

2014-03-13 Comments by M.D. of Foothills Councillor Suzanne Oel, Div. 4, on:

Proposed Elbow River storage, diversion from Elbow River to Priddis Creek - Priddis area - Fish Creek (from Priddis to Calgary), **storage on Priddis Creek** (near Priddis Creek Estates) and **storage on Fish Creek** (west of Hwy 762 & near Coal Mine Rd.)

Elbow River Historical Detention and Diversion Sites Report (waterSMART, Jan. 2014, prepared for the Bow Basin Flood Mitigation and Assessment Project)

Bow Basin Flood Mitigation and Assessment Project (waterSMART, Mar. 2014, presentation prepared for working groups & public)

After the devastating floods of 2013, the Government of Alberta has directed the Flood Recovery Task Force to oversee the consideration and evaluation of potential flood mitigation options, including operational, natural and infrastructure opportunities. The Bow Basin Flood Mitigation and Assessment Project team and working group of experts have been meeting to evaluate all ideas and identify intended and unintended consequences when proposed ideas are placed in a broader system context. A report is being compiled and will be presented to the Flood Recovery Task Force and made available to the public at the end of March 2014 for further discussion. Next steps include presenting recommendations to the Government of Alberta Ministerial Task Force and making decisions on which projects may have merit to be evaluated and begin engineering, consultation processes and stakeholder engagement to determine viability, costs, benefits, risks, consequences, trade-offs, etc.

One solution being considered may include a diversion from the Elbow River to the Priddis & Fish Creeks in our area or an alternate route in proximity of these creeks, or in Calgary. According to the Elbow River Historic Detention and Diversion Sites report, a report that has been recommended to be considered, the proposed storage and flood mitigation diversion plans for Div. 4 of the M. D. of Foothills may be very significant, especially the Elbow River to the Priddis Creek 345 - 530 cms diversion. To further expand the context, I recently have been informed that where it states "Priddis" in the waterSMART presentation (and next over-all report being prepared), this could mean anywhere from one small headwaters stream down to areas in Calgary over to Fish Creek... This idea is still a work in progress and at the preliminary screening stage, only considering volumes of water in a water flow model; however, I have been involved to make sure that the many complexities and concerns for our area have been expressed and are noted in the report. We don't know what the solutions will be at this point. Much more work and consultation needs to occur. There may be some larger measures or a whole lot of small measures that may add up to an over-all solution. If this idea goes to the investigation stage, then the M. D. of Foothills would work on evaluating the proposal and residents would participate in stakeholder engagement in areas that may be affected. I will continue to represent our community as this process unfolds.

To keep up on the latest information, please follow these websites:

<http://www.albertawater.com/work/research-projects/flood-recovery-task-force>

<http://www.gov.ab.ca/Flood-mitigation.cfm>

Action since I found out about these proposed projects:

- I have contacted the project technical team with a list of my concerns and I have circulated this list to our public works, our Water Public Advisory Committee chair & expert, and the consultant reporting to the Flood Recovery Task Force.
- I am participating in the Flood Mitigation working group meetings on this project. I will continue to raise my concerns with the Flood Recovery Task Force and share in conversations with our public works department.
- I have had an in-depth conversation with the consultant doing the screening of information in response to this report.
- I have brought this up in council a couple of times now and will continue to discuss with council, our CAO and staff.
- On Feb. 26 at council I will request that our engineers, who are working to advise us on other flood mitigation projects, advise us on these projects.
- I will inform myself to the best of my abilities and opportunities and will continue to bring up concerns and ideas.
- I brought up my concerns in a meeting on Feb. 21 with our council, staff, Municipal Affairs Minister Ken Hughes and High River Recovery Minister Rick Fraser.
- I have asked to discuss this proposal with Rocky View County and will ask to discuss with our other neighbours.
- If this project goes from a draft to a reality, I will engage the whole community.
- I have heard that if the project goes forward to being considered viable, that a full consultation would take place. I would help coordinate full participation.
- I have heard from residents, consulted about possible impacted areas and will continue to invite comments and ideas.
- I have prepared a list of questions and concerns, which will be updated.

My list of preliminary concerns and comments so far:

1. There needs to be coordination between local and regional mitigation assessment and overall communication. There

should be a local-regional technical assessment approach. Decision-making needs to be well-informed and consider the cumulative impacts. Stakeholders need to be engaged early on in the projects on the table.

