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The City of San Marcos and Texas State University will implement a program to protect water quality and reduce the impacts of urbanization based upon the LID/BMP practices. Urban land development tends to increase the intensity of storm water flows and the amount of nonpoint source (NPS) pollution reaching local water resources. Buildings, roads, and other impervious surfaces shed rain more rapidly than areas covered by vegetation, and most typical urban land uses require rapid drainage of storm water. The very rapid, direct connection of developed land across paved surfaces and through drainage conveyances to waterways tends to carry more pollutants more quickly from the land surface to water resources. A number of water quality problems and impairments in Texas are attributed in full or in part to such urban storm water runoff carried through storm sewers and channelized streams. The science committee stated this measure was one of great importance to the success of the EAHCP for listed species protection (May 9, 2013). Addressing water quality is critical to protection of the listed species in a rapidly developing environment.

#### **Long-term Objective:**

Implement a program that minimizes the impacts associated with urbanization and changes in land use/cover in the Upper San Marcos watershed, manages stormwater as close to its source as possible, treats stormwater as a resource rather than a waste product, emphasizes conservation and the use of on-site features to protect water quality, and increases infiltration to groundwater and aquifer recharge for the protection of riverine integrity.

#### **Target for 2017:**

Implement the Water Quality Protection Plan (WQPP) for Texas State University and City of San Marcos incorporating all jurisdictional watershed areas that directly or indirectly impact Covered Species' critical habitat for the purpose of meeting the goals stated in the long-term objective. Includes public education, staff integration, potential changes to the City's Land Development Code and Stormwater Technical Criteria Manual, potential changes to the University's Master Plan and Construction Standards, designs for retrofit water quality projects, grant proposals, land conservation program and coordination with ongoing stormwater management plans for city and university.

#### **Methods:**

City of San Marcos and Texas State University have a contract for the implementation of the developed plan.

#### **Budget:**

Table 7.1:  
\$200,000

Estimated 2017 budget:  
\$150,000

\*\$50,000 will be transferred to Non-native Plant Removal

### **5.7.5 Management of Household Hazardous Waste**

The City of San Marcos will maintain a Household Hazardous Waste (HHW) program that involves the periodic collection of Household Hazardous Waste Collection (HHWC) and its disposal.

#### **Long-term Objective:**

Continue to provide a place for citizens of San Marcos and Hays County to safely dispose of HHW.

*Assumptions:* City of San Marcos will continue its existing program.

#### **Target 2017:**

Continue outreach and target 2750 participants for public outreach events. Staff will conduct these events and collect or dispose of the HHW between events. Fund outreach to surrounding communities within the San Marcos River watershed that cannot afford to partner in a HHWC program.

#### **Methods:**

Open drop-off opportunities two days a week (Tuesday and Friday) from 12:00 noon to 3:30 p.m. to the public. Conduct HHWC events 1 to 2 times per year on a Saturday in north central Hays County. Cover disposal costs for these events.

#### **Monitoring:**

Track the amount of HHW received and number of participants from San Marcos, Hays County, and surrounding communities. All necessary documentation will be turned in to TCEQ. Identify the HHW that comes from communities within the San Marcos River watershed and the cost of collecting, processing and disposing of HHW from these communities.

#### **Budget:**

Table 7.1:

\$30,000

Estimated 2017 budget:

\$30,000

### **5.3.4 Prohibition of Hazardous Materials Transport Across the San Marcos River and Its Tributaries**

The City of San Marcos will coordinate with the Texas Department of Transportation to designate hazardous materials routes which minimize the potential for spills into the San Marcos River. This effort will include legislation, if necessary, and additional signage.

#### **Long-term Objective:**

Reduce the potential of spill of hazardous materials in the San Marcos River and its tributaries.

*Assumptions:* The primary effort will involve stakeholder engagement, public meetings, and coordination with TXDOT.

#### **Target for 2017:**

Coordination with TxDOT for the implementation of hazardous materials restrictions and establishment of signage. Contact New Braunfels office for more rapid implementation.

#### **Methods:**

Complete checklist provided by TxDOT to establish a hazmat route that all transport routes that cross the San Marcos River and its primary tributaries.

