

# Barton Springs Pool Short-term Projects

June 24, 2014

## A. Repair Bypass Culvert – (COMPLETED)

**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:** Add rock anchors to increase stability. Add an additional six inches of concrete to floor and sides of tunnel to seal leakage and increase stability.

**Lead Dept.:** Watershed Protection Department (Johnnie Price) / Public Works Department (Dennis Crabill)

**Budget:**

	Appropriation	Encumbered	YTD Exp.	ITD Exp.	Obligated	Balance
PARD Funds	\$691,963.00	\$5,033.27	\$584.67	\$636,585.72	\$641,618.99	\$50,343.06
WPD Funds	\$3,731,371.0	\$72,471.09	\$14,032.62	\$3,650,833.61	\$3,723,304.70	\$8,066.30

**Status:** Project was substantially complete as of March 29, 2013, and pool was reopened to the public on March 30<sup>th</sup>.

Action:	Anticipated Start Date:	Estimated Duration:
Develop scope / hire consultant	Oct. 2008	Complete
Design	May 2011	Complete
Bid phase	May 2012	Complete
Construction	Oct. 2012	Complete

## 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
\$137,801.00	\$0.00	\$0.00	\$137,800.79	\$137,800.79	\$0.21

**Status:** The final report was submitted on April 18, 2011. Assessment found that the dams are in good condition, however, it identified two cracks (approx. 15 ft. long), and recommended injecting an epoxy or cementitious grout to seal them to prevent further deterioration. The repair of the cracks was added to the scope of the bypass culvert repair project, which was completed in April 2013. **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 – (COMPLETED)

**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
PARD Budget:	\$311,445.00	\$0.00	\$1,341.89	\$311,444.15	\$311,444.15	\$0.85

**Status:** New inlet grate and outlet gate were installed and project is complete.

Action:	Anticipated Start Date:	Estimated Duration:
Design	May 2011	Complete
Construction	October 2012	Complete

### D. Topographic Survey – (COMPLETED)

**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
	\$138,296.00	\$0.00	\$0.00	\$138,295.52	\$138,295.52	\$0.48

**Status:** Topographic survey data was received by WPDRD staff in late-May 2009. Copy of electronic survey data was submitted to PARD first week of June for review and comment. Survey task was completed after the flood debris was removed and the pool bottom resurveyed in the southeast corner of the pool. Project completed in early 2012.

Action:	Anticipated Start Date:	Estimated Duration:
Contract with professional land surveyor	Jun. 2008	Complete
Conduct topographic survey	Nov. 2008	Complete
Post-gravel removal survey	Fall 2011	Complete

### 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 (Nate Bendik)

**Budget:**

	Appropriation	Encumbered	YTD Exp.	ITD Exp.	Obligated	Balance
	\$310,809.00	\$94,000.89	\$3,855.00	\$102,402.03	\$196,402.92	\$114,406.08

**Status:** Council voted 08/25 to authorize Interlocal Agreement with The University of Texas (UT) to perform modeling study. Received final signed agreement from Law Dept. on 09/06/11. Data collection began in spring of 2012 but was delayed beginning in October 2012 due to the Bypass Tunnel Repair Project. Data collection resumed in June 2013. Model creation is set to occur during the fall 2013 and spring 2014 semesters, with testing to follow. UT has requested a one-year contract extension to complete the model due to delays in completing data gathering because of the bypass repair project and because of student turnover. COA will attempt to extend contract until August 31, 2015.

Action:	Anticipated Start Date:	Estimated Duration:
Scope of services, contracting	Nov. 2011	
Data Collection	Summer 2012	Summer 2013
Model creation	Fall 2013	1 years
Testing	Fall 2014	1 year
Recommendations	Fall 2014	1 year

## 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
\$756,418	\$15,526.00	\$0.00	\$740,891.05	\$756,417.05	\$0.95

**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 23<sup>rd</sup>, City Council approved execution of contract. Work began on January 17, 2011 and the pool was closed to the public beginning on January 24. Approximately 600 tons of debris was removed from the pool. The pool reopened on March 12, 2011, 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	January 2011	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
\$766,404	\$0.00	\$62.87	\$766,403.65	\$766,403.65	\$0.35

**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.**

<b>Action:</b>	<b>Anticipated Start Date:</b>	<b>Estimated Duration:</b>
Roofing contractor preparing proposal and preliminary design but CLMD rejected contactor	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 – (COMPLETED)**

**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:** Project was completed in early 2011.

<b>Action:</b>	<b>Anticipated Start Date:</b>	<b>Estimated Duration:</b>
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
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 overhead power lines and new lighting)<sup>2</sup>
- New Pump to Facilitate High-Pressure Pool Cleaning and Irrigation<sup>3</sup>
- New perimeter fence
- Improvements to "Tree Court" area
- Landscaping Improvements

- Improvements to South Gravel Parking Lot Drainage<sup>4</sup>
- Addition of ADA Accessible Route from South Gate to Pool<sup>1</sup>

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

<sup>2</sup>Overhead 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.

<sup>3</sup>Insufficient 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. <sup>1</sup>Improve 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.

<sup>2</sup>Bury 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.

<sup>3</sup>Install 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.

