

Barton Springs Pool Short-term Projects

Updated: June 16, 2011

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 Department (Johnnie Price) / Public Works Department (Dennis Crabill)

Budget:

	Appropriation	Encumbered	YTD Exp.	ITD Exp.	Obligated	Balance
PARD Funds	\$299,840.00	\$16,740.79	\$45,165.51	\$282,959.68	\$299,700.47	\$139.53
WPD Funds	\$3,111,371.00	\$383,762.00	\$103,937.54	\$159,765.20	\$543,527.20	\$2,567,843.80

Status: A third-party engineering consultant (AECOM) has evaluated the repair options developed by original engineering consultant and has presented their own alternate repair method. Testing was performed in July to determine the feasibility of AECOM's recommendation. AECOM and their subconsultant were on site 7/12 to install three test rock anchors. Data was returned from this test, and a decision will be made on the repair method to pursue, as well as the schedule for completing the repair work. AECOM report on the test anchors was delivered to the City on 8/23 and has been distributed within the City for review with comments due 8/27. AECOM was issued a NTP on 10/01/2010 to begin work on a Preliminary Engineering Report, which has been submitted to City staff and distributed to stakeholders. AECOM has removed all test anchors. Design contract executed w/AECOM. Meeting w/ US Fish and Wildlife Service scheduled for 4/22. Meeting w/AECOM design team scheduled for 4/27. Project schedule update dependent on meeting w/ USFWS.

Action:	Anticipated Start Date:	Estimated Duration:
Develop scope / hire consultant	Oct. 2008	Complete
Design	May 2011	
Bid phase	TBD	
Construction	TBD	

B. Structural Testing of Dams – (COMPLETED)

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:

Appropriation	Encumbered	YTD Exp.	ITD Exp.	Obligated	Balance
\$171,700.00	\$28,640.59	\$126,880.41	\$129,385.41	\$158,026.00	\$13,674.00

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. Worked with CLMD rotation lists managers to gain approval of a variance. Notice to Proceed issued on August 19. Assessment underway. Crack mapping has been completed. Six cores have been

taken through the dams. A preliminary report is due by the end of February, and the final report was submitted on April 18, 2011. **PROJECT IS COMPLETE.**

Action:	Anticipated Start Date:	Estimated Duration::
Contract with consultant	May 2010	Complete
Perform structural testing	Aug 2010	Complete
Report results and recommendations	Feb 2011	Complete

C. Redesign/Replace Inlet Gate 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.: Public Works (Jose Ibarra)

Budget:

Appropriation	Encumbered	YTD Exp.	ITD Exp.	Obligated	Balance
\$219,000.00	\$49,598.14	\$3,961.86	\$3,961.86	\$53,560.00	\$165,440.00

Status: Grant received by Friends of Barton Springs users' group for cost of design and installation of inlet grate. Previously allocated funding will be utilized to cover any cost overruns.

Action:	Anticipated Start Date:	Estimated Duration:
Design	TBD	
Construction	TBD	

D. 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 Department (Ed Peacock)

Budget:

Appropriation	Encumbered	YTD Exp.	ITD Exp.	Obligated	Balance
\$150,000.00	\$0.28	\$0.00	\$119,418.02	\$119,418.30	\$30,581.70

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:	Estimated Duration:
Contract with professional land surveyor	Jun. 2008	Complete
Conduct topographic survey	Nov. 2008	Complete
Receive survey data		
QA/QC survey and accept	Jun. 2009	Complete
Post-gravel removal survey	Fall 2011	
Final acceptance		

E. 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 Department (Laurie Dries)

Budget:

Appropriation	Encumbered	YTD Exp.	ITD Exp.	Obligated	Balance
\$250,809.00	\$8,784.01	\$1,215.99	\$1,215.99	\$10,000.00	\$240,809.00

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 mid-2011.

Action:	Anticipated Start Date:	Estimated Duration:
Scope of services, contracting	Nov. 2010	
Model creation	Fall 2011	
Testing	Winter 2011	
Recommendations	Fall 2013	

F. Removal of Flood Debris – (COMPLETED)

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 into the dewatered area utilizing a crane. Equipment will push flood debris into piles. The crane will lift the debris utilizing a clam-shell bucket and empty into awaiting dump trucks for hauling to disposal site.

Lead Dept.: Parks and Recreation (Gary Gregson)

Budget:

Appropriation	Encumbered	YTD Exp.	ITD Exp.	Obligated	Balance
\$905,600.00	\$31,951.67	\$525,713.17	\$735,216.45	\$767,168.12	\$138,431.88

Status: 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. On September 23rd, City Council approved execution of contract with Quest Civil Constructors our of Phoenix, AZ, to perform the work. Start date could not be confirmed until approvals from US Fish & Wildlife Service and US Army Corps of Engineers had been granted (both received in December 2010). Work began on January 17, and the pool was closed to the public beginning on January 24. The pool reopened on March 12, in time for Spring Break. **PROJECT IS COMPLETE.**

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

G. Rehabilitate Bathhouse Phase 1: Roof – (COMPLETED)

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:

Appropriation	Encumbered	YTD Exp.	ITD Exp.	Obligated	Balance
\$751,875.00	\$94,897.51	\$310,994.71	\$591,224.46	\$686,121.97	\$65,753.03

Status: Permanent repairs were made to the small bay roof system at the back side of the splash exhibit area on 8/26/2010 and roof **PROJECT IS COMPLETE**.