2. Can the Priddis Creek diversion be recommended at this stage when the plan has not been ground-truthed and the in-out type of water modelling cannot get into the details of topography, channel capacity (can't predict overbank flooding), ground water influence, real infrastructure and development along the water course is not on the map, velocity gain - cumulative disturbances - compounding damage in the channels and erosion cannot be modelled and information is not available? There is a statement that some engineering has been done. Can we see what that is and how current it is? The concern is that unless the model is improved there is no way of assessing for ground level impacts and costs.
3. Will adding the upstream storage options and/or dry berms reduce the need for the amount of diversion or is the full 100,000,000 cm flow reduction needed? Who will determine this? How will it be determined? Can you divert with certainty, considering the debris is part of the equation, etc.? It is unclear how some of the larger flood mitigation options proposed so far (diversions, dry dams) might be able to help when we don't know where the next flood event might hit. The whole picture needs to be informed.
4. Is First Nations, Tsuu T'ina, involved in the discussions yet? Do they even know about this?
5. A hydrometric station has been located at the confluence of the Fish and Priddis Creeks in the Hamlet of Priddis, which has collected data over 67 years. If record flows are around 200 cms, or this is the max measurement capability, then what would consequences of adding an additional 345 – 530 cms be? ...to the many features, infrastructure, ecology, communities, world-renowned Priddis Greens Golf Course and the hamlet of Priddis which has been at its current location for over a hundred years. Look at historical data from Env. Canada on Fish Creek.
6. Communities, residences and infrastructure are not reflected on the map. Any further modelling/planning should include this. A number of hamlets/residential developments in the area should be considered: Priddis Greens, Hawks Landing, Priddis, the Priddis Community Hall and outdoor arena, and Priddis Creek Estates. Some areas could be impacted because of proximity to the creek, erosion and water course changes, confluence of the Priddis and Fish Creeks: along Priddis Greens Dr., 186 Ave., in the hamlet of Priddis, Priddis Valley Rd. and along the courses of both creeks. Many properties are located in the low areas along the Fish & Priddis Creeks water courses and could be impacted by an increase in water flow in addition to an event and the existing channel capacity; many places would be wiped out by the suggested flow of water and homes would have to be moved.
7. When considering storage on Fish Creek in locations H and G, Priddis Reservoir Site 2 on Priddis Creek, diverting water through the Priddis Creek concept and managing the whole system, note that these areas in Foothills already have infrastructure that is not reflected on the study map:
 - Some roads in the area do not show up on the map: 178th Ave. by Coalmine Rd., Coal Mine Rd., internal roads of Priddis Creek Estates, Priddis Greens Dr., 186 Ave., 184 Ave., 256 St., Priddis Valley Rd., etc. These are major infrastructure investments as well as potential evacuation routes.
 - For both Fish & Priddis Creeks: Hwy 762, Hwy 22, Priddis Creek Estates, Coal Mine Rd., 240 St., 186 Ave., Priddis Valley Rd. and Hwy 22 by Priddis have a number of bridges that could be impacted or create debris challenges.
 - The Fish Creek Ranch Diversion diverts flow from Fish Creek to a lake structure of ~264,000 cm (214 ac.ft.) of storage that supplies homes and a Bulk Truck Fill Station (located by Hwy 762, between reservoirs H and G on the map). If an increase in flow is considered at this location due to new structures or management, it is likely that back up will occur at the Burby Bridge on Hwy 762 over Fish Creek directly west of the Fish Creek Ranch Diversion. This would impact the intake to the diversion system and the bridge would likely have to be widened. It is likely that the whole FCR Diversion structure would need to be built up if it is to withstand increase in flows, as Fish Creek is adjacent to it.
 - Loon Lake, storage with a dam (repaired in 2005), is located directly south of Priddis Creek at Priddis Greens and the Priddis Greens Golf Course. Priddis Greens, the Priddis Greens Golf Course and Hawks Landing get their water supply from Priddis Creek and Loon Lake surface water. Loon Lake is supplied by a tributary of Priddis Creek but drainage goes into Priddis Creek. A pump station sits next to the creek and this and irrigation equipment could be impacted by increased flows. Water quality is a concern with increased flows also - turbidity could increase and affect filtering capacity. Studies done in this area could be a useful resource.
 - Meota Gas Coop infrastructure could also be impacted in the whole area. Scouring has caused and will cause

issues.

