

Barton Springs Pool Short-term Projects

Updated: July 26, 2010

A. Repair Bypass Culvert

- Description:** Several joints in bypass culvert are failing and several holes have developed in the bypass floor, draining water from the pool and allowing storm water from the bypass to enter the pool and causing further deterioration of bypass structure. In addition, analysis indicates that the structure does not have sufficient safety margins under worst-case conditions.
- Proposed Solution:** Consultant to propose several options for various levels of repair. Additional data will be collected to determine which repair option is the most appropriate.
- Lead Dept.:** Watershed Protection and Development Review
Public Works Department (Dennis Crabill)
- Budget:** \$285,362 (BSP short-term projects fund) / TBD (Watershed Protection funds)
- Status:** Staff and consultants developed four basic options for repairs with several variations on each option and presented these to the public for comment in the late summer through September. A preferred solution has been identified and a number of significant details are being worked out. Acquiring additional data might delay construction. An application has been submitted to the US Army Corps of Engineers to begin acquiring a permit which will include consultation with the US Fish and Wildlife Service. A third-party engineering consultant has evaluated the repair options and has presented their own alternate repair method. Testing has been tentatively scheduled for July 1st to determine the feasibility of the third-party consultant's recommendation. Once data is returned from this test, a decision will be made on the repair method to pursue, as well as the schedule for completing the repair work.

Action:	Anticipated Start Date:	Anticipated Completion Date:
Develop scope / hire consultant	Oct. 2008	Mar. 2009
Design	Jan 2010	May. 2010
Bid phase	TBD	TBD
Construction	TBD	TBD

B. Rehabilitate Bathhouse Phase 1: Roof

- Description:** Historic bathhouse needs repairs and upgrades to meet current health and safety codes and prevent further deterioration.
- Proposed Solution:** Repairs to roof of facility to meet current codes.
- Lead Dept.:** Parks and Recreation (John McKennis)
- Budget:** \$191,000
- Status:** Roofing Contractor is complete with roof system, Window Contractor is complete with all windows, PARD staff and Contractors Reps performed a punch list walk through on 4/28/10 and contractor has completed that punch list, currently working with roofing contractor to address a water leak in the bay window area of splash.

Action:	Anticipated Start Date:	Anticipated Completion Date:
Roofing contractor preparing proposal and preliminary design but CLMD rejected contractor	May 2008	Oct. 2008
Roofing contractor per CLMD approved, contractor designing roofing system and preparing proposal/proposal approved, creating purchase order, RCA approved working with CLMD to get signed contract.	Oct. 2008	Dec. 2009

Action:	Anticipated Start Date:	Anticipated Completion Date:
Permit Roof Project through COA, Texas Historical Commission, and Texas Landmark Commission	Oct. 2009	Dec. 2009
Present Project to Stakeholders	Dec. 2009	Jan. 2010
Sign Contracts to Contactors/ roofing only	Oct. 2009	Dec. 2009
Start Construction of Roof with Mechanical systems to follow scheduled to start in October 2010	Dec. 2009	March 2010
Construction	March 2010	April 2010

C. Rehabilitate Bathhouse Phase 1: Mechanical

Description: Historic bathhouse needs repairs and upgrades to meet current health and safety codes and prevent further deterioration.

Proposed Solution: Repairs to / replacement of mechanical systems and solar water heater system to the facility to meet current codes.

Lead Dept.: Parks and Recreation (John McKennis)

Budget: \$320,000

Status: Currently Encotech has submitted 100% drawings and project manual and project is going out to bid on 7/19/2010, presented project at 90% to stake holder group on 6/3/2010 and joint sub committee on 7/1/2010 . Adjusted schedule to try and incorporate start of Mechanical project along with the flood debris removal project.

Action:	Anticipated Start Date:	Anticipated Completion Date:
Approved Encotech engineering firm to start Preliminary Engineering Report	May 2008	Oct. 2009
Added ADA evaluation of the Bathhouse to scope of work for PER	Oct. 2009	Dec. 2009
Rotation List MEP engineering consultant Encotech start designing HVAC and Solar Water heaters, and ADA evaluation of Bathhouse.	March 2010	May 2010
Bid HVAC, Solar Water Heaters, and ADA renovation	June 2010	July 2010
Permit Project through COA, Texas Historical commission, and Texas Landmark Commission	June 2010	August 2010
Present Project to Stakeholders	June 2010	June 3, 2010
Sign Contracts to Contactors	Sept. 2010	Oct. 2010
Start Construction of Mechanical Systems, Solar Water Heater system and ADA renovations	Oct. 2010	Nov. 20

D. Removal of Flood Debris

Description: Gravel deposited by floods has built up in the deep end of the pool and previous removal effort could only remove material smaller than 6" in diameter and was only moderately successful.

