

Cypress Creek 3 Year Implementation Budget and Scope of Work Summary*

*Budget category expenditures and minor changes to tasks can be expected and will be reported.

1. Summary (\$804,843 from TCEQ/EPA, \$536,562 matching funds)

Category	TCEQ Reimbursable Portion (Federal)	Grantee Match Portion (Non-Federal)	Total
a. Personnel (MCWE, contractors and possibly City staff)	\$319,322	\$24,349	\$343,671
b. Fringe Benefits (MCWE, contractors and possibly City staff)	\$93,607	\$7,305	\$100,912
c. Travel (for City, County staff to attend meetings)	\$ 3,228	\$ 0	\$ 3,228
d. Supplies (MCWE and Executive Committee)	\$15,245	\$440	\$15,685
e. Equipment (Rainwater Harvesting, etc)	\$105,800	\$7,200	\$113,000
f. Contractual (Decision Support System)	\$ 60,000	\$ 0	\$ 60,000
g. Construction	\$ 0	\$ 0	\$ 0
h. Other – Professional Services (Stormwater assessment, ordinance review, fast track process)	\$121,027	\$ 130,730	\$251,757
i. Subtotal: Total Direct Costs (sum a-h)	\$718,229	\$170,024	\$888,253
j. Indirect Costs	\$86,614	\$194,439	\$281,053
k. Other In-kind/ Third Party		\$172,099	\$172,099
l. Total Project Costs (sum i, j, & k)	\$804,843	\$536,562	\$1,341,405



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2. TCEQ Reimbursable Project Costs

Category	Total Amount
Personnel and contractors	\$319,322
Fringe Benefits	\$93,607
Travel	\$ 3,228
Supplies	\$ 15,245
Equipment	\$ 105,800
Contractual	\$ 60,000
Construction	\$ 0
Other – Professional Services	\$121,027
Indirect Costs	\$ 86,614
Total	\$ 804,843

3. Matching, In-Kind Project Costs (approximate values)

Category	Total Amount	Justification (itemized expenses)
Personnel	\$ 24,349	1. Associate Director, 4.6912% time/year for 3 years, Annual salary: \$94,860 = \$13,350 2. Chief Science Officer, 3.1982% time/year for 3 years, Annual salary: \$114,639 = \$10,999



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Fringe Benefits	\$7,305	30% of salary allocated for (over 3 years): 1. Associate Director – \$4,005 (at 30% Fringe Rate of \$13,350) 2. Chief Science Officer – \$3300 (at 30% Fringe Rate of \$10,999)
Travel	\$ 0	n/a
Supplies	\$ 440	\$120 printing supplies, WVWA; \$320 printing and office supplies, TXSTATE
Equipment	\$ 7,200	40% cost of the total cost (\$18,000) for the equipment for rainwater harvesting cisterns and gutters at site #4 Wimberley Community Center. Match is provided by City of Wimberley.
Contractual	\$ 0	n/a
Construction	\$ 0	n/a
Other – Professional Services	\$130, 730	1. GBRA funding of operation, maintenance of USGS/GBRA Water Quality Gage at Jacobs Well \$80,730 (no federal funds committed) 2. In-kind contribution toward implementation of Comprehensive NPS Assessment via ongoing and planned city efforts, City of Woodcreek \$20,000 3. Contribution toward cost of Comprehensive NPS Collaboration/Assessment, Hays County \$20,000 4. Additional hours worked toward Ordinance Review, Alan Plummer Associates, Inc. \$5,000 5. TNC contribution of labor toward working with private landowners to install BMPs \$5000
Indirect	\$ 194,439	Texas State will provide \$194,439 of the unrecovered indirect costs as match for this project. The source of the non-federal Indirect Cost Match is the 34.5% unrecovered indirect costs. The unrecovered indirect cost is the difference between TCEQ's allowable Indirect Cost Recovery rate of 15% and Texas State University's Federally Approved Rate of 49.5%. The indirect cost base (\$577,429) is comprised of Personnel, Fringe, Travel, Supplies, Professional Services and the 1st \$25,000 of the single contract. The total available unrecovered indirect cost is \$199,213.