#### **Monitoring:**

Bi-annual monitoring of hazmat traps on designated roadways to determine functionality and annual monitoring of all installed signage will be accomplished. Substandard conditions will be repaired or replaced as necessary.

#### **Budget:**

Table 7.1:

\$0

Estimated 2017 budget:

\$0

### **5.7.3 Septic System Registration and Permitting Program**

The City of San Marcos will undertake an aerobic and anaerobic septic system registration, evaluation, and permitting program to prevent subsurface pollutant loadings from potentially being introduced to the San Marcos Springs ecosystem within city limits.

#### **Long Term Objective:**

To continue the registration, permitting and inspection of all new or existing septic systems installed or modified in the City of San Marcos jurisdiction. This has and will continue to be done to ensure compliance of all Texas Commission on Environmental Quality (TCEQ) regulations governing septic systems.

*Assumptions:* The existing program is adequate to meet the intent of this Measure.

#### **Target for 2017:**

To have an accurate record of new and existing septic systems installed and modified in city jurisdiction. Also, by ordinance, to have all owners of septic systems connect to municipal sewer lines as they become available.

#### **Methods:**

It is required by law that all septic systems are permitted by the local Designated Representative (DR), which is the City of San Marcos Environmental Health Department. Plans are submitted with the application and reviewed by the DR for TCEQ compliance. Once these are met, the permit to construct is issued. The design, site evaluation, installation and inspections can only be performed by individual that are licensed by TCEQ. Before the installation or modification is approved, inspections are made by the DR to ensure that the system installed corresponds with the design. Once completed, a license to operate is issued to the property owner by the DR. All DRs are subject to TCEQ Compliance Reviews.

#### **Monitoring:**

The City of San Marcos Environmental Health Department reviews all applications and inspects the installations of all new and modified septic systems within the City's jurisdiction. The Department also monitors maintenance and responds to all complaints reported or observed.

#### **Budget:**

Table 7.1:

\$0

Estimated Budget:

\$0

#### **5.7.4 Minimizing Impacts of Contaminated Runoff**

The City of San Marcos will construct two sedimentation ponds along the river to help reduce the amount of contaminated material that enters the river as a result of rain events. The first pond will be located in Veramendi Park beside Hopkins Street Bridge. The second pond will be created by widening the drainage ditches that run alongside Hopkins Street and cut directly to the San Marcos River.

##### **Long-term Objective:**

Reduce the input of sediment and roadway pollutants into the San Marcos River.

*Assumptions:* Construction of the proposed sediment retention ponds are funded under Measure 5.7.6.

##### **Target for 2017:**

Continue to research funding sources for the design and construction of the Best Management Practices (BMPs) to be constructed at Veramendi Park and along Hopkins Street that will reduce total suspended solids (TSS) by 85%. Baseline water quality measurements should be taken prior to BMP installation. Storm water discharge should be re-sampled after BMP installation to measure success.

##### **Methods:**

A contractor will research applicable BMP designs and recommend the most economic and efficient methods to control contaminants.

##### **Budget:**

Table 7.1:

\$0

Estimated 2017 budget:

\*See Measure 5.7.6

### 5.4.5 Diversion of Surface Water

Texas State University will curtail its permitted surface water diversions as a function of total San Marcos spring flow to protect the aquatic resources as specified under the HCP flow management strategy. Under TCEQ Certificates 18-3865 and 18-3866, Texas State University's total diversion rate from the headwaters of the San Marcos River for consumptive use is limited to 8.1 cfs (See HCP Section 2.5.5). The total diversion rate from Spring Lake is limited to 4.88 cfs; the total diversion rate from the San Marcos River at Sewell Park is limited to 3.22 cfs (See HCP Section 2.5.5.1 and 2.5.5.2 respectively).

**Long-term Objective:**

Meet diversion restrictions specified under the HCP.

**Target for 2017:**

Restriction of surface pumping as specified under the HCP.