Proposed Solution: Install coffer dam around gravel bar and dewater within. Lower equipment and muck buckets into the dewatered area utilizing a crane. Equipment will load flood debris into the muck buckets. The crane will lift the muck buckets and empty into awaiting dump trucks for hauling to disposal site.

Lead Dept.: Parks and Recreation (Gary Gregson)

Budget: \$905,600

Status: 90% Design was presented to Joint Committee in October. In order to provide a temporary construction path and crane pad for the project, a variance to the SOS Ordinance was obtained. The amendment was approved unanimously by Council on January 14, 2010. Plans at 100% completion. Received General Permit approval. Project began bid process for construction contract on 6/21, with bids opened on 7/15. Bids currently under administrative review. Will work toward September Council date for approval of contract with low bidder.

Action:	Anticipated Start Date:	Anticipated Completion Date:
Contract with Weston Solutions from Public Works rotation list	Oct. 2008	Nov. 2008
Begin design	Dec. 2008	Sep. 2009
Design review at stakeholder/public meeting 30%	Apr. 2009	Apr. 2009
Design review at stakeholder/public meeting 90%	Oct. 2009	
Bid process for construction contract	Summer 2010	Summer 2010
Gravel removal	Fall 2010	Fall 2010

E. Structural Testing of Dams

Description: Insufficient structural information is available on capacity of existing dams.

Proposed Solution: Perform construction materials testing on both existing dams to determine the structural strength of the concrete and the friction between the dam and underlying rock.

Lead Dept.: Parks and Recreation (Gary Gregson)

Budget: \$141,700

Status: Working with WPD staff to develop full scope of work. In late-October, initiated assignment process for structural engineering firm to perform assessment. Met with consultant and staff on November 10 to define scope. Proposal received from consultant on 11/23. Requested revisions to proposal, and revised proposal received 4/20. After receiving proposal, was notified by Rotation List manager that remaining authority for consultants is insufficient. Working with CLMD rotation lists managers to find possible solutions.

Action:	Anticipated Start Date:	Anticipated Completion Date:
Contract with consultant	May 2010	May 2010
Perform structural testing	Aug 2010	Oct 2010
Report results and recommendations	Jan 2011	Jan 2011

F. Interpretive Plan

Description: Pool area needs additional interpretative and educational information to educate visitors on the environmental sensitivity and the historical significance of the site. IP will include a user survey which is intended to gauge public opinions regarding improvements at the pool, as well as establishing other critical user data.

Proposed Solution: Develop interpretive plans for grounds and install new materials, including at south entrance.

Lead Dept.: Parks and Recreation (Clark Hancock)

Budget: \$121,862

Status: **Way-finding and Facility Identification:** Planning stage completed. Implementation being tied to other Barton Springs projects: Bypass repair - tiles and water side installations to be coordinated with Bypass repairs ; Tree Court redesign: working with Watershed on the Springs' information signs next to turnstile, layout and placement is tied to retrofit of Entrance and Tree Court; General Grounds Improvements installations along walkways and around South Gate will be incorporated in the General Grounds Improvement projects. Proceeding on final design, fabrication and installation on signs at Main Entrance : designs to be available for review Aug. 2010; message boards have been replaced with a single unit.

Visitor research: Intercept and on-line surveys completed in May 2010. Final report to be complete Aug. 2010

Information Technology Development: Open meetings focused on methods by which information technologies can be used to provide public information about Springs' operations and heritage to begin fall 2010. The result will be the identification of specific IT projects, required resources, partners, and operational requirements. Currently working with CTM to identify necessary upgrades to Splash exhibit hardware

Beverly S. Sheffield Education Center: Gallery exhibits - Salamander Springs exhibit elements currently under development; Splash!: Exhibit evaluation begins this fall

Future Planning Projects: • Sunken Garden • Eliza Springs • North side activities including the Walk-For-A-Day project and above dam access • South side activities including Heritage Walk • Below dam • Visitor's Center

Action:	Anticipated Start Date:	Anticipated Completion Date:
Wayfinding and Facility identification plan development	Jul. 2008	complete
User survey implementation	May. 2009	complete
User survey data analysis Final report to be complete Aug. 2010	Sep. 2009	Aug 2010
Courtyard plan – short term	Jul. 2008	TBD - in conjunction with Grounds Improvement Project
IT project identification and plan development	Oct. 2009	Dec. 2010
Sunken Garden & Eliza Springs plan	Aug. 2008	TBD
Sheffield Center & bathhouse plan	Jul. 2008	TBD
Southside area plan	Jul. 2008	TBD
Upstream area plan	Jul. 2008	TBD
Wayfinding and Facility identification plan development	Jul. 2008	complete

G. Sunken Gardens Improvements – Phase 1

Description: Parts of the inner walls of this historic structure have collapsed, potentially threatening habitat for the endangered Barton Springs Salamander; other walls are unstable and have numerous holes preventing regulation of spring flows.