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<p>In-kind</p>	<p>\$172,099</p>	<ol style="list-style-type: none"> 1. WVWA donated office space and staff time \$16,200 2. Stakeholder Committee member participation in meetings and implementation activities [$\\$40/\text{hr}$ (4 technical members) + $\\$23.40/\text{hr}$ (4 community members) x 3hr x 36 meetings] = $\\$27,389$ * portion of this from WVWA ($\\$2,527$) 3. Stakeholder Committee Chair commitment to raise additional funds and assist with implementation activities. [$\\$40/\text{hr}$ for 5 hr per week for 20 weeks out of the year for 3 years] = $\\$12,000$ 4. WVWA Executive Director commitment to raise additional funds and assist with implementation activities/funds from external source to support grant activities if this grant is approved [Appx $\\$48.31/\text{hr}$ x 11.5 hours per month x 3 years] = $\\$20,000$ 5. GBRA Staff time contributions 10% staff time committed for 3 employees (20 hr per year x 3 yr): Director of WQ Services @ $\\$50/\text{hr}$ = $\\$3000$; WQ Technician @ $\\$22/\text{hr}$ = $\\$1320$; and E&O staff @ $\\$32/\text{hr}$ = 1920. [$\\$3000+1320+1920$] = $\\$6,240$ 6. Use of meeting rooms donated monthly [$\\$150.56$ per meeting x 12 meetings x 3 years] = $\\$5,420$ 7. GBRA assistance with Monitoring QAPP [48 hours @ $\\$50/\text{hr}$ = $\\$2400$] + [40.5% Fringe on $\\$2400$ = $\\$972$] + [25.22% indirect of ($\\$2400+972=3372$) = $\\$850$]. $\\$2400+972+850$ = $\\$4,222$ 8. GBRA assistance with annual QAPP updates YR2&3 [12 hours @ $\\$50/\text{hr}$ = $\\$600$] + [40.5% Fringe on $\\$600$ = $\\$243$] + [25.22% indirect of ($\\$600+243=843$) = $\\$213$]. $\\$600+243+213$ = $\\$1,056$ 9. GBRA monitoring and analyses of CRP site [$\\$370$ per quarter x 3 yr] = $\\$4400$ 10. Half/TRC in-kind contribution to develop modeling and mapping QAPP [$\\$50/\text{hr}$ staff time x 70 hr] = $\\$3,500$ 11. Wimberley staff time contribution toward NPS Collaboration/Assessment Plan activities [$\\$40/\text{hr}$ x 37.5 hr] = $\\$1,500$ 12. Hays County Development Services/Road Crew assistance with RWH system installation = $\\$30,000$ 13. Lions Club Water Speaker Series [9 events x ($\\$200$ room rental + $\\$300$ recording fee x (40 hr volunteer time @ $\\$23.40/\text{hr}$) = 936]. $9 \times (\\$200+300+936)$ = $\\$12,924$
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		<p>14. Wimberley Volunteer Advisory Group technical assistance with data compiling, analyses and modeling activities & bi-monthly meetings. 6 months x 3 years x [5 engineers/technical members x \$72.40 state allowed hourly rate x 3 hour meetings +\$150 meeting space] = 18 x (\$362*3)+150)) = \$22,248*</p> <p>15. UT, Jackson School of Geosciences Staff and graduate student time = [\$5000]</p> <p>* Please note that technical members contributing in-kind contributions/time cannot be federal employees</p>
Total	\$536,562	See notes in justifications above

4. Scope of Work by Task

Task 1:	Project Administration
Objective:	To effectively administer, coordinate, and monitor all work performed under this project including technical and financial supervision and preparation of status reports.
Subtask 1.1:	Project Oversight –TXSTATE will provide technical and fiscal oversight of the staff and/or subgrantee(s)/ subcontractor(s) to ensure Tasks and Deliverables are acceptable and completed as scheduled and within budget. With the TCEQ Project Manager’s authorization, TXSTATE may secure the services of subgrantee(s)/ subcontractor(s). Project oversight status will be provided to TCEQ with the Quarterly Progress Reports (QPRs).
Subtask 1.2:	QPRs – TXSTATE will submit QPRs to the TCEQ Project Manager by the 15th of the month following each state fiscal quarter for review by the TCEQ Project Manager and incorporation into EPA’s Grant Reporting and Tracking System (GRTS). A template for the QPR will be provided to TXSTATE by the TCEQ Project Manager.
Subtask 1.3:	Reimbursement Forms – TXSTATE will submit Reimbursement Forms to the TCEQ Contract Manager by the last day of the month following each state fiscal quarter. For the final quarter of the contract period, Reimbursement Forms are required on a monthly basis.



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Subtask 1.4:	<p>Contract Communication – TXSTATE will participate in a post-award orientation meeting with TCEQ within 30 days of contract execution.</p> <p>TXSTATE will maintain regular telephone and/or e-mail communication with the TCEQ Project Manager regarding the status and progress of the project. This will include a call or meeting each state fiscal quarter following the submittal of the quarter's QPR. Project Task status, financial status, and any other matters that require attention will be discussed during the call or meeting. The TCEQ Project Manager may request additional information from TXSTATE prior to the call or meeting. TXSTATE will submit meeting notes to the TCEQ Project Manager.</p> <p>TXSTATE will provide a Contract Closeout Strategy within the first quarter of the last year of the contract. The template for the Contract Closeout Strategy will be provided by the TCEQ Project Manager.</p> <p>Matters that must be communicated to the TCEQ Project Manager include, but are not limited to:</p> <ul style="list-style-type: none"> • Notification a minimum of 14 days before TXSTATE has scheduled public meetings or events, initiation of construction, or other major Task activities. • Notification within 48 hours regarding events or circumstances that may require changes to the budget, scope of work, or schedule of deliverables.
Subtask 1.5:	<p>Coordination Meeting with EPA – TXSTATE will attend a project update and coordination meeting with EPA in Dallas upon request by TCEQ and EPA to share progress on goals, measures of success, challenges, and opportunities.</p>
Subtask 1.6:	<p>Annual Report Article – TXSTATE will provide an article for the <i>Nonpoint Source Annual Report</i> upon request by TCEQ. The article will include a brief summary of the project and describe the activities of the past fiscal year.</p>
Deliverables:	<ul style="list-style-type: none"> • QPRs • Reimbursement Forms • Contract Communication Meeting Notes • Contract Closeout Strategy • Annual Report Article

