Infrastructure Division Meeting
June 23, 2014 7:00 p.m.
Tim Tyler Boardroom

In attendance: Peggi McDougall, Pat Jans, Reg Jans, Brian Castle, Charlie Lund, Brad Larson, Amanda Palmer, Kerri Treherne, Richard Bolt, Deborah Murray and Mike Bradfield

Regrets: Paul Galachiuk

** Note that there was a Presentation from Brad Larson that was followed as we went through the discussion

1. **Careful review of North West Inner City Study Revision**

- Phase 2 of study almost complete, opportunity to make changes if we come up with some improvement or something like that
- Study and report in phase 1 of 3. Not discussing pumping yet, it is in phase 3 and will be on the table. Phase 1 is strictly upper plateau diversion piece. Phase 2 is almost done, needs about another month before it can be discussed. All three should be done by the end of August, so we should be able to have a meeting with the community in the third week in October.
- East Sunnyside included in NWIC study, focus is mainly on long-term improvements.
- Report will adhere to previous recommendations with some minor changes and improvements.
    - Conveyance upgrades for Sunnyside (phase 2)
    - Upper plateau diversion and storage (phase 1)
    - Pumping infrastructure during gate closure (phase 3)
- When it is all done we'll be able to discuss prioritization

- Phase 2 doesn't relate to river, just with rainfall, so includes some communities like Tuxedo that isn't on the river.

- Phase 3 all about High River event with Gate/valve closure and permanent Pump Stations

- East Sunnyside has coverage for about a 1:5 year event
- Main trunks in Sunnyside has 1:50 when river isn't involved with existing infrastructure
- Phase 2 target is 1:50, but it is always or less because of existing conditions and constraints (e.g. existing infrastructure like housing that are in the way and can't be moved)

- How many rainstorms in last 10 years that were more than 1:5 in Calgary? Lots, but they are scattered around the city. For instance, a few years ago Braeside got 1:100 event and nothing anywhere else. We tend to have storm cells that have large rainfalls in very small areas.

Phase 1: Upper Plateau Diversion

- Will keep water out of Sunnyside despite the pipes still being in Sunnyside.
- We call it separation because we'd separate your sewerage pipes from that trunk (B48), so water isn't coming into Sunnyside any more
- Iterative process that allows for changes as we go along. Allows us to change things for the better, but the essence should remain relatively the same.

- Design Criteria: B48 should have a 1:50 year level of service.
- Looking to disconnect Sunnyside sewerage from the B48 drunks
- Phase 1 considers a low river condition (high river condition is covered in phase 3)
- Noted that the main concern with disconnecting is high river conditions
- Looking at flap gates to be able to use for storage as well
    - Question about the utility of that now that we have automated gates. Though we want what is best for Sunnyside to prevent for flooding.
    - Need to worry not just about building the best system, but also about what the cost is because we want this actually built, so we don't want to drive the capital cost up so that it keeps getting put off and put off. Need balance of protection we need and the cost that gets it built in a reasonable period of time.

- Upper Plateau
    - New Dry Pond Proposed
        - Some parts of Capitol Hill experience flooding, it will help prevent them from flooding and keep peak flow reduced for what eventually comes through the pipes in Sunnyside
        - Would be above ground. Have done another in schools throughout Calgary. Questions raised that storm water is going where kids play… but the reverse side is without it, water is going into people's homes and affects where kids live. Better worst case scenario, and keeps the project down by about 2/3rds the cost. Allows them to be built quicker as well, since they are significantly cheaper.
            - Question of priority on list: will take something off and put this one in based on cost and new benefit.
            - Reduction in flow? Keeps surcharge from not happening in the pipes. Pipes typically built for 1:5 level service, even the new ones, rely a lot on overland conveyance. Brings 1:50 down to a 1:5.
            - This serves one in three or four branches in the upper plateau. It isn't going to be a big reduction in this area (Sunnyside). This is really to help them (upper plateau), while also reducing flow somewhat for Sunnyside. If their project happens to be above the Sunnyside project, this could happen quickly because it is less expensive, which also moves ours ahead faster as well.
            - Often stage construction of projects because they cost so much. So, sometimes projects have to go hand in hand, sometimes

they don't. At this stage, can't tell when things will happen or if these have to happen hand in hand. Can't say situation at this point.
        - If we segregate the pipe and we have the flow in the existing pump, can that be sustained without the dry pond, etc.
    - Trunks draining into B48/48A are not at 1:50 , it is 1:5. Aiming at 1:50. Trunk has to be bigger first before pipes can be bigger.

