

MEETING MINUTES: Sunnyside Flood Task Force (Infrastructure Group – Emergency Planning and Response Committee),

Tuesday, February 10, 2015 from 7:00 – 9:00 PM in the Slate Room at HSCA.

In attendance: Charlie Lund, Amanda Palmer, Pat Jans, Reg Jans, Paul Galachiuk, Frank Frigo (City of Calgary, Water Resources), Krista Kaert, Kerri Treherne, Brad Larson (City of Calgary, Water Services), Deborah Murray, Mike Bradfield.

(1) Discussion on “**Updated Hydraulic Modeling**” by Frank Frigo of Water Resources (Lead of the River Engineering group).

a. Barrier study update:

- A city-wide permanent barrier study is currently underway, that is looking at engineering feasibility. Design drawings for Sunnyside have been drafted, leaving a copy tonight for FTF. Looks at how barriers for Sunnyside fit into the broader City.
- Even before the flood Water Resources was looking for opportunities to look at improvements or new flood barriers for across the city. Topographic analysis to figure out where barrier could be built, what it would look like, how you would abate ground water, what would that cost, etc.
- Associated Engineering has been working on this, same as the CDI study, which is a good synergy for Sunnyside. Trying to approach the study with a cost-benefit engineering-type analysis. Service-level implication. Easy to do vs. feasibility
- Sunnyside looking at a barrier all the way back to west of 14th St. from Sunnyside to protect against 100 year flood. Raising the embankment mainly. Considering requirement for protection from erosion to ensure the barrier remains safe. Also looks at ground water abatement. Study focusing on conceptual-level of design, followed by a cost-benefit analysis.
 - o Set of designs for Sunnyside, which shows embankment. Around bridges may make more sense to have structural changes, walls, so a bit of a hybrid.
 - o Likely high benefit cost-benefit ratio for Sunnyside for barrier because of high density.
 - o Gone through preliminary analysis for barriers across city. Sunnyside would have very positive affect. Working on province with other mitigation actions outside of the city, so if something can be done to reduce those flows from other measures, many not need to build barriers so high.
- FTF ?: Need to know if 1:100 is adequate. May work out that at the same time as the province raises it to 1:300 and City does 1:100 it all works out.
 - o Different approaches in different jurisdictions.
 - o This analysis looks at it above 1:100 to 1:200. Decreasing return on investment at that point, but may be argument for Sunnyside to go even above the 1:100.

b. New hydrology models and mapping.

- Post flood we’ve added new infrastructure, etc. Added that all into the models. New levels, new mapping for scenarios at higher levels. Had the 100 for a while, getting the higher levels soon.
- Flows have increased significantly, over 500 cubic m per second. Increment in what we would call the 1:100.
- FTF ?: Model based on new or old 1:100
 - o Based on the old, but made it so we can translate it to the different one. Extended it out to the old 200, the new 100 is somewhere in between. Contemplating additional work to have

Associated take the new hydrology and re-apply. We don't want to do too pre-emptively because we want to know what the upstream piece may mean. May mean that they cancel each other out.

- FTF ?: Barrier in Sunnyside was built before records kept. Geotechnical work to understand better?
 - o Did some in 2010 as part of cataloguing study that was precursor to this work... because we are contemplating cut offs, infrastructure that would cut off, we're looking at improvements of clay liner. Assess condition of all existing infrastructure – we didn't see anything that suggested problems. No major seepage issues, no issues with piping, no local slumping, failure.
- FTF ?: Has Cathy Ryan's work provided insight into seepage?
 - o Make sure we understand seepage more. Don't want to make any investment before you can understand how much bang for your buck you can get. Have looked at Ryan's worked. Associated gave some input for designs.
 - o In Sunnyside if you're going to build a surface barrier you need to know how long it will delay, how effectively. You want to abate it.
- FTF ?: Existing hydrology model – the bridge structure at Prince's Island on the south side has been a key topic. Is that included in the new modeling so that whatever raise in elevation it causes is considered?
 - o We assume conservatively that it would not blow out it all. Assumption for Sunnyside is that nothing can move. More often than not you have erosion. In 2013 it was lower than expected from our model by 1/3 of a meter. 50% local erosion and flow over the island, 50% blow out – more of the channel was active than we assumed, which is a good thing. Want to make sure we're specifying levels that are conservative. Additional dirt on top now.
- FTF ?: Investment by Parks that was significant not huge, now we'll have to maintain berm heights that are higher. Not the best thing to do to make it higher and stronger instead of blowing out.
 - o 22 odd cm, there is still some room for blow out, and on the left side of the channel. Of that, you're still going to get most of that. Haven't modeled that yet.
 - o Water can go underneath the bridge at present because there are culverts there.
 - o Sunnyside will get the barriers whether the causeway would blow out or not, because of the conservative estimates.
- Barrier study and temporary barriers proposed in Emergency Manual: in Sunnyside's case the water was lower than modelled, but could be debris, etc. We always add in about 0.5 metres to give some room to work with. So really 1:100 plus 0.5 m.
- We do have a fish habitat morphology study on going. Accumulations downstream by Centre St, but we need to have right science in these days before we can figure out what to do. There is a group of consultants working on this, where we can create a case to look at modifications to these accumulated deposits. Also looking at ice dynamics so we're not creating a negative impact there.
- Province engaged CCRA in earlier discussions on contemplation of a new kind of area for areas that are protected by embankments, a 'Special Policy Area' where they would modify the requirements of the Water Act and Land Use Bylaws, recognizing that there may be some form of protection in place. Don't know much about this yet. Work City is doing is keeping this in mind so that they can be at the table with the Province to figure out what the new policy would look like.
 - o FTF ?: Any idea when next phase would be?
 - No. City has been engaging the Province in the work, making sure their technical people endorse it, so that if it has the potential of informing policy in the future, the Province's technical people have been on board. They haven't given any time frame or anything like that.