Task 2:	Quality Assurance (QA) and Data Acquisition
Objective:	<p>TXSTATE will document and implement data quality objectives (DQOs) and quality assurance/control (QA/QC) activities that ensure data of known and acceptable quality are used in and generated by this project.</p> <p>Data collected for this project will be used for monitoring, modeling and mapping activities undertaken to improve community decision makers' abilities to identify sources of, as well as prevent and mitigate nonpoint source pollution from urbanization and development.</p>



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Subtask 2.1:

QAPP Planning Meetings – TXSTATE will schedule a QAPP planning meeting with the TCEQ Project Manager, Quality Assurance staff, technical staff, and contractors, to implement a systematic planning process based on the elements in the TCEQ NPS QAPP Shell. The information developed during this meeting will be incorporated into a QAPP. The storage location of data records, and how data should be coded, will also be determined during these meetings. TXSTATE may conduct additional meetings to determine whether changes to an existing QAPP are needed.



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Subtask 2.2:

QAPP for Monitoring and Data Acquisition– TXSTATE will develop and submit to TCEQ a QAPP with project-specific DQOs and other components consistent with the following documents:

- [TCEQ NPS QAPP Shell\(s\)](#)
- [EPA Requirements for QAPPs \(QA/R5\)](#)
- [EPA Guidance for Geospatial Data QAPPs \(QA/G-5G\)](#)
- [EPA QAPP Requirements for Secondary Data Research Projects](#)
- [TCEQ Surface Water Quality Monitoring \(SWQM\) Procedures](#)

TXSTATE will develop the Monitoring and Data Acquisition QAPP in consultation with the TCEQ Project Manager, Quality Assurance staff, and contractors. TXSTATE will submit the QAPP to the TCEQ 120 days or more prior to the scheduled initiation of environmental data operations/monitoring. The QAPP must be signed/fully approved by TCEQ and, if necessary, EPA, before any environmental data operations/monitoring begins.

Activities covered under this QAPP:

- Surface water quality data monitoring and data acquisition;
- Groundwater monitoring and data acquisition;
- Macroinvertebrate data acquisition;
- Riparian assessments (data acquisition); and
- BMP effectiveness monitoring.

Monitoring activities are described in Task 3. Data acquisition activities include the following:

- Routine (Quarterly) surface water quality monitoring for flow, dissolved oxygen, TSS, conductivity, temperature, pH, E. coli, Ammonia, total N and total P at the following CRP sites:
 - 12677 – Cypress Creek – Jacobs Well
 - 12676 – Cypress Creek – RR12 North
 - 12675 – Cypress Creek – Blue Hole
 - 12674 – Cypress Creek – RR12 in town
 - 12673 – Cypress Creek – confluence
 - Not assigned yet – Blanco River downstream from Deer Creek

This monitoring, conducted by Texas State University staff, is covered under the Guadalupe Blanco River Authority (GBRA) Clean Rivers Program (CRP) QAPP. Data will be acquired to define baseline water quality and track effectiveness of WPP implementation. Note: 319(h) funds from this project will be used to fund up to 1.5 years of the CRP data collection.

- Routine surface water quality monitoring for flow, DO, transparency, conductivity, temperature, pH, E. coli, nitrate-nitrogen, orthophosphate collected by Texas Stream Team (TST) citizen scientists. This monitoring will be covered under the TST QAPP.
- Automated continuous surface water quality monitoring for flow, temperature, specific conductance, and turbidity collected at the USGS gage at Jacob's Well operated by GBRA. This monitoring is performed in accordance with USGS and GBRA protocols. *Summaries and analyses of gage data, performed in adherence with USGS protocols will be acquired.*



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- Trinity Aquifer groundwater well monitoring for water level and precipitation collected by Hays Trinity Groundwater Conservation District (HTGCD) and well owner's network. This monitoring will be conducted in accordance with HTGCD protocols.
- Macroinvertebrate data collected at three sites upstream and downstream of the RR-12 bridge over Cypress Creek and at Blue Hole Regional Park. This data collection will be covered under the TST QAPP, and will be quality checked by US Fish & Wildlife Service staff.
- Riparian assessments conducted at TST sites by TST citizen scientists. This data collection will be covered under the TST QAPP.