Proposed Solution: Renovate existing inner walls and replace as necessary, install an adjustable gate to allow regulation of spring flows to improve habitat management.

Lead Dept.: Watershed Protection and Development Review (Laurie Dries)

Budget: \$278,495

Status: Project on hold pending budget estimate for bypass culvert repair. Habitat restoration within spring pool and stream is ongoing.

Action:	Anticipated Start Date:	Anticipated Completion Date:
Design	On hold	
Construction		

H. General Grounds Improvements

- Electrical Upgrades (including burying overhead power lines and new

lighting)²

- New Pump to Facilitate High-Pressure Pool Cleaning and Irrigation³
- New perimeter fence
- Improvements to "Tree Court" area
- Landscaping Improvements
- Addition of ADA Accessible Route from South Gate to Pool¹

Description: Pool area grounds need improvements: including manageable, drought-tolerant landscaping, a more visually pleasing fence and enhanced access from south side. ¹In addition there is no access from south side for citizens with disabilities; City must be in compliance with Federal ADA regulations.

²Overhead electrical wires create a potentially dangerous situation to pool users if limbs from the numerous aging large trees fall and break a line. There is insufficient electric supply to power all electric cleaning equipment.

³Insufficient water pressure exists to run fire hoses for cleaning deep end of pool.

Proposed Solution: Replace pool fence, plant native grasses in appropriate areas, add seating to facilitate sense of community. ¹Improve existing access ramps and construct path from south gate to pool sidewalk. South access could potentially follow existing tributary drainage on south side, require clearing of invasive species of trees, and fencing new area into pool grounds. Will include means to mitigate inflow to pool from tributary. Possible portable lift or access ramp into pool on south side.

²Bury all electric lines, replace existing light poles and lamps which will increase safety and provide a more aesthetically pleasing environment. Upgrade power supplies to both north and south side of pool so more electric power washers can be used for pool cleaning.

³Install new pump along with associated piping along north side to draw water from pool and connect to existing COA water line to increase water pressure to pool to allow use of multiple fire hoses.

Lead Dept.: Parks and Recreation (Gary Gregson)

Budget: \$1,840,929 + ≈\$400,000 (AE funds)

Status: "Design Charrettes" with Barton Springs stakeholders held on May 3rd and May 17th, June 5th, and July 1st. Official public input period was May 3 through July 2. After conclusion of public input period, consultants began working toward a 30% design, which will be presented and discussed at a Joint Committee meeting (likely October).

Action:	Anticipated Start Date:	Anticipated Completion Date:
Design	May 2010	Oct. 2010
Meet with stakeholders/public for input	May 2010	
30% design review (public)	Oct. 2010	
60% design review (public)	Dec. 2010	
90% design review (public)	Feb. 2011	
Permitting	May 2011	Jun. 2011
Bid process	Jun. 2011	Sep. 2011
Construction	Nov. 2011	Mar. 2012

I. Redesign/Replace Inlet Grate on Bypass Culvert

Description: Current grate clogs easily and this reduces the efficiency of the bypass making flooding of pool more likely.

Proposed Solution: Design new grate that allows small debris to pass through, thereby improving its efficiency.

Lead Dept.: Watershed Protection and Development Review (David Johns)

Budget: \$233,478

Status: Ideal design for inlet grate, upper and lower dam modifications may need to be considered as a unit to provide maximum operational flexibility. This will likely be a part of the bypass culvert repair project. Watershed evaluating if design and construction can be accomplished by staff.

Action:	Anticipated Start Date:	Anticipated Completion Date:
Design	TBD	TBD
Construction	TBD	TBD

J. Hydrodynamic Modeling

- Description:** Impoundment of Barton Springs has altered the natural aquatic ecosystem from a free flowing spring-fed creek to a pond, slowing water velocities in most areas of the Pool. This degrades salamander habitat quality, encourages growth of nuisance algae, and captures sediment. BSP floods during storm events producing greater than 500 cfs of flow upstream of the Pool.
- Proposed Solution:** Conduct physical and/or numeric hydrodynamic modeling of water flow direction and velocity within the Pool with current infrastructure. Model potential modifications to upper and lower dams, including additional gates. Model pool under different spring flow (discharge) conditions, drought to high flows. Model pool water velocities when creek floods top upper dam with and without gates open in lower dam, with new gates in lower dam. Model new gates in upper dam to allow creek flows into Pool.
- Lead Dept.:** Watershed Protection and Development Review
- Budget:** \$250,809
- Status:** WPD staff met with professor at University of Texas at Austin to discuss modeling of pool, expectations, and constraints. Expect to complete scope of services and interlocal agreement in fall 2010.