- Storage exists within Priddis Creek Estates.
 - Upstream north of Hwy 22 on a tributary to Fish Creek is storage and a dam on Hidden Lake, located around 154 Ave. and 256 St., covering about 24 acres in size.
 - Upstream on a tributary to Fish creek, south near Hwy 762, is Antler Lake, etc.
 - Upstream on a tributary to Priddis Creek is storage at Leisure Lake, with water supply to the neighbourhood.
 - Upstream on a tributary to Priddis Creek is storage located at Bar Kay Cee, near Hwy 762 & Hwy 22 intersection.
8. The Priddis Creek system already has drainage challenges as well as water quality and quantity issues.
- Any flood mitigation or drought storage options would need to understand impact on the drainage of the area.
 - There is uncertainty around how natural drainage may change as channels erode and move.
 - Groundwater certainly plays a role in this system. We need to consider groundwater and surface water together.
 - Additional water could cause severe backups at Priddis Creek Estates and Highway 22, an internal road and bridge parallel to Highway 22 at Priddis Creek Estates, drainage and storage within Priddis Creek Estates, a bridge on Coal Mine Rd. over Priddis Creek, 256 Street and 186 Ave. on Priddis Creek, a bridge on Coal Mine Rd. over Fish Creek, a bridge at 240 St. over Fish Creek, 2 bridges at the confluence of Fish & Priddis at the Priddis hamlet (186 Ave., Priddis Valley Rd.), and at the bridge on Hwy 22 over the Fish/Priddis Creeks combined going north, etc.
9. Consider impacts on landscape, slope stability, wildlife ecological systems around the water courses, fish-bearing alterations, flushing out these areas.
10. How are the storage structures on Priddis Creek and Fish Creek to function? Will dam structures release water in advance of a flood and then store to mitigate? What is the amount that would be released in preparation for a flood and then during a flood? Will there be bypasses? Who would operate these? Would they be like the structures upstream on the Bow? If this water is stored for drought, who will have access to it – is it for regional use or for the city? How does the water licencing fit in here? How will water be transported or piped/routed, to whom and for what purpose?
11. There are a lot of shallow wells in the lower lying areas which would be impacted by ground water swelling, scouring and contamination by more extreme events.
12. The site identified as Priddis Reservoir Site 2 has to be realistically considered. Topography, existing residences, Hwy 22, Foothills roads and bridges are located in this area. There are culverts under the highway that could likely create backflow into residential areas. How will this site work? Depending on where it is located, it will affect either the Priddis Creek, roads, bridges and properties or if on the tributary filling Loon Lake, would have to consider all these variables. The 2 storage sites on the Fish would have to be considered in light of all the details on the Fish Creek and area.
13. Helping one area may cause a worse problem in another area - no guarantees. Trade-offs? No guarantees. Mother Nature is in control.
14. Local scale work is already underway through the GoA Flood Recovery Erosion Control (FREC) program. Consider these areas and projects.
15. "Positive displacement" pumps may be an interesting temporary infrastructure option. Information is being researched on this.
16. Will the Pirmez - Pine Creek diversion concept also be considered, as is suggested in the list of recommendations? This would affect areas east of Div. 4, from Red Deer Lake to Heritage Lake to the Bow. Consider that Alberta Environment (ESRD) has recently prepared a report on the drainage and flooding (mapping) of Pine Creek, currently to be presented at a public session on March 3, 2014? (A measure for locating development and a baseline for drainage)

17. Would it be cheaper to protect Bragg Creek rather than the diversion option? If Bragg Creek is to be saved and other communities sacrificed, can we consider shoring up Bragg Creek and area, moving Bragg Creek or taking other protective measures rather than diversion? If this solution is chosen, can we protect Priddis Creek Estates, the populated areas along Priddis Creek and Fish Creek, the Priddis Greens Golf Course, the Priddis hamlet? Or, will the residents have to be moved? What is the procedure on this?
18. Real costs in 2014? Financial cost benefit and impact analysis needed...

I am hopeful that this is NOT a case of deciding which community is more important to save and the other will be called a "trade-off". I am hoping there will be a win-win created with some creative combinations of measures or just not diverting through this community. We need to be engaged in this process to ensure that protection measures in place do not wipe out one community in favour of another and understand that there is NO guarantee that we are going to make some winning chess moves over Mother Nature...

More thoughts or comments are welcome and updates will be shared.
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