Tasks covered under this QAPP:



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Subtask 2.3:

QAPP for Modeling – TXSTATE will develop and submit to TCEQ a QAPP with project-specific DQOs and other components consistent with the following documents:

- [TCEQ NPS QAPP Shell\(s\)](#)
- [EPA Requirements for QAPPs \(QA/R5\)](#)
- [EPA Requirements for QAPP for Modeling QA/G-5M](#)

TXSTATE will develop the Modeling QAPP in consultation with the TCEQ Project Manager, QA staff, and contractors. TXSTATE will submit the QAPPs to the TCEQ 120 days or more prior to the scheduled initiation of environmental data operations associated with modeling activities. The QAPP will be developed by TXSTATE in consultation with the TCEQ Project Manager, Quality Assurance staff, technical staff, and contractors. The QAPP must be signed/fully approved by TCEQ, and if necessary, EPA, before any environmental data operations associated with modeling activities begins.

Activities covered under this QAPP:

- Cypress Creek Watershed Stormwater/NPS (Hydrologic and Hydraulic) Modeling (expansion of US Army Corps of Engineering/GBRA modeling activities);
- Cypress Watershed Decision Support System enhancement
- Updated preferred land-use scenarios. Build-out scenarios with BMPs in place (to account for load reductions), improved commercial layers, increased functionality at subwatershed and site level scales and improved source/groundwater layers; and
- Data collection and compilation of existing information, including:
 - Well logs;
 - Water elevations at wells;
 - Discharge from Jacobs Well, San Marcos Springs, Pleasant Valley Springs, and any other measurable points of discharge;
 - Pumping records; and,
 - River and streamflow measurements.

Tasks covered under this QAPP:

- Tasks 4 and 6.6.

Tasks NOT covered under this QAPP:

- All other tasks



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<p>Subtask 2.4:</p>	<p>QAPP for Mapping/Geospatial Data – TXSTATE will develop and submit to TCEQ a QAPP with project-specific DQOs consistent with the following documents:</p> <ul style="list-style-type: none"> • TCEQ NPS QAPP Shell(s) • EPA Requirements for QAPPs (QA/R5) • EPA Requirements for QAPP at http://www.epa.gov/QUALITY/qs-docs/g5g-final.pdf <p>TXSTATE will develop the Mapping/Geospatial QAPP in consultation with the TCEQ Project Manager, QA staff, and contractors. TXSTATE will submit the QAPPs to the TCEQ 120 days or more prior to the scheduled initiation of environmental data operations associated with mapping activities. The QAPP will be developed by TXSTATE (or its contractor) in consultation with the TCEQ Project Manager, Quality Assurance staff, technical staff, and contractors. The QAPP must be signed/fully approved by TCEQ, and if necessary, EPA, before any environmental data operations associated with mapping activities begins.</p> <p>Activities covered under this QAPP:</p> <ul style="list-style-type: none"> • Using GIS, define and map existing drainage basins based upon the most recent topography for Cypress Creek watershed; • <i>Using GIS, map existing stormwater infrastructure and recording the condition of existing facilities (pipes, catch basins, manholes, outlets, etc.) within the Cypress Creek watershed; and,</i> • Using GIS, map key environmental areas and data (i.e. potential stormwater BMP locations based on geographic features including wetlands, stream buffers and soil types). <p>Tasks covered under this QAPP:</p> <ul style="list-style-type: none"> • Task 4.1 and 4.2 <p>Tasks NOT covered under this QAPP:</p> <ul style="list-style-type: none"> • <i>All other tasks</i>
<p>Subtask 2.5:</p>	<p>QAPP Annual Reviews and Revisions – TXSTATE will submit documentation certifying its annual review of QAPPs no less than 90 days prior to the QAPP anniversary date. Amendments approved since the initial QAPP approval or a subsequent certified annual review (if applicable) must be submitted along with the certification. If extensive changes to a QAPP are necessary, a full revision is required. Once TCEQ certifies the annual review or approves the full revision, the QAPP effective period is extended an additional year. No work described in a QAPP shall be conducted outside the effective period for the QAPP.</p>



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Subtask 2.6:	QAPP Amendments – TXSTATE will submit amendments when changes to QAPPs are necessary. Amendments should be submitted 90 days prior to the scheduled initiation of changes. A justification, summary of changes and detail of changes must be provided with the amendment. TXSTATE will ensure that changes conveyed within amendments are not implemented until the amendment is fully approved by TCEQ and, if necessary, EPA.
Deliverables :	<ul style="list-style-type: none"> • QAPP Planning Meeting Notes • Draft and Final Monitoring/Data Acquisition QAPP • Draft and Final Modeling QAPP • Draft and Final Mapping/Geospatial QAPP • QAPP Annual Reviews and Revisions • Draft and Final Monitoring/Data Acquisition QAPP Amendment • Draft and Final Modeling QAPP Amendment • Draft and Final Mapping/Geospatial QAPP Amendment

