisions that are required from time to time, at a lower level strategic, and higher operational level, that the Program may encounter.
Program Manager	Justin Dinsdale	<ul style="list-style-type: none"> The Program Manager has the over-arching responsibility to ensure the Program is delivered in the manner, schedule, and budget allocated by Program Sponsors and Funding Partners
Flood Mitigation Program [FMP] Track Lead	Justin Dinsdale	<ul style="list-style-type: none"> The FMP Track Lead has the over-all responsibility to manage the Flood Mitigation Program within the overall Program by meeting the objectives and deliverables of the Program Sponsors within the timeframe and budget allocated.

Land Acquisition Program [LAP] Track Lead	Graham Watt	<ul style="list-style-type: none"> The LAP Track Lead has the over-all responsibility to manage the Acquisition of Real Property required as a pre-cursor for the Flood Mitigation Works within the budget and schedule of the overall Program allocations.
Financial Officer	Juliette Rhodes	<ul style="list-style-type: none"> The role of the purchasing officer is coordinate the financial transactions required to purchase the Real Property purchase under the LAP.
Key Stakeholders	<ul style="list-style-type: none"> Residents of Grand Forks & Surrounding community City Council Province of BC Govt. Of Canada RDKB City Staff First Nations 	<ul style="list-style-type: none"> Key stakeholders have significant influence over, and a high degree of interest in the success or failure of the project. As such their function is to provide significant input into the governance and steerage of the Program respective to their interests. These interests can be either or both qualitative and quantitative(financial) in nature.
First Nation Accommodation & Consultation Coordination	Graham Watt & Justin Dinsdale	Graham and Justin will spearhead and coordinate First Nations Accommodation and Consultation processes with the various First Nation stakeholders through 3 rd party consultants, and/or first hand interactions.
Subject Matter Experts (SME'S)	Justin Dinsdale (JD) Graham Watt (GW) Dolores Sheets (DS) David Bruce (DB) Juliette Rhodes (JR)	JD - Construction Management, Contract Law, Program Management, Insurance, General Operations, Scheduling GW - Environmental Planning, GHG, First Nations, City Planning, and Land Acquisition Programming DS - Municipal Development, Planning, Engineering, City Planning Strategies DB - Building Codes, Bylaws & Local Regulations JR -City Finances, Budgeting, and Purchasing

RACI Matrix

DMAF

Roles and Responsibilities

Responsible, Accountable, Consulted, Informed

			ROLES																					
			Emergency Management British Columbia	Infrastructure Canada	City Council and Mayor Brian Taylor	CAO Duncan Redfearn	Graham Watt	Justin Dinsdale	Delores Sheets	Daniel Drexler	Dave Bruce	Maurice Wutze	First Nations	Buyout impacted Residents	Non-Buyout impacted Residents	FLNRORD	Roly Russell	Chris Marsh	Travis Arnold Consulting	Keystone Appraisals	Alliance Communications			
Deliverable or Task	Status	Funders / Leadership					Program Team					Stakeholders					Consultants							
General Project Management																								
	Scheduling		I	I	C	C	C	R	C	C	I	C	C	I	I							I		
	Program Administration		C	C	I	I	C	A	C	I	I	I												
	Contract Administration		C	C	I	I	C	A	I	I	I	I												
	Budgeting Management		I	I	I	I	C	A	I	I	I	I		I	I									
	Contribution Agreements		R	R	I	I	R	R	I	I	I	I	I	I	I									
	Permitting		I	I	I	I	C	A	I	I	I	I	C	I	I	R								
	Project Charter		I	I	I	C	C	A	C	C	I	I	I	I	I		I		R		I			
	Press Releases		C	C	C	C	R	A	I	C	I	I	C	I	I		I		I		R			
	Website Design and Maintenance		I	I	I	C	R	C	I	A	I	C		I	I				C		I			
	Records Management		C	C	I	I	R	R	I	A	I	I							C		I			
Land Acquisition																								
	Offers		I	I	I	I	A	C	I	I	I	I		I	I					R	I			
	Purchases		I	I	I	C	A	C	I	C	I	I		I	I					R	I			
	Hazmat		I	I	I	I	R	A	I	I	C	C		I	I	C				R	I			
	House Moving		I	I	I	I	R	A	I	I	C	C		I	I	C				R	I			
	Demolition		I	I	I	I	R	A	C	I	C	C		C	I	C				R	I			
	Communications LAP		I	I	C	C	A	R	C	R	I	I		I	I					R	R			
	Property Management		I	I	C	C	C	A	I	C	I	C		C	I					R	I			
Flood Mitigation Program																								
	Procurement		I	I	I	C	C	A	C	I	I	I		I	I						I			
	Consultant Management		I	I	I	C	C	A	C	I	I	I									I			
	Contractor Management		I	I	I	C	C	A	C	I	I	I									I			
	Communications FMP		I	I	I	C	C	A	C	R	I	I	I	I	I	I					R			
	NDMP/Downtown Trail Dike		I	I	I	C	C	A	C	I	I	C	C	I	I	C				C	I			
	Trail Dike (Rockwool) Raise to FCL		I	I	I	C	C	A	C	I	I	C	C	I	I	C					I			
	North Ruckle Dike & Road Raise		I	I	I	C	C	A	C	I	I	C	C	I	I	C				C	I			
	South Ruckle Trail Dike		I	I	I	C	C	A	C	I	I	C	C	I	I	C				C	I			
	Granby Road Raise		I	I	I	C	C	A	C	I	I	C	C	I	I	C					I			
	Granby Trail Dike		I	I	I	C	C	A	C	I	I	C	C	I	I	C				C	I			
	South Ruckle Storm		I	I	I	C	C	A	C	I	I	C	C	I	I	C					I			
	Johnson Flats		I	I	I	C	C	A	C	I	I	C	C	I	I	C	C				I			
	Rural Bank Erosion Rock		I	I	I	C	A	R	C	I	I	I	C	I	I	C	C	C			I			
	Rural River Bank Stabilization		I	I	I	C	A	R	C	I	I	I	C			C	C	C			I			
	North Ruckle Dike Removal		I	I	I	C	C	A	C	I	I	C	C			C					I			
	Underground Restoration		I	I	I	C	R	A	C	I	I	C	C			C					I			
	Surface Restoration		I	I	I	C	C	A	C	I	I	C	I			C					I			
	Demolition		I	I	I	C	C	A	C	I	I	C	C			I					I			
	Hazardous Material Assessments		I	I	I	C	R	A	C	I	I	I	C	I		I					I			
First Nations Consultation and Adaptation																								
	Letter of Notification		C	C	I	C	R	A	C	I	I	I	I			C	I	I			R			