- Existing Constraints (difficulties in constructing in Sunnyside)
    - LRT will affect things. Trunks are an underground "wall" in Sunnyside, as is the Sanitary Trunk
    - Shallow utilities and deep ones are great in number, which can be moved, but it complicates things – they can add a lot of time and money.
    - Tight Right of Way spaces (city owned roads and sidewalks)
    - Sunnyside Elevation doesn't have a lot of depth, doesn't give a lot of room to play up and down.
        - Has anyone thought of doing something above ground? Probably wouldn't help us though and probably very expensive.

- Lower Plateau
    - Pipe & Catch Basin dissection – physically removing them from Sunnyside's.
        - 12 Catch basins tied into it, 10 pipe connections… all in Sunnyside.
        - 14 man holes. Will need to physically remove them and, depending on how they are built, to physically remove them and replace with pipe.
            - Don't some of them take away some of the volume of the rain? No, it is miniscule. Both are square and risers. It will depend what our structural analysis says. The oldest is about 1955, which isn't old. 1994 the other one went in, which was probably pre-cast.
            - We will have to take out it all together; we don't need manholes. We may build one and bunker it a lot so it doesn't spill out. It would mean there is only one entrance, which is the river. The pipe is quite big. Considering building a manhole mid-way in the system for maintenance purposes, but it would be completely blocked off with probably about 1 m of dirt on it. Detailed phase thing to consider whether we do it or not.

- Proposed Pipe Network
    - Information should be kept confidential to the Task Force, because some consultations with community members are still required
    - Pipes shown in Orange would be new pipes, or redirected.
    - Physical constraints of a community… on the north part of the west side, there is no real road that goes north south, it stops at around 4th Ave., yet service currently is north of that to drain those streets. Those pipes are connected directly to B48 trunk. May need to put an easement in the north

part. An alternative is to in the north part keep the services and double up the back flow valves to ensure the systems don't spill out into Sunnyside. Strongly prefer to just disconnect everything, but if we can't go through here, we'll have to find another way. The houses are really tight to the LRT, and there are a whole bunch of utilities and private property… 7th St. full of pipes and utilities are already there.

- Question: Green lines in Hillhurst? Can you connect to something on the other side of the LRT toward 10th St. side? Run the alley across somehow? Brad will inquire about that.
- New pipes: once pipes are de-connected from the B48 System… on West side they will all have a new trunk that will run down 8th St. and will go straight to the existing outfall to river (49), which would be replaced with a bigger outfall, and that would be the new trunk alignment. West Sunnyside would get almost an entire new.
    - Re-do them so they have a new grade – slope towards 8th instead of 7th. A lot of digging.. Conveying a 1:50.
    - Backflow valves in the interim. Can't just send pressure back across instead of digging. Keeping the pipes connected will leave the water nowhere to go, which is okay in the interim (with backflow valves), but we would rather not have a system that doesn't have servicing if the B48 trunk is in surcharge. And in the event gates are closed, the water has nowhere to go, which continues to present flooding risks. Better to have new trunk in place. Need a solution that works as cheap as possible, but it still has to work with the best possible servicing. This will be expensive, but a lot of these projects are. We'll have to rip up the road, take out the pipes, and probably put in new ones. We can only go so deep because of the elevation. Usually storm pipes start at 3 m and may go down to 6 m down so they don't have freeze problems, but with the way Sunnyside is sitting, there isn't as much space to work with. Make sure to make deep enough that they don't freeze, because in winter they usually do close to Memorial.
        - Underground heating possible? Operational maintenance thing, but we can discuss this.
    - Looking forward to Phase 3 with pumping, if we have a smaller area to pump that will be cheaper than having to pump a large area.
    - Everything to the left of 7th draining into B49 and a little into B51. On the right hand of 7th St. redirected to B47 system. Is B47 system big enough for this? More than likely, and if not upgrades will be taken care of in Phase 2. Probably have a B48B to drain small bit of Memorial Drive.
        - Three pipes don't service a lot of area but attach to the B48 system. They would be disconnect them and direct them to the lift station, which would pump it out. In phase 2 we'd look at sizing and in phase 3 we'll look at better permanent pumping.
        - Implications on outfalls? B47: this particular phase we have not shown an upgrade to that outfall. Catchment boundaries don't

change much. Upgrading of lift station and pipes being looked at in Phases 2 and 3. The one on 8th will be upgraded it, now it is small, which would be teared out and replaced. Would have 1:50 year service. Smaller flows of water because just dealing with water from Sunnyside. Means we wouldn't need pumping, which would be expensive and loud. This approach would mean we wouldn't even need a gate on B48

- You're not going to reclaim a lot of money spent on existing gates. If they are adequate it is probably cheaper than putting a flapper valve in.