Task 3:	Monitoring
Objective:	TXSTATE will conduct additional monitoring and coordinate with monitoring performed by its cooperators during this project.
Subtask: 3.1	<p>Monitoring to be conducted by TXSTATE:</p> <ul style="list-style-type: none"> • Routine surface water quality monitoring for flow, dissolved oxygen, TSS, conductivity, temperature, pH, E. coli, Ammonia, total N and total P at a minimum of two sites not covered by CRP or TST monitoring described in Task 2.2. • In partnership with HTGCD, water quality monitoring for DO, transparency, conductivity, temperature, pH, E. coli, nitrate-nitrogen, and orthophosphate will be added to well monitoring effort described in Task 2.2. • BMP Effectiveness Monitoring and analyses to evaluate performance of BMPs and to update pollution load reduction estimates. The monitoring will include: <ul style="list-style-type: none"> ○ Water quantity on one demonstration rainwater harvesting system (monthly and post-rainfall). ○ Sediment, nitrogen and phosphorus on one rain garden (4 storm events in year 3 and visual assessments on a monthly basis in years two and three).
Subtask: 3.2	<p>Data Submittals – TXSTATE will review, verify, and validate water quality monitoring data before it is submitted to the TCEQ.</p> <ul style="list-style-type: none"> • TXSTATE will submit an annual report of water quality data that is consistent with TCEQ formatting requirements for upload into the Surface Water Quality Monitoring Information System (SWQMIS); and, • TXSTATE will submit data reports and presentations for review and approval at least two weeks prior to the scheduled public release.



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Deliverables	<ul style="list-style-type: none"> • Data Submittals to SWQMIS • Annual acquired and collected water quality data summary report, including analyses (See subtask 2.2 and 3.1)
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Task: 4	Comprehensive NPS Collaboration/Assessment
Objective:	Expand upon modeling activities conducted by the US Army Corps of Engineering/GBRA to improve delineation of drainage basin data and develop a more detailed hydrologic drainage model to estimate peak flows for individual drainage areas and the NPS pollutants that may be carried by these flows.
Subtask: 4.1	Field Data Collection and Mapping- TXSTATE, and its partners/contractors will use a design-storm and compiled Geographic Information System (GIS) based information to develop or enhance the hydrologic modeling via Surface Water Assessment Tool (SWAT) utilizing the Hydrologic Modeling System (HEC-HMS) results and precipitation (or equivalent modeling tools), and to evaluate the existing stormwater drainage system as well as identify components that are inadequate or undersized.
Subtask: 4.2	Detailed Hydrology and BMP Modeling- TXSTATE, and its partners/contractors will evaluate effectiveness of BMPs, add additional detail to previous modeling results and prepare a list of recommended repairs, maintenance procedures, and design alternatives (including LID) to maximize the capabilities of the stormwater system. The evaluation will also identify opportunities to reduce the total amount of stormwater generated by anthropogenic activities based on BMPs and LID methodology. The hydrologic methods used for this study are in accordance with published Guidelines and Specifications of Flood Hazard Mapping Partners. The hydrologic model to be used was developed using HEC-HMS (Version 3.5). Point precipitation was developed using the USGS Atlas of Depth-Duration Frequency of Precipitation Annual Maxima for Texas (SIR 2004-5041, Asquith).
Subtask: 4.3	<p>NPS Collaboration/Assessment Report- TXSTATE, and its partners/contractors will develop a comprehensive NPS Collaboration /Assessment report that includes recommendations for future stormwater projects Hays County, Woodcreek, and Wimberley as well as all hydrologic and hydraulic data, maps, charts, graphs and other information. Recommendations will highlight BMPs that mitigate stormwater and other NPS pollution. A Draft Report will be provided to stakeholders (both the stakeholder committee and key staff from cities, county and river authorities) for review and comment. Information and recommendations provided by stakeholders will be incorporated into a Final Report, which will be presented to all participating stakeholders and results incorporated, as appropriate, into the enhanced Decision Support System (DSS) in Task 6.6.</p> <p>The report will include:</p> <ul style="list-style-type: none"> • METHODOLOGY <ul style="list-style-type: none"> ○ Rainfall-runoff method ○ Drainage basin area delineation ○ Hydrologic parameter estimation • RESULTS / VALIDATION <ul style="list-style-type: none"> ○ Results (including stormflow maps)



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	<ul style="list-style-type: none"> ○ Calibration to historical events ○ Sensitivity analysis ● RECOMMENDATIONS <ul style="list-style-type: none"> ○ Priority/recommended mitigation ○ BMP type, number and siting recommendations ○ Cost analyses for BMPs ○ Water quality management scenarios <p>The assessment will provide technical information to the cities and county and will be used to assist stakeholders in mitigating NPS related stormwater issues. It will be presented for incorporation into city and county code requirements for general water quality protection. Structural and nonstructural BMPs that mitigate stormwater and NPS pollution will be presented and reviewed for implementation in the watershed (at the city and county level). A set of hydrologic maps and recommendations will note the most beneficial and cost effective sites.</p>
Deliverables:	<ul style="list-style-type: none"> ● Maps & Hydrologic model, including: watershed delineations, input data and justifications, input data source references, model calibration and verification process and results, model sensitivity analyses, and the results of water quality management scenarios. ● List of stormwater system deficiencies that may increase NPS pollution, recommendations, and design alternatives to be included in assessment report ● Draft NPS Collaboration/Assessment report provided to stakeholders for review and comment ● Final comprehensive NPS Collaboration/Assessment report that includes recommendations for future NPS/stormwater projects for Hays County, Woodcreek, and Wimberley as well as all hydrologic and hydraulic data, charts, graphs, etc. ● Identification and tracking of any report recommendations implemented at city and county level

Task: 5	Installation of BMPs at Highly Visible Demonstration Sites
Objective:	The purpose of this Task is to install demonstrable functioning NPS pollutant control technologies which will educate stakeholders concerning the pollution reduction and water conservation benefits of simple, relatively inexpensive management measures.