Action:	Anticipated Start Date:	Estimated Duration:
Roofing contractor preparing proposal and preliminary design but CLMD rejected contractor	May 2008	Complete
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	Complete
Permit Roof Project through COA, Texas Historical Commission, and Texas Landmark Commission	Oct. 2009	Complete
Present Project to Stakeholders	Dec. 2009	Complete
Sign Contracts to Contactors/ roofing only	Oct. 2009	Complete
Start Construction of Roof with Mechanical systems to follow scheduled to start in October 2010	Dec. 2009	Complete
Construction	March 2010	Complete

H. 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: See above.

Status: Invitation For Bids (IFB) process is still being reviewed for compliance by the Department of Small and Minority Business Resources (DSMBR) and PARD and Consultant have reviewed the section 00400 for contractor experience. Until compliance plans are approved, a recommendation for the approved contractor cannot move forward for Council approval. There were four contractors that submitted bids. Use of Job Order Contractor to perform work chosen in order to move forward. Beginning of work was scheduled to coincide with Flood Debris Removal project to minimize inconvenience to pool users.

Action:	Anticipated Start Date:	Estimated Duration:
Approved Encotech engineering firm to start Preliminary Engineering Report	May 2008	Complete
Added ADA evaluation of the Bathhouse to scope of work for PER	Oct. 2009	Complete
Rotation List MEP engineering consultant Encotech start designing HVAC and Solar Water heaters, and ADA evaluation of Bathhouse.	Mar. 2010	Complete

Action:	Anticipated Start Date:	Estimated Duration:
Bid HVAC, Solar Water Heaters, and ADA renovation	Jun. 2010	Complete
Permit Project through COA, Texas Historical commission, and Texas Landmark Commission	Jun. 2010	Complete
Present Project to Stakeholders	Jun. 2010	Complete
Sign Contracts to Contactors	Sep. 2010	Complete
Start Construction of Mechanical Systems, Solar Water Heater system and ADA renovations	Jan. 2011	Complete

I. General Grounds Improvements

- Electrical Upgrades (including burying overheard 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:

Appropriation	Encumbered	YTD Exp.	ITD Exp.	Obligated	Balance
\$2,282,807.00	\$200,014.08	\$102,434.68	\$177,603.06	\$377,617.14	\$1,905,189.86

Status: "Design Charrettes" with Barton Springs stakeholders held on May 3rd, 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 was presented and discussed at the November 15th Joint Committee (Parks and Recreation Board / Environmental Board) meeting. The Joint Committee voted to recommend moving forward with a design that would move the south entrance and include an ADA accessible pathway. Additional public input on the "Tree Court" improvements has required the design consultants to significantly revise the plan.

Action:	Anticipated Start Date:	Estimated Duration:
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Action:	Anticipated Start Date:	Estimated Duration:
Design	May 2010	13 months
Meet with stakeholders/public for input	May 2010	2 months
30% design review (public)	Nov. 2010	8 months
60% design review (public)	Aug. 2011	2 months
90% design review (public)	Oct. 2011	1 month
Permitting	Oct. 2011	7 months
Bid process	May 2012	4 months
Construction	Oct. 2012	5-6 months

J. Interpretive Plan

Description: The natural and cultural heritage including the environmental sensitivity and historical significance of Barton Springs needs to be preserved, shared, and celebrated. Appropriate interpretive techniques are to be identified and developed.

Proposed Solution: Interpretive planning of installations, programming, staff and public education for all areas identified in the Barton Springs Master Plan. IP will include: a way-finding and facility identification plan; a user survey which is intended to gauge public opinions regarding improvements at the pool and other critical user data; improvements in information technology capabilities; Barton Springs related exhibit development; appropriate interpretive media development.

Lead Dept.: Parks and Recreation (Clark Hancock)

Budget:

Appropriation	Encumbered	YTD Exp.	ITD Exp.	Obligated	Balance
\$122,000.00	\$10,596.13	\$921.43	\$54,802.03	\$65,398.16	\$56,601.84

Status: **Way-finding and Facility Identification:** Planning stage completed; designs currently being reviewed by PARD staff; implementation being tied to other Barton Springs projects: Bypass repair - tiles and water side installations to be coordinated with Bypass repairs; Tree Court entry, South Entry, and walkway installations being incorporated in General Grounds Improvement,; Replacement ticket office signs for Main entry proceeding on final design, fabrication and installation: message boards have been replaced with a single unit.

Visitor research: Intercept and on-line surveys completed in May 2010. Final report completed Sep. 2010

Information Technology Development: Internal network designs complete. CTM is currently pricing necessary upgrades to Splash exhibit hardware. CTM is to coordinate purchase and installation. Website redesign to begin Fall 2011

Beverly S. Sheffield Education Center: Gallery renovations nearing completion. The Gallery exhibit, *Barton Springs: The Soul of Austin*, development complete and being reviewed by PARD staff. Installation of history components began June 2011 with completion by end of July 2011. Funding for salamander related components currently being identified. *Splash! Exhibit* evaluation began March 2011 and is ongoing.