- c. Flood Emergency Reference Manual and how the new model and mapping is informing this.
- Taking new models to inform the manual content. What we would do, what the prioritization of actions would be, etc. We do an annual review of this, and this year it is a pretty big update because everything is new. Every number has to be re-defined.
 - FTF ?: How much warning do you need to do everything you need to do?
 - o Assume 24 hours for the Bow, only 9-12 hours for the Elbow because of the existing structure and size of catchments.
 - Traffic delays/evacuation was huge learning in 2013. In 2014 trained more staff to undertake necessary actions. Been almost 70 years where there hadn't been anything remotely that size, so there was less of cultural awareness of the risks even within the organization. Invested a lot of time last year in changing this, paid much more attention to prioritization of the list, and getting the field guys to come in and figure out who is doing what, when, etc.
 - o There are some things that are so low that they probably would never happen - not all temporary protection would get in place. But Sunnyside is a priority, and wouldn't suffer from this. One of the reasons why Sunnyside is a priority for barriers – existing barrier makes it easier to top it up.
 - FTF ?: What warning time would we get next time? Workers told not to talk to Public but knew much earlier. (Zoo told at 10 a.m.).
 - o Ever year there are events that look like they could have the potential. The warning time in 2013, tracking the event on the Sunday, the Province has improved this – highly recommend the Alberta Rivers app (from Alberta Environment's website). They have High Stream Flow (high but no damage), Flood Watch (could be overtopping in your community, Flood Warning (imminent). Can access real time water flows, etc. Can see forecaster's comments on the app too. Degree in certainty is not robust! Alberta Emergency Alert should catch the warnings too.
 - o The City also provides internal warnings to business units. Also put it on the website last year for the first time – intending continuing to post to their website, but recommend using the provincial app.
- d. Provincial damage study that tries to value the economic losses from flooding events.
- Province engaged a group to study flood damages. Calgary was test case. Looking at damage vs. depth curves for different types of development for different types of communities (15 different types of residential). Looked at total flood risk in dollars (doesn't look at all social impacts). Presented this only in draft form. City had questions about it because they had different assumptions. They're resolving this now.
 - FTF ?: Probably want to connect with Province if we want more about this? Ideas of when this comes out?
 - o Probably the end of the month. City still has some issues they are working through with them.
- e. Room for the River.
- FTF ?: Interested in your perspective on this study. Can you circulate your comments?
 - o Document put together quickly- credit to WaterSmart for what they did in time. Less well thought out ideas mixed in with good ideas. Difficult to separate them. A lot of their comments had to do with that. Recognize that in the Dutch context it took 30 years for the program to evolve, and in that time they changed the levels multiple times over the years after doing all these different analyses. In the AB we want to take that learning and make sure we get the

right basis from the beginning. Concerned about timeline – don't want to have to come back and make changes on these very expensive projects.

- FTF: Also Dutch are starting from a very different place.
 - o Our rivers are also for water supply, and concerns for drought... different geological contexts, etc. But overall philosophy is probably good; we just want to make sure it does get applied appropriately.
- FTF: Makes Prince's Island causeway look even worse.
 - o One of the ideas advanced is knocking a hole in the northern causeway on Prince's Island. Looking at centimeters there.

f. TransAlta and Ghost Reservoir adjustments.