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<p>Subtask 5.1:</p>	<p>Rainwater Cisterns at City and County Properties – TXSTATE will execute the following:</p> <ul style="list-style-type: none"> • Retrofit buildings and structures at 4 sites (City of Wimberley, City of Woodcreek, and Hays County) with cisterns for harvesting and using rainwater for non-potable uses. This will include: installing the cisterns; connecting the cisterns to irrigation systems and plumbing; plumbing to use rainwater from cisterns; and in the case of the Hays County site, connecting the cisterns to output valves for filling fleet vehicles. • Install prominent signs at each location explaining the basic concepts underlying cistern technology and identifying the components of the actual installed system. • Incorporate information about the cisterns into materials for a self-guided public tour and complimenting literature about exhibitions. • Incorporate information into a technical guidance document for developers and engineers. A guide for the general public also will be compiled. • TXSTATE staff will work with the Watershed Coordinator and technical experts to compile, review and adapt existing published resources to provide best guidelines and information for local implementation. • Estimates of site/area pollutant loadings and BMP load reductions will be calculated and presented in a report (used to inform resource guides and educational materials).
<p>Subtask 5.2:</p>	<p>Rain Garden Demonstration Sites – TXSTATE, will execute the following:</p> <ul style="list-style-type: none"> • Install rain gardens or equivalent BMPs at 2 additional sites in the watershed (minimum size of 400 square feet). • Engage volunteer master gardeners and/or master naturalists to maintain the rain gardens. • Install signs at above sites featuring rain garden technology which explain the basic concepts and identify the actual system. • Incorporate information about rain gardens into 1 self-guided public tour and complimenting literature about exhibitions. • Incorporate information into a technical resources guide for developers and engineers. A guide for the general public also will be compiled. • TXSTATE staff will work with the Watershed Coordinator and technical experts to compile, review and adapt existing published resources to provide best guidelines and information for local implementation. • Estimates of site/area pollutant loadings and BMP load reductions will be calculated and presented in a report (used to inform resource guides and educational materials)



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<p>Subtask 5.3:</p>	<ul style="list-style-type: none"> • Biofiltration and Stormwater BMPs or equivalent – TXSTATE, will execute the following: • Install biofiltration and stormwater BMPs or equivalent at a stormwater outlet near the Wimberley Central Business District, including a rain garden (minimum size of 400 square feet). These BMPs will be equivalent in size, scope, and pollutant removal potential to 500 square feet of pervious sidewalks. • Engage volunteer master gardeners and master naturalists to maintain the rain garden. • Install signs at above sites featuring rain garden technology which explain the basic concepts and identify the actual system. • Incorporate information into a technical resources guide for developers and engineers. A guide for the general public also will be compiled. TXSTATE staff will work with the Watershed Coordinator and technical experts to compile, review and adapt existing published resources to provide best guidelines and information for local implementation. • Estimates of site/area pollutant loadings and BMP load reductions will be calculated and presented in a report (used to inform resource guides and educational materials).
<p>Deliverables:</p>	<ul style="list-style-type: none"> • Advertised and approved bid for supplying equipment and installing rainwater harvesting systems and demonstration BMPs pursuant to all University and State of Texas financial and purchasing bid requirements and contract regulations or City/County regulations. • Contract/subcontracts for design and construction, including site plans for rain gardens and other demonstration BMPs • Documentation of 4 Cisterns, 2 rain gardens (or their equivalents) and one other BMP installed • Estimated site/area pollutant loadings and BMP load reductions report • Education Program designed and implemented • 6 Signs designed, manufactured and installed • Literature about exhibitions created for one self-guided tour including information on cisterns and rain gardens • Technical resource guides created for developers and for the public • Biofiltration and stormwater BMPs or equivalent treatment near Wimberley Central Business District, including a rain garden • One tour