- Lower Plateau
  - West Sunnyside is pretty much a new pipe system with outfall 49 upgraded substantially
  - East Sunnyside redirects 3 pipes and 1 new pipe brings 2 catch basins to existing lift station, which will be upsized in phase 2.
  - Phase 1 really is let's get a new pipe layout and servicing scheme to Sunnyside. Phase 2 is sizing the piping scheme to a 1:50s service.
    - The timing of these could be years apart because of the triple bottom line. Can the lift station handle more without an upgrade? Lift station has a 1:10 capacity now, the pipes that feed into it are sized for 1:5. The pump should be able to handle additional flow, but we'll check this in Phase 2. Not sure we have to increase the lift station capacity, just to reach that 1:50.
      - Portable pumps are like a relay, we still need the lift station which bring water up to a level to get over the berm. Portable pumps are sized for 1:5. Lift station, even with spare pumps, has a capacity much in excess of 1:5, not sure what it is in numerical terms, but sounds like 1:10 or 1:20. Don't have to run hoses across Memorial any more because of the automated gates.
      - What they have to do now in the interim if the gates are closed and pumping needed… close gate at B47 and automatic pumps get shut off in lift station, manually turn it on at lift station and operate it to match the operation ability of the pumps. It will have a lower level of service at present, but in the past they've had none at all once you shut the gates.
      - 2 six-inch pumps for B48 committed which provide 1:5 year service. Mobile pumps have capability of keeping up the volume, not peak flow, but considering storage and pipes underground, it curtails peak flow inside while pumps are pumping, so it holds back flow and keeps up with 1:5 year rainfall in Sunnyside to the point prior to flooding in the streets and homes.
        - 2 six-inch pumps will only keep up with 1.5 of the 3 pumps in the lift station. At present we only have so

many pumps to go around, aren't looking at getting two more at present. We're committing to 6 pumps in the community if gates are closed (including rentals).

- Final report will have different stages of completing recommended projects. They may or may not be linked together, they may have to built parallel. We don't know what they will look like yet. Don't equate phase 1 with project A.

- Cost? At present, $17 million for the upper plateau diversion to do everything in this document.
    - $115 million request to the province includes all Sunnyside projects, what they all might cost. Didn't want to lose the opportunity to apply for that, even though the report isn't finished.
- Province money:
    - Allocated $325 million over three years for the whole province… and apparently there were some parts of the northern part of the province that have troubles as well. If that's true, they are also applicable to tap into this. How it's being divvied up, we're not sure.
    - City request alone was $900 million… so not that great. We're going to be lucky to get much at all.
    - Don't know yet how projects will be prioritized. Don't know if it's the province, city, or a combination. Don't know criteria. Don't think they have decided yet.
        - Don't see these numbers helping Brad's program or us a lot.
        - If we could get a million dollars that will go a long way to move us further up the list and get this built sooner.
        - Third party funding would help with prioritization. Feds, province, etc. because it helps bring cost down. Triple bottom line comes down to benefits and costs. If costs go down and benefits remain the same, it moves up in priority. Urgency / time pressure would also change things quite a bit as well.
- Question: other communities that were flooded, are they going through similar processes? Not like Sunnyside. Most of the other stuff is riparian construction (studies and actual construction). Longer-term stuff is also being looked at, not really aware of what it is. The riparian study likely won't be at this stage until the Fall.
- Sunnyside is already on the list, so that helps us in terms of prioritization. City tries to spend money as best bang for the buck.
    - Projects on list right now are based on the old study. They will be taken out, recalculated and put back on.
- How / should we influence prioritization? We can ensure that the inputs into the triple bottom line are accurate and reflect the benefits.
- Our program will reflect the meetings Brad has had with Flood Task Force, the aerial photos that show almost all of East Sunnyside under water. It's probably about 95% of the houses.
- Is Sunnyside unique in water running through the community? Does Bowness have a similar problem? Upper plateau draining into a storm pipe that goes into a totally

different community is very common. Cranston doesn't have the problem because they aren't as low as Sunnyside so they don't need gates to close it off. There are some others that are in the same boat though. This drainage catchment is not unique, but having a berm and relative flatness before the river is pretty unique.