- Last year an agreement in place. Continuing to pursue a longer-term agreement with TransAlta where Province would get keys to the reservoir and be able to act more aggressively in flood season.
- FTF: very complicated because also dealing with drought... Level of sophistication considered?
 - o Looking at developing better models and modelling platform. Also Province looking into communication protocols. For forecasting proposed group investment (Province, City, TransAlta) for better modelling of the Bow because they all use different models right now. Would love to build a software platform, but won't be happening now.
- FTF: That is something we'd want to encourage. If there is something we can do – writing letters, etc. – let us know. Help where we can.
 - o Forecasting can add a lot of value for a small investment.
- FTF: Key piece is being able to lower reservoirs quickly.
 - o Early on in the negotiation with TransAlta, Alberta Environment, and the City sat down and talked about our understanding risks. Said the different impacts at different flow rates.
 - Damage assessment looks at impacts of road closures too.
- FTF: Understanding that the maximum TransAlta can lower the reservoir is 2m because of fishery-related things.
 - o Looking at removing natural topographic high that is having an impact in the future.
- Can't get a lot of bang for your buck if you don't operate the whole system in a better way. Becomes a question of balancing.
 - o FTF: Get balance as least painful as possible. Lower reservoirs quickly, which gives more time.
 - Threshold probably no quicker than 700 cm/s because Bowness gets impacts at around 800.
- FTF: Room for the River talked about possibility of storage areas along Bow:
 - o Don't seem to be technically viable.
- FTF: Frank, in your view, when does it make sense to invite you back for another update?
 - o Expecting a lot of action from Province in the next 6 weeks or so. In any case, before flood season. Will have a little more to tell you about the Provincial stuff. But if it is lesser updates can do that through Brad and Francois. April.

g. ACRP

- Update is that they have no update. Hopefully by the end of the month.

(2) Brad Larson will report on the engineering consultant's analysis of **Pump Station #2**, further to our discussion of last meeting.

- Last time big question mark around what a 1:50 year pumping capability look like when river is low. 1:5 year pumping when river is high (more catchment coming towards station).
 - o 1:50 gates open is going to be significantly bigger than 1:5 year gates closed. Actual numbers are variable at present (by 5-15%). Ironing out some things, especially 1:5 year number. At present about 1/3 less than the 1:50 year number. Tweaking what catchment goes where will affect this. Quoted about 1.8 cm/s last time talked, but will probably be modified. Hinges on the big pipe structural instability and looking at options.
 - FTF: Adequate for both scenarios?
 - Yes. Whatever it ends up being, we'll figure it out, and that will be adequate.
- FTF: Is Pump Station #2 'shovel ready'?
 - o Yes. Water Services submitted this to ROC as something they'd like to have funded by round two of the ACRP funding on January 25. Four projects were submitted for WR, this one was ranked 3rd. Of the four projects, three of them have some sort of impact on Sunnyside (Pump Station 2, Memorial Drive Permanent Flood Barrier, General Storm Water and Sanitary Sewer improvements which would include Sunnyside's sanitary lift station).
 - o Next steps in this process: ROC will combine all of the projects submitted by the different business units and prioritize them. This list is being presented to PFC on February 17. This Committee will then recommend to Council whether they think it should go forward. At that point, WR will put together package for the Province (due March 20). March 31 is the deadline for the second round.
- FTF: Pump Station #2 is more difficult to justify to the Province if they are focusing on keeping river in river. How do you spin that?
 - o Haven't spun it yet. However, Paul's written communication with the Province where they said they saw the other three pumping stations as viable has helped a lot. This helped convince City team that Pump Station 2 was an applicable option in the early brainstorming.
- FTF: Should we do anything to convince ROC or PFC to put our projects on the list?
 - o FTF: Because so many of the projects are of benefit to Sunnyside, we are inclined to not do anything. If they aren't very high up on the ROC list we may want to consider talking to Druh.
- FTF: Priority now about getting pumps, and once that is approved, and then we can talk about what they look like.
 - o There would be a meeting with the community where people can bring up making it look nice.

(3) Repeated **Graffiti** interfering with operation and maintenance of "new" B47/48/48A gate actuation equipment. Brad Larson will discuss.