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Task: 6	Education, Outreach and Community Support
Objective:	Enhance the implementation of the WPP through the engagement of the community in education and outreach activities, including meetings, events, workshops, print materials, website and signage.
Subtask 6.1:	<p>Hire a Watershed Coordinator— TXSTATE, pursuant to <i>UPPS – 04.03 Open Recruiting</i> and all applicable policies and regulations, in coordination with the WPP Steering Committee, will hire a Cypress Creek WC to engage and facilitate the CC-WPP and entities identified in the Cypress Creek WPP. The WC will:</p> <ul style="list-style-type: none"> • serve as the primary conduit for interaction with landowners, citizens, and other entities • facilitate the implementation of the WPP • seek additional funding, coordinate complementary activities in the basin, and • track WPP implementation progress.
Subtask 6.2:	<p>Education & Outreach Website, Print Materials, and Signage – TXSTATE will use existing outreach materials and resources adapted to local circumstances (to the extent possible) and will develop new content to execute the following (documentation to be included in QPRs):</p> <ul style="list-style-type: none"> • Regularly scheduled meetings will begin monthly in the 3rd quarter of the project and will meet ad hoc until that time. Announcements, agendas, attendance, presentation materials, and notes from all community/stakeholder meetings will be included in QPRs. • Website updated and maintained, including: clearing house of information, agendas, meeting announcements, data, and updates, etc. • Development, production and dissemination of newsletter released biannually in digital format. All newsletters will be standardized and included in quarterly reports. Newsletters will follow a similar format, between 2 and 4 pages and will be distributed electronically. • Three “Inside Cypress Creek Watershed Environmentally Sensitive Area” signs installed. <p>Develop WPP Executive Summary and NPS Prevention Resource Guide – Community-friendly publication outlining WPP content and activities, offering NPS information and prevention strategies, resources and information regarding self-guided tour of demonstration BMPs in the watershed. This document will be a compilation of text from the WPP and when possible, existing resource materials.</p>
Subtask 6.3	<p>Refined WPP – Develop update or addendum to the WPP, approved by stakeholders and the community. TXSTATE will, in coordination with the Stakeholder Committee, annually review progress toward the milestones established in the WPP, consider adaptive management measures as necessary, and recommend changes, alterations and updates to the WPP. The WC, in coordination with the Stakeholder Committee, TCEQ and other parties will formulate a refined WPP for review at least 6 months prior to the end of the implementation period.</p>



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Subtask 6.4:

Events and workshops – TXSTATE will execute the following::

- Community workshops:
 - One Workshop: Water Quality Protection for the Homeowner
 - One Workshop: LID including demonstration BMPs that are effective will be presented to the community and encouraged for implementation where appropriate across the watershed. This workshop will provide a more complete understanding of how rain gardens and rainwater collection systems function, and opportunities for sponsors and partners to provide information regionally on rain garden and rain collection design, construction, maintenance, and monitoring.
 - Annual Rural Landowner workshops, TXSTATE will obtain participation from Master Naturalists, AgriLife Extension, TSSWCB, Farm Bureau, Natural Resource Conservation Service, and The Nature Conservancy for these workshops
- Attendance at two community events with an informational booth
- Six Youth events at Jacob's Well, including school field trips.
- Four Watershed Model demonstrations by TST staff
- Quarterly Speaker Series on water related topics will be hosted by TXSTATE and the Wimberley Lions Club to inform community members and decision makers about key issues in the watershed. Speaker topics range from preventing nonpoint source pollution to understanding related ordinances. The speaker series will be advertised in local papers and on community websites and will be recorded and made available on the WPP, Lion's Club, The Meadows Center websites and YouTube. TCEQ will review and approve videos and supporting documents before they are posted on the project website.



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Subtask 6.5:

Ordinance Review & Design Plan Review Process for Fast-tracking Development Proposals – TXSTATE will perform a comprehensive assessment of potential water quality ordinance enhancements as an initial step towards protection of water quality through a local government legal framework.

This subtask will facilitate a comprehensive review of the relevant city and county ordinances that affect Cypress Creek’s water quality. The purpose of the review will be to assess the region’s effectiveness at mitigating NPS pollution via watershed protection ordinances and regulations, identify potential redundancies or potential improvements, and work closely with key decision makers and stakeholders to establish new approaches that can implement sustainable drainage design.

This task will include the following:

- Review and Outreach
 - Engage key decision makers to identify appropriate ordinances for review/comparison to Cypress Creek
 - Conduct a review of relevant city, river authority, and county ordinances and prepare recommendations for the cities and county
 - Engage stakeholder committee and city/county officials on process and interim findings for input
 - Report on ordinance findings and water quality protection measures (LID and conventional), including potential reductions in NPS contributions from future development
- Technical Component
 - Design plan review process and provide technical assistance for cities and county to fast-track development proposals with significant LID and green infrastructure components. The size, scope, type and number of development proposals will depend on the level of total proposals submitted (A minimum of 2 small and 2 large proposals for each city and county (12 total) will be evaluated, edited and finalized. If this minimum number of acceptable proposals is not submitted, the resultant cost savings will be re-directed in consultation with TCEQ).
 - Draft Green Infrastructure Plan Review Guide for developers and engineers to navigate regulatory review procedures, incorporate LID and green infrastructure into development plans; and facilitate permitting from local authorities. This document will reference demonstration BMPs in the watershed as models and will highlight and clarify/complement existing ordinances and regulations in city/county design manuals, as well as explain the fast-tracking process and requirements. This manual will utilize existing city and county documents, findings from review process and existing informational resources adapted to local circumstances.