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

Action:	Anticipated Start Date:	Estimated Duration:
Way-finding and Facility identification plan development	Jul. 2008	complete
Way-finding and Facility identification plan implementation	To be incorporated in other projects	
User survey implementation	May. 2009	complete
User survey data analysis and cumulative report	Sep. 2009	complete
IT Development: Splash internal network upgrade	Jul. 2010	TBD by CTM

Action:	Anticipated Start Date:	Estimated Duration:
IT Development: Website upgrade	Sep. 2011	9 mos.
Sheffield Center: Gallery renovation and exhibit	Aug. 2010	12 mos.
Sheffield Center: Splash! Exhibit evaluation	Jan. 2011	12 mos.
Heritage walk including Sunken Garden plan	Oct. 2011	9 mos
Eliza Springs sign development	Aug. 2011	3 mos.
North side activities including connection to Violet Drown Trail and above dam access; Zilker Park installations; Below dam; Visitor's Center	TBD	TBD

K. 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 Department (Laurie Dries) / Parks and Recreation (Rey Hernandez)

Budget:

Appropriation	Encumbered	YTD Exp.	ITD Exp.	Obligated	Balance
\$278,495.00	\$12,221.43	\$7,732.75	\$7,778.57	\$20,000.00	\$258,495.00

Status: Meeting set for October 13 between PARD and WPD staff to determine how to proceed with project. Staff met with a structural engineering firm from the City's professional services rotation list on December 1st and forwarded the firm a revised scope December 28th. A proposal for the design services is expected by mid-March. 06/16/2011: Proposal received from consultant exceeded remaining authority in the rotation list contract. Proposal had to be rejected. Will proceed with process to acquire another rotation list consultant.

Action:	Anticipated Start Date:	Estimated Duration:
Design	Sep 2011	8 months
Construction	Summer 2012	5 months

L. 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 Department

Budget: WPD 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:	Estimated Duration:
Testing	May 2008	
Recommendations	Fall 2009	

M. 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 Department
- Budget:** \$5,000 / WPD 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:	Estimated Duration:
Literature review and evaluation	Fall 2008	Complete
Recommendations (Device will not be utilized based on literature review)		Complete

N. 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 Department
- Budget:** WPD 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. 06/16/2011: Study will take place during work to repair bypass culvert.

Action:	Anticipated Start Date:	Estimated Duration:
Project design	Spring 2010	
Testing	Early to mid 2012	
Recommendations	Fall 2012	

Fund	Appropriation	Encumbered	YTD Exp.	ITD Exp.	Obligated	Balance
Contingency	\$647,379.00	\$0.00	\$131.00	\$64,616.53	\$64,616.53	\$582,762.47
Bypass Inlet Grate	\$219,000.00	\$49,598.14	\$3,961.86	\$3,961.86	\$53,560.00	\$165,440.00
Algae Management	\$313,495.00	\$0.00	\$2,350.00	\$2,350.00	\$2,350.00	\$311,145.00
Sunken Gardens Rehab (Phase 1)	\$278,495.00	\$12,221.43	\$7,732.75	\$7,778.57	\$20,000.00	\$258,495.00
Structural Testing Of Dams	\$171,700.00	\$28,640.59	\$126,880.41	\$129,385.41	\$158,026.00	\$13,674.00
General Grounds Improvements	\$2,282,807.00	\$200,014.08	\$102,434.68	\$177,603.06	\$377,617.14	\$1,905,189.86
Barton Springs Pool Aipp	\$35,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35,000.00
Bypass Tunnel Renovations	\$299,840.00	\$16,740.79	\$45,165.51	\$282,959.68	\$299,700.47	\$139.53
Topographic Survey	\$150,000.00	\$0.28	\$0.00	\$119,418.02	\$119,418.30	\$30,581.70
Roof / Mechanical	\$751,875.00	\$94,897.51	\$310,994.71	\$591,224.46	\$686,121.97	\$65,753.03
Flood Debris Removal	\$905,600.00	\$31,951.67	\$525,713.17	\$735,216.45	\$767,168.12	\$138,431.88
Interpretative Plan	\$122,000.00	\$10,596.13	\$921.43	\$54,802.03	\$65,398.16	\$56,601.84
Tree Assessment	\$272,000.00	\$0.00	\$0.00	\$84,473.11	\$84,473.11	\$187,526.89
Hydrodynamic Modeling	\$250,809.00	\$8,784.01	\$1,215.99	\$1,215.99	\$10,000.00	\$240,809.00
TOTALS	\$6,700,000.00	\$453,444.63	\$1,127,501.51	\$2,255,005.17	\$2,708,449.80	\$3,991,550.20
Watershed Protection Funds:						
Barton Springs Bypass (WPD)	\$3,111,371.00	\$383,762.00	\$103,937.54	\$159,765.20	\$543,527.20	\$2,567,843.80