

Frequently Asked Questions 3rd Street Dam Improvement Project

What is the purpose of the 3rd Street Dam Improvement Project?

The purpose of the project is to reduce the drowning risk and dangerous recirculating currents at the downstream side, also known as a “drowning machine”. During the extensive public input phase of the James River Recreation Area Master Plan back in 2013, fixing the low-head dam to reduce the risk of drowning was a big priority. Previous studies had looked at eliminating the dam and creating a series of tiered boulder walls spread out across a couple hundred feet. This approach however was very costly and affected the water elevations of the stream in the area. It also affected the bridge abutments and clearances of the adjacent 3rd Street Bridge and railroad bridge.

Were details of this project shared with local residents?

Talking with people that utilize and visit the space is an important step in any design process. As a part of the James River Recreation Area Master Plan back in 2013 we had multiple public meetings and design charrettes with not only the general public but also middle school and high school students. We also had a public meeting discussing the study findings and the steps we were going through in September 2016 and April 2017. A community wide poll or survey has not been done, but those that attended to give input at the multiple public input sessions were in favor of eliminating the safety hazard.

Does this project really need to be done?

There have been several public outreach methods utilized in the form of public meetings, comment cards, and design charrettes for the master plan and dam improvements study. Overwhelmingly, everyone agrees that the low-flow dam is a safety issue and has been on the City’s radar for improvement for several years. The 3rd Street Dam has been responsible for loss of life in the past and the goal of the proposed improvements is to avoid future deaths. These types of low head dams have been tagged as “drowning machines” and there has been a nation-wide movement to make improvements to these dams.

How will this project affect fishing?

Citizens had concerns about fishing habitat, but all agreed that the danger of the recirculating water needed to be addressed. As a part of the public outreach for the master plan and the dam study, the area along the river south of the 3rd Street bridge was discussed extensively as a popular fishing location. We want to emphasize that this area of the river south of the 3rd Street bridge will not be affected by the project as all improvements will be contained between the dam and the bridge. Addressing fishing was also discussed; however, due to the presence of the highly invasive Asian carp above and below the dam, constructing a “fish ladder” and tailoring the design to allow a specific fish to pass was not required or needed. Fish habitat will certainly be enhanced by adding large boulders to the stream and constructing a rapid on the downstream side of the dam. These large boulders will provide eddies, pools, and locations of lower velocity water that act as a refuge for fish in the stream. In our discussions with the South Dakota Department of Environment and Natural Resources (SDDENR) about their project on the Big Sioux River near Klondike, they said that the fishing was popular before and even more so after they removed the low head dam and constructed a rapid in its place even though increasing fish habitat was not an objective of the project. The South Dakota Game Fish & Parks (SDGFP) and United States Fish & Wildlife Service (USFWS) have both reviewed the proposed improvements and have determined there will be no “take” or negative impact to protected or endangered species because of the improvements.

Who was hired to conduct the engineering for this project?

Stockwell Engineers, Inc. was hired to complete a study on the 3rd Street Dam and the hazards associated with it. The goal of this study and proposed improvement project was to engineer a cost-effective, long-term solution to eliminate the safety hazard that the low head dam presents while limiting impacts to upstream and downstream segments of the James River. Stockwell is currently just starting the detailed engineering of the design. As a part of the dam improvements project study that was started in 2016, Stockwell surveyed 10 river cross sections immediately around the dam to put together a model of the existing conditions. River conditions change on a minute by minute basis so even those are just a snapshot of the underwater environment. Based on the existing model, they then modeled the proposed improvements (utilizing large boulders on the downstream side of the dam to create a rock rapid) to ensure that there was a no-rise/no-impact on the upstream or downstream water elevations. This is an important step in FEMA and the Army COE approving the proposed improvements. As a part of the study review process, they sent FEMA the model and they looked at it very closely to ensure our numbers and elevations are correct. They came back with minimal changes and approved the proposed conditions model.

Can the City afford to do this project?

We believe this approach is the most economical solution for eliminating the safety hazard of the recirculating water. This has been the focus and driving force behind the design. Construction costs typically rise each year 3-4%, so the costs to do the same work this year will be more next year and so on. The City has been planning for the project and budgeting funds for anticipated construction costs. The decision to proceed with construction of the project now or later will be determined once the design is complete. Detailed engineering is just starting regarding the specifics of the boulder sizes, placement, and tiering of larger and smaller boulders to create “steps” in the rapid. To eliminate the “drowning machine” there are essentially two overall approaches to removing the recirculating water on the downstream side. The first option is completely removing the dam and utilizing stream restoration and series of rock dams to maintain the elevation changes or doing no stream restoration and simply removing half or all of the dam. This can have a dramatic change to the stream ecology at this location and is a costly option. The second option, and this is the approach we are taking with the 3rd Street dam, is leaving the dam in place and creating a rock arch rapid or rock ramp on the downstream side of the dam. This eliminates the recirculating water and creates an aesthetically pleasing community feature. This is the most cost effective and least invasive solution as it leaves the dam in place, maintaining the water elevation above the dam and minimizing the length of disturbance below the dam.

Are there grant funds that could be utilized for this project?

Grant money has certainly been investigated by the City, Stockwell, and the North East Council of Governments (NECOG). There has been a generous \$150,000.00 grant awarded by the James River Water Development District (JRWDD) for the construction of the project and they also paid for half of the costs of the study. Grants for fishing access from SDGFP could be explored; however, that is something that will come after this project is completed and there are not funds available for just the dam improvements. South Dakota Emergency Management does not have grant funds available for this type of project either, their funds are typically applied towards disaster relief such as tornados or wildfires. There is the possibility of applying for federal grant opportunities; however, there is significant effort that will need to go into monitoring and documenting the project both during construction and for many years after. This additional level of effort and monitoring, based on our discussions with the City, is not something that is being pursued at this time.