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Subtask 6.6:

Decision Support System (DSS) – TXSTATE will oversee the execution of the 2009 DSS which was developed based on input from a subcommittee of the Stakeholder Committee members recruited through the CCWPP process. The DSS requires updates to incorporate current and proposed future land use patterns and available groundwater data and to increase functionality.

To the extent possible, the DSS will be integrated with code from UT's open source DSS modeling platform, named "Pythia." This will allow for the creation of a versatile and accessible platform that can be easily accessed, updated, and used by lay people or non-programmers.

Additional build out scenarios with BMPs in place (to account for load reductions), improved commercial layers, and updated preferred land-use scenarios will allow increased functionality at subwatershed and site specific scales to determine potential contributions of nonpoint source pollution and the efficacy of potential mitigation measures. Specific activities will include:

- Evaluate 2009 version of the DSS to identify possible improvements to the software implementation to improve usability and data fusion or simulation model interconnectivity;
- Compile existing geospatial data to update DSS model;
- Meet with stakeholders, and city and county officials to identify potential changes to land use/land cover and model output preferences as well as important groundwater information;
- Update build out scenarios with BMPs in place (to account for load reductions), commercial layers and preferred land-use scenarios;
- Reassess model parameters and implement comparative analysis utility for updated land use/cover and water quality data;
- Conduct simulation of changes in water quality associated with selected BMPs and projected changes in land use/cover conditions;
- Extend existing DSS Develop model capabilities to allow for sub-basin and development scale outputs assessments or scenario testing;
- Hold workshops for cities and county to interpret results provide feedback and determine additional desired model outputs; and,
Hold DSS use training session for City, County officials.



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Deliverables:

- Watershed Coordinator (WC) hired
- Regular (monthly) Stakeholder meetings will be held and documented through announcements, agendas, attendance, presentation materials, and minutes
- Website will be maintained at least monthly (documentation of website updates will be included in all QPRs)
- Biannual newsletter published
- WPP Executive Summary in a community friendly format published
- NPS Prevention Resource Guide prepared
- Update or addendum to the WPP prepared
- Materials from two hosted workshops (water quality protection and LID) documented by announcements and presentation materials
- 3 Annual Rural Landowner workshops convened and documented by announcements and presentation materials
- Attendance at 2 community events documented by agendas
- Six Youth events held at Jacob's Well and documented by announcements and presentation materials
- Four Watershed Model demonstrations held and documented through announcements
- Quarterly speaker series on water related topics held and documented by agendas
- Report with review of relevant city, river authority, and county ordinances, assessment of potential water quality ordinance enhancements, potential reductions in NPS contributions from future development and recommendations compiled and published
- Fast Track Review Report detailing design plan review process and the plan for "fast tracking" developer proposals. The report will include
 - an explanation of the basis for the fast track review,
 - the process utilized,
 - issues encountered and solutions,
 - recommended future activities, and
 - technical assistance for cities and the county to fast-track development proposals with significant LID and green infrastructure components
- 1 Green Infrastructure Plan Review Guide for developers and engineers compiled and published to assist users in navigating regulatory review procedures, incorporating LID and green infrastructure into development plans; and facilitating permitting from local authorities. This document will complement existing and updated city/county design manuals.
- 12 proposals reviewed via fast-track process (2 small and 2 large for each city and county)
- 2 stakeholder (cities, county) meetings to determine desired inputs, functionality and outputs for updated DSS documented by meeting notes and notices
- Report published detailing DSS review, code changes, data incorporated (all modeling code, methodology and outputs will be provided and will be open source/open data context. All relevant information will be published and available to the public)
- DSS updates, training session, and documentation and dissemination of results and decisions made, documented by presentation materials
- 1 Workshop held for cities and county to interpret results, provide feedback and determine additional desired model outputs, documented by presentation materials.



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Task 7:	Final Report
Objective:	Produce a Final Report summarizing all activities completed and conclusions reached during the project. The Final Report will describe project activities and identify and discuss the extent to which project goals and purposes are achieved, and the amount of funds actually spent on the project. The Final Report will emphasize successes, failures, lessons learned, and include specific water quality data demonstrating water quality improvements where possible. The Final Report will summarize all the Task Reports in either the text or as appendices.
Subtask 7.1:	<p>Draft Final Report – TXSTATE will execute the following:</p> <p>At least 30 days prior to submitting the Final Report, a Draft Final Report will be submitted, summarizing all project activities, findings, and the contents of all previous deliverables, referencing and/or attaching them as web links or appendices. This comprehensive, technical report will provide analysis of all activities and deliverables under this Scope of Work. The report will be structured per the following outline:</p> <ul style="list-style-type: none"> • Title • Table of Contents • Executive Summary • Introduction • Project Significance and Background • Methods • Results and Observations • Discussion • Summary • References • Appendices
Subtask 7.2:	Final Report – The Draft Final Report will be revised to address comments provided by the TCEQ Project Manager and the EPA. The Final Report will be submitted to the TCEQ Project Manager two weeks before the expiration of the contract.
Deliverables:	<ul style="list-style-type: none"> • Draft Final Report • Address TCEQ/EPA comments • Final Report



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