R	Responsible
A	Accountable
C	Consulted
I	Informed

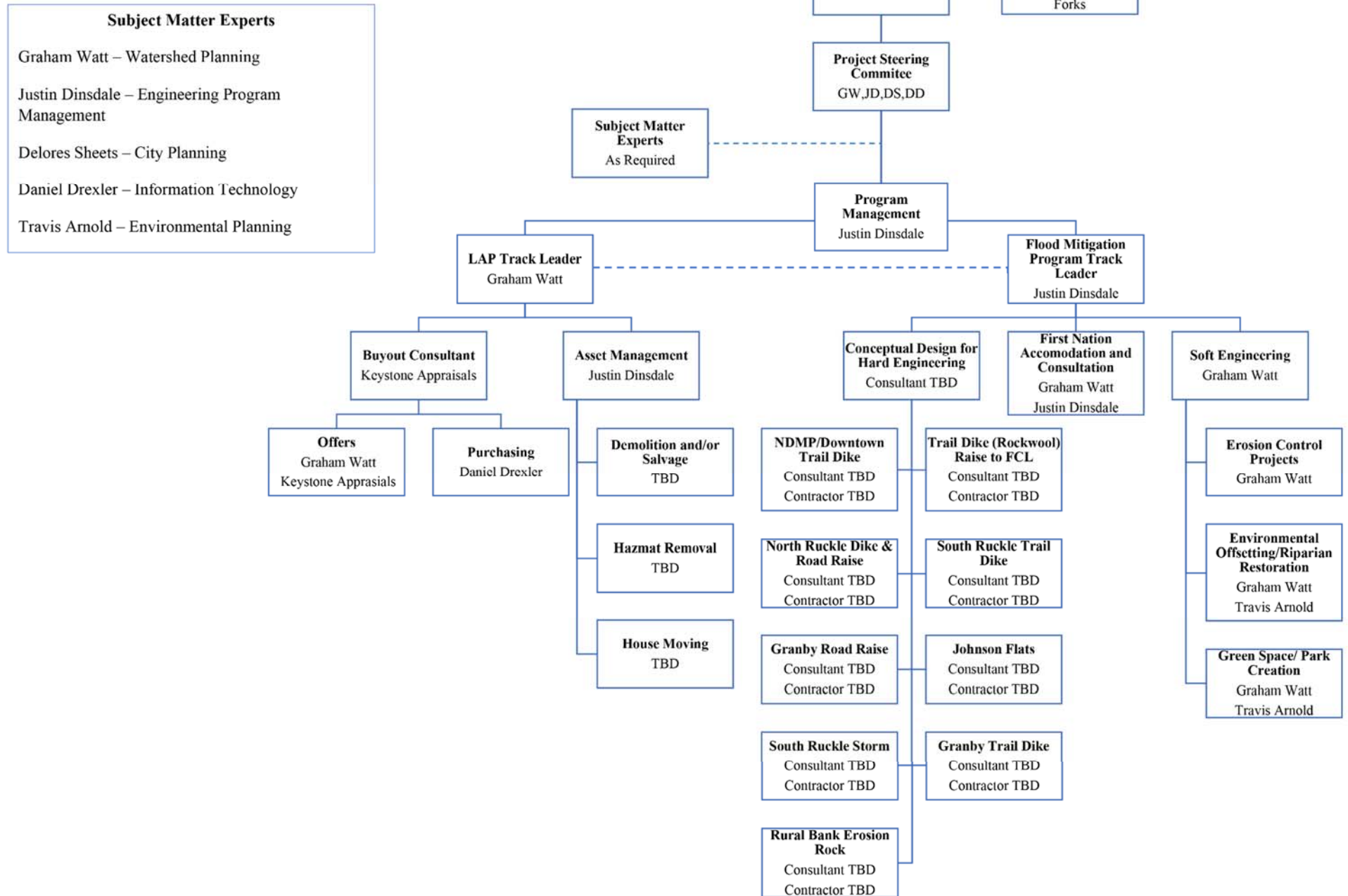
Assigned to complete the task or deliverable.