- Some progress has happened. The best thing for any public to do is that if you see graffiti call 3-1-1, anti-graffiti artists will come and take it down. Concern is that Water staff is trained in this, and will use their man hours dealing with graffiti instead of focusing on the water stuff. Slows everything down.
- Happening mainly on B47. Not sure of issues on B48, nothing known of.
- FTF: Can we have the outfall painted so it is less likely to draw attention for artists?
 - o Yes. Just last week met with internal art team about having the boxes painted. Utility box art program for the City – they do the administration, Brad has to pay for it (budget about \$5K, pretty much just painting).
- 3 ways we can go about doing this:

- Local artist can do it. Has to be professional level and meet City design criteria. May take a little longer to administer – would be sole sourced. Means little control over what the art looks like.
 - Internal selection. These are known city artists. We have a lot of their portfolios on file, and would have a little control over what gets done. So if we like landscapes, we can pick a landscape artist for instance.
 - Roster type: RFP for City project. Using them means best scenario we get something by June.
- FTF: Doesn't necessarily have to be someone from the community. Paint directly or the peel and stick?
 - FTF: Kerri knows a couple of artists who do great work. Will pass information to Brad.
 - FTF: Just pick the easiest option that doesn't cost a lot of money.

(4) **Plan for upcoming meetings**, in addition to CDI discussion and update on all projects (both items at all meetings).

a. March: City plans for 2015 flood preparations & Gate B46 repair / improvement

(March 10 aligns well with HSCA EPARC community meetings planned for March 11 & 12)

- FTF: Does March 10 work? Focus of meeting is preparedness for this flood season.
 - Discussion around whether we will need to do a community update meeting again. Decision: No, because nothing is different from last year, so no news to tell.
- FTF: Key item for the agenda will be what pumping level. Will include everything. We want to know specifics. We want to know what to expect.
- FTF: Have another meeting with Frank and one with John
 - Frank mentioned April, though it may make more sense for late summer when he'll have more content to share. Brad and/or Francois can provide updates in the interim. Brad will talk to Francois and see if we get either Frank or John for April.
- FTF: We will also probably want to spend a fair amount a talk to CDI stuff. Probably a very different proposal than what we saw last fall because the maps were completely redone.
 - Next community engagement meeting wont be until the draft report is done. October one should have been the only one, but because of the pipe problem discovered a month before, have to do another one (probably in the Fall of 2015).
 - Want the draft put out and Brad vet it before FTF looks at it. After the FTF has looked at it, then we could go to community. Ideal is June or July.

b. Need to schedule ASAP a formal presentation to address: "What rainfall probability/return rate should be used to design facilities for a scenario where the gates are closed so as to have the same overall effective protection as with the gates open?" This was discussed informally in the January meeting, but something more formal is required.

- FTF: We need documented case for 1:5 being the right level. Needs to be positioned properly – providing solution with gates closed that is not likely to overflow more than once every 50 years. Same level of protection for 1:50 gates open or gates closed. Probably better off to convert everything into flow instead of the year ratio. Can you pull something together that we can share (on the website eventually)? Charlie happy to help with this. Ideally next meeting or the meeting after we'll have something.

- Brad will look into this. Internally for sure there would be some sort of Appendix or second document. Precedent setting or guidance for other river communities. Definitely will have something for them to refer to. Question around whether this gets made public, but this has been acknowledged and will discuss internally.

(5) Status of the Sunnyside Community Drainage Improvement (CDI) Project:

- Old pipe is going to break, have to do something else. Looking at pressurized pipe, still working on the details. Right now 3 pipes go down 7th St. Take out the bigger one for sure, and probably one of the small ones, leaving one small one in tact. That would be the one that Sunnyside currently ties in to. Bonus is that everything we proposed for Sunnyside last Oct (new pipes, trunk, dry pond) effectively wouldn't be needed - if this option proves to be good. Means no digging up of Sunnyside. More to come once consultants are done and Brad has looked at their work.

(6) Update on "Room for the River" and "Water Collaborative" meetings by Charlie Lund

- RfR meeting hosted by Province. Charlie, Paul and Pat attended. Outfall was feedback that was provided (shared via e-mail and on the HSCA website).
- Water Collaborative is AB organized group with communities, CRAG, consultants, City, etc. It is by invitation, lots of stakeholders talking about various issues relating to floods. Charlie attending a meeting tomorrow: agenda is focusing on the Elbow valley and cost-benefit analysis of those options, and also Room for the River.

(7) Status of various other projects (by exception only - if there is news): Not discussed.

(8) Date for next meeting.

- Tues March 10, in the Slate Room

(9) Other Items:

- FTF: A Calgary Herald article was presented from March 2, 2009 showing the flooding that occurred at 1 Ave & 6 St. that day due to a spring thaw combined with rain and frozen catch basins. There is a pond at this location every spring due to the 3 catch basins there being frozen solid. Is there a way to get Water Services to put it on their calendar to steam the ice out of the 3 catch basins at this intersection at the end of February every year? Or to create a place for water to spill over that isn't basements.
 - Will have conversation with Francois. Outside of realm of CDI but in the realm of City of Calgary (Winter Operations). Internal conversation may be happening.