<sup>4</sup>Runoff from the south gravel parking lot, which currently runs to the Barton Springs Pool in heavy rain conditions, will be diverted to a vegetated area for infiltration. This runoff is to be diverted with the new proposed trail that will run parallel to the new parameter fence for the pool. The infiltration area includes approximately 17,000 square feet of existing vegetated area that will be remediated to improve soil infiltration and revegetated

**Lead Dept.:** Public Works (Robin Camp) / Parks and Recreation (Tom Nelson and Gary Gregson)

**Budget:**

**PARD Funds:**

Appropriation	Encumbered	YTD Exp.	ITD Exp.	Obligated	Balance
\$3,976,416.00	\$122,175.48	\$305,179.29	\$717,878.36	\$840,053.84	\$3,136,362.16

**Status:** After a three-year design phase with voluminous public input, project has received a Site Development Permit, was bid for construction contracts, and a construction contract has been executed. Construction is scheduled to begin in mid-October of 2013, and is scheduled to be completed in June of 2014.

Action:	Anticipated Start Date:	Estimated Duration:
Design	May 2010	36 months
Meet with stakeholders/public for input	May 2010	2 months
Permitting	Mar. 2012	16 months
Bid process	Jun. 2013	4 months
Construction	Oct. 2013	8 months

## J. Tree Assessment – (COMPLETED)

**Description:** The trees at Barton Springs are in distress due primarily to compacted soil resulting from high pedestrian traffic. The distress has been compounded by record droughts.

**Proposed Solution:** Perform comprehensive assessments of the forty-six most questionable heritage-sized trees in the vicinity of Barton Springs Pool. Assessments to include foliar analysis, soil analysis, radar tomography of tree trunks, and other advanced analyses.

**Lead Dept.:** Parks and Recreation (Gary Gregson / Walter Passmore)

**Budget:**

Appropriation	Encumbered	YTD Exp.	ITD Exp.	Obligated	Balance
\$95,476.00	\$0.00	\$0.00	\$95,475.21	\$95,475.21	\$0.79

**Status:**

April 2009 Assessment report from Davey Resource Group recommended removal of 22 of the 46 trees assessed. PARD's Urban Forestry Program recommended removal of an additional 7 trees. After gaining passionate citizen feedback, only the most critical seven trees have been removed. Additional plantings will be part of the General Grounds Improvements project scheduled for construction in the fall/winter of 2013.

Action:	Anticipated Start Date:	Anticipated Completion Date:
Professional assessment of 46 critical heritage trees	Winter 2008	April 2009
Tree planting aspects of General Grounds Improvements project.	Fall 2013	Spring 2014

**K. 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
\$83,606	\$0.00	\$91.27	\$83,605.28	\$83,605.28	\$0.72

**Status:**

**Way-finding and Facility Identification:** Planning stage completed; designs approved by PARD staff Aug. 2011; fabrication for main entry and ticket office signs underway with target installation early 2012. implementation of other signs 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,; 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:** Upgrades to Splash exhibit computer hardware completed oct. 2011 Website redesign to begin Jan. 2012

**Beverly S. Sheffield Education Center:** Gallery renovations nearing completion. The Gallery exhibit, *Barton Springs: The Soul of Austin*, development complete and reviewed by PARD staff. Installation of history components to be completed Nov. 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	complete
IT Development: Website upgrade	Jan. 2012	9 mos.

Action:	Anticipated Start Date:	Estimated Duration:
Sheffield Center: Gallery renovation and exhibit	Aug. 2010	15 mos.
Sheffield Center: Splash! Exhibit evaluation	Jan. 2011	15 mos.
Heritage walk including Sunken Garden plan	Jan. 2012	9 mos
Eliza Springs sign development	Jan 2012	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

## L. Sunken Gardens Improvements – Phase 1

**Description:** After receiving a Preliminary Engineering Report, it was determined that installing an operable gate at the spring vessel outflow would be ineffective and overly costly. Scope has been revised to make improvements to the spring run to slow water velocity and create a more suitable habitat for the endangered salamanders.

**Proposed Solution:** Widen and lengthen spring run and strategically place boulders to slow water velocity, thereby creating a more suitable salamander habitat.

**Lead Dept.:** Watershed Protection Department (Nate Bendik) / Parks and Recreation Department (Gary Gregson)

**Budget:**

Appropriation	Encumbered	YTD Exp.	ITD Exp.	Obligated	Balance
\$278,495	\$62,585.32	\$51,587.11	\$73,769.97	\$136,355.29	\$142,139.71

**Status:** Design consultants working on revised proposal to adjust to new scope. Expect design work to begin in July of 2014.

Action:	Anticipated Start Date:	Estimated Duration:
Design	Jul. 2014	8 months
Construction	Fall 2015	6 months

## M. Pilot Study for Water Recirculation at Beach – (COMPLETED)

**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	

## N. Pilot Study for Ultrasonic Algae Control – (COMPLETED)

**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.

<b>Action:</b>	<b>Anticipated Start Date:</b>	<b>Estimated Duration:</b>
Literature review and evaluation	Fall 2008	Complete
Recommendations (Device will not be utilized based on literature review)		Complete