**Methods:**

To minimize the impacts of these diversions, when flow at the USGS gauge at the University Bridge reaches 80 cfs, Texas State University will reduce the total rate of surface water diversion by 2 cfs, *i.e.*, to a total of approximately 6.1 cfs. This reduction in pumping will occur at the pump just below Spring Lake Dam in order to maximize the benefits to salamanders, Texas wild-rice, and other aquatic resources in the San Marcos River below Spring Lake Dam. The University will reduce the total rate of surface water diversion by an additional 2 cfs when the USGS gauge reaches 60 cfs. The additional 2 cfs reduction will be made from the pumps located in the slough arm of Spring Lake, and, therefore, maximize the benefits to the aquatic resources within the main stem San Marcos River below Spring Lake Dam. When the USGS gauge reaches 49 cfs, Texas State University will reduce the total diversion rate to 1 cfs. This further reduction will be made by restricting the pumps located in the Sewell Park reach. The diversion of water will be suspended when the springflow reaches 45 cfs.

**Monitoring:**

Pumping rates will be reported on a daily basis when any of the pumping restrictions are in force.

**Budget:**

Table 7.1:

\$0

Estimated 2017 budget:

\$0

### **5.4.7 Diving Classes in Spring Lake**

Access to Spring Lake is strictly controlled and regulated in accordance to federal, state and local laws. City ordinance and state law designate the public waters of Spring Lake as restricted to activities authorized by the University. All diving activities in Spring Lake are governed by the Spring Lake Management Plan.

#### **Long-term Objective:**

Maintain the integrity of the ecology and cultural resources within Spring Lake.

*Assumptions:* All diving activities in Spring Lake are governed by the Spring Lake Management Plan.

#### **Target for 2017:**

Implement the diving protocols as outlined in the Spring Lake Management Plan and the Edwards Aquifer HCP Incidental Take Plan.

#### **Methods:**

The Diving Safety Officer will monitor all diving activities in Spring Lake, assuring all guidelines contained in the Diving Safety Manual for Spring Lake and the EAHCP ITP are observed.

#### **Monitoring:**

The Lake Manager, with assistance from the Diving Safety Officer, will compile an annual summary of diving activities conducted in Spring Lake and provide to the Diving Control Board for its review.

#### **Budget:**

Table 7.1:

\$0

Estimated 2017 budget:

\$0

### 5.4.8 Research Programs in Spring Lake

Access to Spring Lake is strictly controlled and regulated in accordance to federal, state and local laws. City ordinance and state law designate the public waters of Spring Lake as restricted to activities authorized by the University. Proposals for research projects in Spring Lake must be submitted to the Environmental Review Committee, through the Lake Manager, for review and approval.

#### **Long-term Objective:**

Maintain the integrity of the ecology and cultural resources within Spring Lake. All research activities in Spring Lake are governed by the Spring Lake Management Plan.

#### **Target for 2017:**

Implement the protocols for research as specified in the Spring Lake Management Plan and the EAHCP ITP.

#### **Methods:**

Proposals for research projects in Spring Lake must be submitted to the Environmental Review Committee, through the Lake Manager, for review and approval.

Proposals for research projects must be submitted in writing and include:

1. Name and contact information of the responsible party conducting the research,
2. Purpose and expected outcomes of the activities, including a description of how the project contributes to science,
3. Description of activities, including, if appropriate, measures to be taken to minimize any impact on endangered species or their habitat, or any cultural resources found in the lake,
4. Methodology, including literature review,
5. Type of equipment used, how much; where it will be placed, and for how long it will remain in lake (see Equipment in Lake Section E of the Spring Lake Management Plan)
6. Expected impact, and
7. Timeline of Project

#### **Monitoring:**

The Lake Manager will compile an annual summary of the research conducted in the lake, including statements on the impact of these activities on the health of the lake.

#### **Budget:**

Table 7.1

\$0

Estimated 2017 budget:

\$0



### 5.4.10 Boating in Spring Lake and Sewell Park

Access to Spring Lake is strictly controlled and regulated in accordance to federal, state and local laws. City ordinance and state law designate the public waters of Spring Lake as restricted to activities authorized by the University. All activities involving access to the lake, including glass bottom boat operations, will abide by the rules and intentions of the Edwards Aquifer Recovery Implementation Program Habitat Conservation Plan.