- Another question is, there was a meeting last Thursday on the topic of Paul's proposal which he hoped could be an interim fix until the longer-term project.
    - Paul has a neat idea, but it doesn't answer all questions and leaves some risk. When you added up the costs involved to complete the project, which is very similar to this proposal, they are above the amount for local projects. There is a small budget set aside for local projects - $30000, $50000. His would be less that this proposed project, but would still be expensive.
    - It does include two areas of concern – reduces level of service to the upper plateau, and the pipes through pipes to reverse flow?
    - Three pipes involved in B48s, and Paul was proposing to use one for Sunnyside drainage and dissecting it off, leaving the other two to serve the rest of the plateau. But it doesn't fully solve the East connections in Sunnyside. He was proposing running them through the trunks.
        - Brad planning to share it for information sake, it is a neat idea, and if anything can be grasped from it, that's great. Overall, would choose to not pursue it because it is still expensive. It is more of an alternative to or an enhancement, it isn't really that quick and dirty. Ideas that might be applicable to the long term will be taken to the engineering firm to look at.
        - If this redirection is 17 million can be split into stages, and Paul's idea covers part of a stage, where we would now have two $9 million projects that service the areas…. Gets us closer faster.
        - This phase (1) can definitely be split, like the dry pond can be its own project. We can split it into a number of projects
        - Charlie requests that Brad does take a look into Paul's project and look into a few key points. Like how far up gate needs to go, and service level reduction to upper plateau significance. Those are the showstoppers. If we can do two small projects, we ought to. Brad will take it into consideration and share with engineers. First thoughts are the interconnections of 48s are expensive to undo

2. Land Use By-law

- Decided not to talk about this since it is a done deal already

3. Time for next meetings

- Meeting to review phase 2, similar to this
    - July 21st: 7:00 – 9:00 p.m. at HSCA

- Meeting to review phase 3 similar to this
    - End of August

- Meeting to review proposal to take to community meeting
    - Mid-September at best

- Community meeting
    - Sometime in October
        - Amanda will look into recommendations for days in October, preferably after October 21st. Will share at next meeting.

- Meeting to look at projects and how they are prioritized coming out of the report
    - Has to be after the community presentation, we don't do this until the project is finalized. But we'd also want to get our heads around gaps before we share with the whole community.
        - There could be changes post-meeting with the community.

4. Other Business

- Kerri's survey of community flooding would be helpful for the triple bottom line.
    - Still working on how to share it with the city. Kerri can work with Brad on that.

- Where does the decision get made on prioritization after triple bottom line analysis?
    - Pretty much at the same time. You identify the stages, cost estimates, triple bottom line for each stage, and then your prioritize. Will happen after community meeting. Late October, early November.

- Who do we talk to about getting berms raised 1.5 m all along? Still under Francois, but the riparian study. Frank Frigo's project. What comes out of that project, Brad hopes that they would share that information with you. Francois says we'll get another 90% review of that project, which won't be that stage until the Fall.
    - The reality is we'll only get our berms raised once. We have to make sure we're getting the right berm height increase. We're concerned about the inadequacy of the statistical analysis of the river flow analysis. A 1:100 or 1:200 is the right berm level is likely much higher than what we'd have today because of a slope difference. We have to make sure we get the right number. City has bought a lot of temporary berm, and with manpower freed up by automation of gates, we're probably okay with berm height in the short term. Unofficial word is that they have so much that Sunnyside would no doubt get some for our area if the Bow River is high.
    - What the city has done this year, which is new operating procedure, we're doing the most critical places first. Sunnyside is a high priority on that. Sunnyside is in a bowl, it isn't just one or two houses that are affected.

- Charlie thanking city for making exception to policy by dedicating assets to us (6 pumps)

- Question on 2 pumps instead of 4? We don't prefer to buy a bunch of pumps, because it isn't the best use of taxpayers dollars to buy a large amount of pumps and use them once every few years. We buy the ones we'll use a lot, and then have the others rented that can be allocated when they are needed. Like a time share. Pay for them even if you don't need them.
    - 5A station currently has enough pumping to work at capacity. Last year the lift station wasn't on. Now we can manually operate the lift station. Last year some of the pumps that were there weren't operating. Having 24 hour staff on hand will be keeping an eye on pumps to make sure pumps don't run out of gas or water.
    - Field Services crews are greatly considering renting two 10 inch pumps instead of the two six inch pumps that have been purchased for Sunnyside. Those purchased would get moved to Bowness and we'd get the two rented 10 inch pumps in the 47 pump out area. If they do that, they'd be bigger.

Meeting adjourned at 9:00 p.m.