Has final decision-making authority and accountability for completion. Only 1 per task.

An adviser, stakeholder, or subject matter expert who is consulted before a decision or action.

Must be informed after a decision or action.

ORGANIZATION CHART



1.13 PROGRAM SUMMARY BUDGET

GRAND FORKS DMAF: PROAGRAM BUDGET (est.)	
ELIGIBLE DMAF COSTS	
	Total Project Budget
STRUCTURAL PROJECTS [Hard Engineering]	
Downtown Trail Dike	\$ 1,460,160
Trail Dike (Rockwool) Raise to FCL	\$ 1,583,695
North Ruckle Dike	\$ 7,694,872
East Downtown Structural and Storm (NDMP)	\$ 3,528,156
South Ruckle Trail Dike	\$ 2,915,321
Granby Road Raise	\$ 1,473,257
Johnson Flats	\$ 1,481,969
Rural Bank Erosion Rock	\$ 4,252,409
Granby Trail Dike	\$ 1,460,160
South Ruckle Storm	\$ 3,134,072
Structural Sub-total	\$ 28,984,071
NATURAL INFRASTRUCTURE [Soft Engineering]	
Rural River Bank Stabilization	\$ 2,001,880
North Ruckle Dike Removal	\$ 1,929,280
Underground Restoration	\$ 116,588
Surface Restoration	\$ 855,247
Hazardous Building Material Assesments	\$ 225,500
Demolition	\$ 6,747,040
Natural Sub-total	\$ 11,875,535

SUMMARY BUDGET (CONT.)

PROJECT MANAGEMENT	\$	1,499,900
PROPERTY ACQUISITION [Land Only]		
Property Team Fee & Legal for Fiscal 2019/2020	\$	203,603
Property Acquisitions for Fiscal 2019/2020	\$	2,324,334
Property Team Fee & Legal for Fiscal 2020/2021	\$	406,680
Property Acquisitions for Fiscal 2020/2021	\$	4,703,383
Property Acquisition Sub-total	\$	7,638,000
TOTAL ELIGIBLE COSTS	\$	49,997,506
CONTRIBUTION BREAKDOWN CASHFLOW	Cost Limit	
FEDERAL GOVERNMENT	\$	19,987,653
PROVINCIAL GOVERNMENT	\$	26,509,853
CITY OF GRAND FORKS	\$	3,500,000
INELIGIBLE FEDERAL DMAF COSTS		
Property Acquisition [Improvements Only]		
Property Team Fee & Legal for Fiscal 2019/2020		\$183,397.16
Property Acquisitions for Fiscal 2019/2020		\$2,093,665.80
Property Team Fee & Legal for Fiscal 2020/2021		\$366,320.43
Property Acquisitions for Fiscal 2020/2021		\$4,236,616.61
TOTAL INELIGIBLE FEDERAL COSTS (Eligible Provincial)	\$	6,880,000
CONTRIBUTION BREAKDOWN CASHFLOW	Cost Limit	
FEDERAL GOVERNMENT		N/A
PROVINCIAL GOVERNMENT	\$	5,157,626
CITY OF GRAND FORKS	\$	1,722,374
TOTAL PROGRAM COST (estimated)	\$	56,877,506