

### **1. What is being considered at the Weir?**

The City of Saskatoon, through its electric utility (Saskatoon Light & Power), is exploring the feasibility of developing a hydropower station at the existing Weir Site in Saskatoon. The hydropower station is one of several renewable electrical generation facilities being proposed along with the Green Energy Park at the Landfill. Green energy is another step toward the City's long term vision to provide alternative energy sources for Saskatoon residents.

Depending on the size and capacity of the proposed hydropower station, the estimated capital cost ranges between \$26.3 and \$57.9 million, with annual revenue projections estimated between \$1.9 and \$5.5 million beginning in year 2016.

### **2. What is the Weir?**

The Weir is a 3.4 metre (11 foot) high, overflow-type dam used to raise the level of the South Saskatchewan River through Saskatoon. It is located near 33<sup>rd</sup> Street and Spadina Crescent, and is a spot well visited by locals and tourists alike. The popularity of the location is due to many factors: the numerous birds that frequent the Site, including the American White Pelican; abundant fishing; walking and jogging paths; and, Weir watching. In 2005, the Site was further enhanced by the award winning re-landscaping on the west bank.

The City of Saskatoon owns the Weir, but there are many agencies that have jurisdiction as to what can or cannot be done with river or riverbank development.

### **3. Why was the Weir built?**

Construction of the Weir began in the late 1930s, in order to provide stable water levels for the City's water needs and to improve river beautification and recreation. It was built with backing from the federal Prairie Farm Rehabilitation Administration (PFRA), and was completed on March 15, 1940. The construction of the Gardiner Dam (near Elbow, SK) in 1967 moderated river flow and further stabilized water levels in and through Saskatoon.

### **4. What are the expected benefits of the proposed hydropower station?**

The expected benefits of the proposed hydropower station are:

- Provide Green Power for the City of Saskatoon – enough to power from 1,600 to 4,800 homes (depending on the development option)
- Provide a significant revenue source for the City of Saskatoon
- Promote the City of Saskatoon as an environmentally conscious and responsible community

- Maintain or improve public safety at the Weir site
- Improve fish migration past the weir
- Maintain the Weir Site as a 'People Place' with continued opportunities for leisure activities and pelican viewing
- Protect the weir infrastructure

#### **5. What studies have been done?**

In 2008, the City engaged Knight Piésold Consulting of Vancouver to conduct a Concept Development and Technical Review for a proposed hydropower station on the South Saskatchewan River at the Weir Site. The objective of this study was to provide sufficient information to allow an informed decision to be made on whether and how to move forward with the initiative.

In 2009, Knight Piésold Consulting conducted pre-feasibility engineering and environmental baseline studies for the proposed hydropower station. The pre-feasibility engineering study involved preliminary design and budgetary cost estimates, energy production assessments, reporting and community engagement. The environmental baseline study documented current conditions within the project study area, and included fisheries, water and sediment quality, birds and mammals, and riverbank vegetation and habitat.

The pre-feasibility report concludes that the proposed hydropower station is technically feasible and economically viable, and recommends further investigation through a full feasibility study and environmental impact assessment.

#### **6. What was the cost of the studies?**

The cost of the studies completed to date is approximately \$463,000. The hydropower station studies have been funded from an approved Saskatoon Light & Power capital project. \$100,000 of this amount was funded from the Saskatchewan Ministry of Tourism, Parks, Culture, and Sport.

#### **7. What is a pre-feasibility study?**

A pre-feasibility study may be conducted before a full feasibility study in order to examine the viability of project. If the prefeasibility study finds that further work on the project is warranted, the work already completed may have resolved some issues. On the other hand, if it is determined that a proposed business idea is not feasible, this can save time and money.

### **8. What is a feasibility study?**

As the name implies, a feasibility study is an analysis of the viability of an idea. The feasibility study focuses on helping answer the essential question of “should we proceed with the proposed project idea?”. All activities of the study are directed toward helping answer this question.

Feasibility studies can be used in many ways but they primarily focus on proposed business ventures. Determining early that a business idea will not work saves time, money and distress.

A feasible business venture is one where the project or business will generate adequate cash-flow and profits, withstand the risks it will encounter, remain viable in the long-term, and meets the goals of the founders.

### **9. Would the proposed hydropower station be safe?**

The proposed hydropower station would be submerged, screened, and secure. In addition, a safety boom (floating safety barrier) would be provided upstream of the Weir to prevent water-craft from approaching too close to the area.

### **10. Would the proposed hydropower station be noisy?**

Noise from the hydropower station would be audible but minimized, because the turbines would be submerged in the water. It is not anticipated that the hydropower station would be audible from the nearest residence.

### **11. What could this mean for the pelicans at the Weir?**

The City has ensured that pelicans, along with all birds and mammals in the area, would be included in the environmental studies.

Pelicans feed at the Weir Site, but they do not nest there. Their nest sites are likely located at New Tern Island in Redberry Lake – a Provincial Wildlife Reserve and Federal Migratory Bird Sanctuary located 68km northwest of Saskatoon.

The proposed redevelopment project at the Weir would enhance fish habitat and migration, and would retain much of the original Weir structure, which is expected to maintain attractive forage conditions for pelicans.

### **12. What could this mean for fish at the Weir?**

Fish migration and habitat would be included in the environmental studies. The existing Weir is a challenge for fish migration as the Weir is impassable going upstream and the existing fish ladders are ineffective. The South Saskatchewan River from Gardiner Dam

to Saskatoon is not particularly good fish habitat, in part because of the effects of the dam.

An improved fish navigation channel has been included in the development concept. Native bed materials would be used in the channel. Root-wads would be artificially installed and native plant species would be planted to mimic natural rest and refuge areas. Flow through the fish bypass channel would be supplied by natural river flow.

### **13. What might the proposed hydropower station look like?**

The hydropower station would house submerged turbines at the Weir. The powerhouse would have a deck surface, with only a portion of the structure visible above the water. An option to increase the height of the Weir would provide for increased power production from the hydropower station. The height increase could be achieved by adding an inflatable rubber dam over a portion of the existing Weir. During heavy flows, the rubber dam would be automatically deflated to allow flood flows to pass over the Weir without affecting the water level upstream.

### **14. What are the next steps?**

Feedback from the June 2010 Public Open House Meetings and the November 2010 Public Information Meeting will be communicated in a report to City Council. The next steps, pending City Council approval, would be to complete a full Feasibility Study and Environmental Impact Assessment. This would include detailed drawings, refined cost estimates and financial analysis, development and construction schedules, geotechnical and other investigations to determine the upstream and downstream effects of the proposed developments, preparation of an environmental impact statement and initiation of the permitting process. The earliest that the facilities could be operational would be the year 2016.

### **15. How will the public be kept informed of progress on this initiative?**

Community Engagement Meetings will be scheduled at all major project milestones. Meetings will be advertised in the Saskatoon StarPhoenix, as well as the Sunday Sun.

Information will also be available on the City of Saskatoon website at [www.saskatoon.ca](http://www.saskatoon.ca).

Feedback received through the Community Engagement Process will be provided to City Council and Senior Administration.

**Contact Information**

**Website:** [www.saskatoon.ca](http://www.saskatoon.ca) (search under 'H' for Hydropower)

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