Action:	Anticipated Start Date:	Anticipated Completion Date:
Scope of services, contracting	November 2010	September 2010
Model creation	Winter 2010	Winter 2011
Testing	Winter 2011	Winter 2012
Recommendations	Summer 2012	Fall 2012

K. Pilot Study for Water Recirculation at Beach

- Description:** Beach area on north bank of pool is designated salamander habitat but has very few salamanders and much nuisance algae appears to originate in this area.
- Proposed Solution:** WPDRD to use existing pump in downstream dam to direct garden hose volumes of water onto small area of beach and document effects on substrate.
- Lead Dept.:** Watershed Protection and Development Review
- Budget:** WPDR Staff
- Status:** Pilot study ran for approximately 3 months before electrical problems shut down the pump. Preliminary results are a dramatic change in bottom conditions, less nuisance algae and sediment in area with increased water velocity (0.3 to 2 ft/second along substrate). Repairs to piping system are complete. Restarted pump Jan 22, however there is still a large amount of leakage from new connection but experiment has still been restarted. Experiment completed and final report completed fall 2009. Final COA review in progress.

Action:	Anticipated Start Date:	Anticipated Completion Date:
Testing	May 2008	Fall 2009
Recommendations	Fall 2009	Summer 2010

L. Pilot Study for Ultrasonic Algae Control

- Description:** Nuisance algae growing in the shallow end of pool produces a slippery surface, it is difficult and time consuming to remove.
- Proposed Solution:** WPDRD and PARD to purchase equipment, which is advertised to kill and prevent the growth of algae. Test in lab to determine possible effects on salamanders and other aquatic life and, if safe, on small area of shallow end of pool to determine effectiveness.
- Lead Dept.:** Watershed Protection and Development Review

Budget: \$5,000 / WPDR Staff

Status: Literature review on prior use and effects of aquatic life and humans completed. Not enough information, yet, on potential harmful effects to aquatic life to test on captive salamanders. Summarizing information needed to determine if the device can be deployed safely, and if it is feasible for the City to conduct studies to obtain the relevant information. Literature review and evaluation, and final report completed in 2009. There are no scientific studies that demonstrate the safety of the device to aquatic wildlife, endangered salamanders and humans. Studies to collect the requisite data would require a fully equipped laboratory, additional full-time staff, and several years to complete. Therefore, use of the device in Barton Springs Pool will not be considered until such information becomes available. We expect to present the results and recommendations to the public in Summer 2010.

Action:	Anticipated Start Date:	Anticipated Completion Date:
Literature review and evaluation	Fall 2008	Winter 2008
Purchasing, as needed	On Hold	
Testing	On Hold	
Recommendations		Summer 2010

M. Pilot Study for Creek Flow

Description: Allowing creek water to flow through the pool area may alter the basic chemistry of the water in habitat area enough to be harmful to salamanders and create conditions favorable to growth of nuisance algae.

Proposed Solution: Conduct a pilot study to determine the effects of creek inflows in the pool; document changes in algal growth and gross community composition in shallow end, and document basic water chemistry in habitat area (specifically dissolved oxygen)

Lead Dept.: Watershed Protection and Development Review

Budget: WPDR Staff

Status: Waiting for sustained flow in Barton Creek at BS Pool. Beginning work on writing a Quality Assurance Project Plan to quantify testing results.

Action:	Anticipated Start Date:	Anticipated Completion Date:
Project design	Spring 2010	Spring 2010
Testing	Summer/Fall 2010	Summer/Fall 2011
Recommendations	Fall/Winter 2011	Spring 2012

N. Topographic Survey

Description: Insufficient topographic data for various modeling and construction projects.

Proposed Solution: Collect new detailed data upstream of pool, inside pool, and at Sunken Gardens for various modeling efforts and grounds improvements.

Lead Dept.: Watershed Protection and Development Review (Ed Peacock)

Budget: \$106,275

Status: Topographic survey data was received by WPDRD staff in late-May. Copy of electronic survey data was submitted to PARD first week of June for review and comment. Survey task will be completed after the gravel bar is removed and the pool bottom resurveyed in the area of the gravel bar.

Action:	Anticipated Start Date:	Anticipated Completion Date:
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Action:	Anticipated Start Date:	Anticipated Completion Date:
Contract with professional land surveyor	Jun. 2008	Oct. 2008
Conduct topographic survey	Nov. 2008	May 2009
Receive survey data		Jun. 2009
QA/QC survey and accept	Jun. 2009	Nov. 2009
Post-gravel removal survey	Winter 2010	Winter 2011
Final acceptance		Winter 2011