

MINUTES : HSCA – EPARC - Infrastructure Group
Monday, August 21, 2017 from 7:00 – 9:00 PM
in the Tim Tyler Board Room at HSCA.

Attendees: Charlie L, John M, Peggi M, Krista K, Adam M, Reg J, Pat J, Richard B.

Guests: Frank Frigo of Water Resources, River Engineering.

- (1) Welcome & Introductions – Charlie Lund (5 min)
- (2) Berm/Barrier Improvements – Frank Frigo, City of Calgary (60 min)

Frank reviewed the presentation entitled Sunnyside Flood Task Force 2017-08-21.pdf. In this presentation he reiterated the previously stated minimum standard for barrier capability of 1200 cubic metres per second (cms), before considering any improvements to Ghost reservoir management and before considering benefits from future upstream mitigation (1200 cms is equivalent to approx. 1:20 return rate on the same basis). This compares to the 2013 flow of 1850 cms.

The latest hydrology including the effects of the strengthened Prince’s Island causeway, the repaired river bank east of the pedestrian bridge and very conservative estimates for the flow across Prince’s Island has been used in the analysis. In addition a 0.5m freeboard has been added to the berm height requirement. The resulting required berm height is approximately the same height as the existing Sunnyside berm between the pedestrian and Peace bridges. Some low spots must be raised, but in most locations the existing berm equals or exceeds the new standard. It is possible that the pathway surface will be replaced but this will not result in a significant increase in berm height.

Between the Peace bridge and 19th street the existing berm significantly exceeds the required elevation with the notable exception of Poppy Plaza at the corner of 10 St and Memorial Drive. Poppy Plaza is a candidate for temporary berms in a future emergency.

The city believes that the 1200 cms standard when combined with protection provided by improved operation of the Ghost Reservoir and taking into account the protection provided by the 0.5m freeboard, will protect Sunnyside to a flow similar to the 1850 cms seen in 2013. With the additional protection to be provided by a future upstream dam total protection should significantly exceed 1850 cms. In addition the berm will be capable of being augmented by Aquadams which could increase the protection even further. The planned upgraded berm will be constructed to be able to be increased in the event that the upstream dam is not built. There is a possibility that further minor berm improvements could be included during the detail design and construction of the project.

In spite of the above, the Infrastructure Group members present were disappointed with the proposal and felt that better protection and hence higher berms should be built to protect our community. It was pointed out that the new upstream dam is probably more than a decade and perhaps two or three decades in the future and that our protection would remain inadequate until that time. Reservations were expressed about the degree of effectiveness of improved operation of the Ghost Reservoir in the inevitable chaos of a future flood emergency. Skepticism was expressed as to whether the city could or would use Aquadams to supplement the Sunnyside berm. It is believed that an upstream dam will never be canceled - it will be perpetually one to two decades in the future therefore nullifying the ability of the upgraded berm to be further improved in the event of dam cancellation. The group has less than full confidence that further minor berm improvements would be included during the detail design and construction of the project.

Frank said that the city had to consider the most beneficial investments for all communities and address the potential for varying service levels across communities. This was interpreted by several group members as limiting the service level available to Sunnyside so that the city is able to provide an equal service level to all communities. It was pointed out that both the zoo and

downtown have much superior barriers so the principle of differential protection for different parts of the city has already been established. It was further pointed out that an alternative approach is to provide barriers of an equal TBL ratio for each community.

Frank expressed concern that if Sunnyside was well protected by local barriers then the incentive for the province to build a dam that would protect the entire city, and limit city wide effects like higher groundwater levels, might be reduced. All group members were supportive of a new upstream dam but felt that Sunnyside should not be exposed to damage that could justifiably be prevented between now and the completion of the upstream dam.

One bit of good news is that the city plans to include two barrier design options in their ACRP application, one of which would provide somewhat higher barriers.

In summary, on the subject of berm/barrier height the discussion was cordial but it ended in disagreement. There was some discussion as to how the city can be convinced to increase the Sunnyside berm but the only recommendation was that all members should advocate for a higher berm at every opportunity.

The city is planning to provide Sunnyside and part of Hillhurst with groundwater protection utilizing the capability of the new and enlarged storm water pump stations. A pipe, something like a weeping tile arrangement, will be placed along Memorial Drive to collect seepage from the river. The project will be designed assuming high permeability of $10^{-2} \text{ m}^3/\text{s}$ corresponding to a sand and gravel layer. The group was pleased to hear this proposal. Pat plans to contact Sandy and/or Andrew to better understand the permeability design basis.

- (3) Status of the proposed upstream dam on the Bow River (more interesting now that the big report is public) – Frank Frigo (20 min)

The report of the Bow River Working Group has been made public. It recommends a number of upstream actions including operational improvements, minor capital projects and at least one major capital project on the Bow River. The reader is directed to the published report or to Frank's presentation for more information.

Strong support was expressed by all participants for a new upstream dam because of its flood mitigation capability, its drought mitigation potential, its potential hydroelectric generation and its potential recreational opportunities. It is anticipated that the new reservoir would normally be about 25% full during wet season and raised after flood.

- (4) Status of funding of the Upper Plateau Separation (UPS) project – Frank Frigo & Charlie Lund (15 min)

Funding for design and initial development of the Upper Plateau Separation Project is in the hands of the Infrastructure Delivery group. The River Engineering Group is preparing Calgary's ACRP submission for September 30 and the Upper Plateau Separation Project is expected to be the highest priority project identified. They will support provincial application to the Federal government's New Building Canada Fund. One possibility is for this Infrastructure Group to advocate to the province (ACRP) that this be done. Another possibility is to advocate directly to Watershed Adaptation and Resilience Branch of Alberta Environment and Parks. A further suggestion is that we could work directly with our MLA, Dr. David Swann. In previous conversations he has expressed reservations about a new upstream dam because of the large capital outlay required in a time of provincial budget deficits.

- (5) Review of the flood season just past – Frank Frigo (10 min)

Time did not permit discussion of this item.

- (6) Action plans for other items [by exception only]– Charlie/All (5 min) – no discussion

- a. Stay in contact with the City to ensure work on approved projects proceeds expeditiously.
- b. Support the city in their requests to the province and the federal government for funding.

- c. Work with Water Resources to improve Sunnyside berm/barrier design.
 - d. Support the construction of a new dam and reservoir on the Bow River upstream of Calgary.
 - e. Advocate that any non structural mitigation measures reflect the protection afforded by the structural measures.
 - f. Support the plan to address the rock bars now obstructing portions of the river channel.
 - g. Stay in touch with IBC and make sure they are informed as the structural measures are implemented.
- (7) Date for next meeting(s): Wednesday August 30 (5 min)
- (8) Adjourn