#### **Long-term Objective:**

Maintain the integrity of the ecology and cultural resources within Spring Lake and San Marcos River. All boating activities in Spring Lake are governed by the Spring Lake Management Plan and the EAHCP ITP.

#### **Target for 2017:**

Implement the protocols for boating as specified in the Spring Lake Management Plan in support of the EAHCP ITP.

#### **Methods:**

Boats (canoe, kayak) used for educational activities, excluding glass bottom boats:

1. All boats must be properly washed/disinfected before being placed in lake and once they are removed (see Equipment in Lake in the Spring Lake Management Plan).
2. Participants must receive an orientation prior to boating including: instruction on safety, basic boat handling, and on-site rules and regulations. The orientation will cover information specific to Spring Lake's sensitivity and endangered species.
3. All boating events must be designed to keep participants away from glass bottom boat operations.

To minimize the impacts of boating on the Covered Species' habitat in Sewell Park, canoeing/kayaking classes in Sewell Park will be confined to the region between Sewell Park and Rio Vista dam. Students will enter/exit canoes/kayaks at specified access points to avoid impacting the flora and fauna along the bank. Classes will be no longer than two hours and up to three classes will be held per day. Classes will have a maximum of 20 students in 10 canoes. All classes will be supervised.

#### **Monitoring:**

The Lake Manager will compile an annual summary of boating activities conducted on the lake, including statements on the impact of these activities on the health of the lake.

#### **Budget:**

Table 7.1:

\$0

Estimated 2017 budget:

\$0

### 5.4.9 Management of Athletic Fields and Grounds

Texas State University will complete a golf course management plan that will document current practices and include an Integrated Pest Management Plan (IPMP). The golf course management plan and IPMP will incorporate environmentally sensitive techniques to minimize chemical application, improve water quality, and reduce negative effects to the ecosystem. Expanded water quality sampling targeted at Golf Course operations will be conducted as described in Section of 5.7.2. of the HCP. The golf course is transforming to athletic fields. The IPMP will be used for these fields.

#### **Long-term Objective:**

Management of the grounds to minimize and reduce negative effects to aquatic ecosystem in Spring Lake and the San Marcos River.

#### **Target for 2017:**

Continued implementation of the Golf Course Management Plan and Integrated Pest Management Plan, but modify to fit the new field functions.

#### **Methods:**

The grounds will be maintained in an aesthetically pleasing, yet environmentally sensitive manner. It is the responsibility of the Manager to maintain the course and grounds in accordance with the Integrative Pest Management Plan (IPM). This plan will describe the activities and materials to be used to control pests (i.e. insects, weeds, and other living organisms requiring control) on the golf course in a way that minimally impacts the environment. The IPM will be developed and updated by the Manager, in consultation with the Lake Manager and the Environmental Review Committee. The Manager will consult with the Lake Manager on any unique situation that may arise outside of routine maintenance that could impact Spring Lake.

#### **Monitoring:**

Each year the Manager will report to the Lake Manager detailed information on maintenance activities and materials used during the year. The water quality monitoring program performed by the Edwards Aquifer Authority will sample for runoff from the fields.

#### **Budget:**

Table 7.1:

\$0

Estimated 2017 budget:

\$0

### **Protocol for Implementation of HCP Measures Requiring Diving and/or Boating**

All activities in Spring Lake must be submitted to the Spring Lake Environmental Review Committee and/or the Spring Lake Diving Control Board for approval as outlined in the Spring Lake Management Plan. This includes required training and orientation for any diving based activities in Spring Lake by the RSI Diving Safety Officer, using guidelines set out in the RSI Diving Safety Manual for Spring Lake and the San Marcos River. This includes an orientation that covers: instruction on safety, basic boat handling, and on-site rules and regulations. The orientation will cover information specific to Spring Lake's sensitivity, endangered species as well as cultural resources.

All personnel implementing any portion of the HCP for the City of San Marcos and Texas State University will undergo an orientation at the SMARC to ensure awareness of the listed species and safe procedures while working in and along the San Marcos River.