

Appendices



Appendix A. WPP Information Checklist

Elements in the table below correspond to the 9 minimum elements required by EPA for developing watershed-based plans using Clean Water Act 319(h) grant resources. For more information on these guidelines, please refer to EPA's Handbook for Developing Watershed Plans to Restore and Protect Our Waters¹²¹.

Table A. 1 Guide to watershed protection plan information

Segment Information	
Name of Water Body	East Fork San Jacinto River (Segment 1003)
Assessment Units	1003_01, 1003_02, 1003_03, 1003A_01, 1003B_01, 1003C_01
Impairments Addressed	Contact recreation/ <i>E. coli</i>
Concerns Addressed	<i>E. coli</i>
Element	Report Section(s) and Page Number(s)
Element A: Identification of Causes and Sources	
1. Sources identified, described, and mapped	<p>Section 3</p> <ul style="list-style-type: none"> pp. 38-57; water quality analysis and point source contribution descriptions pp. 57-93; formal source descriptions, modeled loadings, and maps of spatial distribution
2. Subwatershed sources	<p>Section 3</p> <ul style="list-style-type: none"> pp. 57-93; sources are described in terms of their general spatial distribution and loads by subwatersheds Table 24 summarizes all loadings by subwatershed
3. Data sources are accurate and verifiable	<p>Section 2</p> <ul style="list-style-type: none"> In general, data used for characterization and mapping is discussed throughout with footnote links to specific sources pp. 34; description of water quality data and links to the project water quality report <p>Section 3</p> <ul style="list-style-type: none"> pp. 38-57; discussion of water quality monitoring analyses, point source data analyses, and data sources pp. 57-93; description of sources and loadings with references to data used <p>Section 4</p> <ul style="list-style-type: none"> pp. 95-101; description of LDCs and data sources. pp. 105-110; application of data sources to load reduction goals discussed <p>Section 8</p> <ul style="list-style-type: none"> pp. 185-190; discussion of data sources to be used for evaluating success

¹²¹ For more information, see: <https://www.epa.gov/nps/handbook-developing-watershed-plans-restore-and-protect-our-waters>

Element	Report Section(s) and Page Number(s)
4. Data gaps identified	<p>Section 3</p> <ul style="list-style-type: none"> In general, discussion of uncertainty in various modeling and data approaches (pp. 46-49 for WWTF data; pp. 62-64, 88-93 and footnote 45 for SELECT modeling; pp. 85-86 for SSO data) <p>Section 4</p> <ul style="list-style-type: none"> pp. 102-103; discussion of DO precursors <p>Section 8</p> <ul style="list-style-type: none"> pp. 185-190; specific discussion of additional data sources that may be helpful (other wildlife estimations, BST/MST, etc.)
Element B: Expected Load Reductions	
1. Load reductions achieve environmental goal	<p>Section 4</p> <ul style="list-style-type: none"> pp. 105-110; description of linkage of environmental goal (via LDC reductions) to source loads (via SELECT estimations) Summarized specifically in Table 29 through Table 33
2. Load reductions linked to sources	<p>Section 4</p> <ul style="list-style-type: none"> pp. 105-110; description of linkage of environmental goal (via LDC reductions) to source loads (via SELECT estimations) Summarized specifically in Table 29 through Table 33
3. Model complexity is appropriate	<p>Section 3</p> <ul style="list-style-type: none"> pp. 57-64; description of modeling approach (p. 61-63 specific to SELECT); link to project modeling report; pp. 62 contains specific description of rationale for modeling approach Results of modeling indicated above in B1/B2 <p>Section 4</p> <ul style="list-style-type: none"> pp. 95-101; description of LDC modeling approach pp. 105-110; description of LDC and SELECT linkage
4. Basis of effectiveness estimates explained	<p>Section 4</p> <ul style="list-style-type: none"> pp. 108-109; description of use of representative units <p>Section 5</p> <ul style="list-style-type: none"> pp. 115-150; solution effectiveness/reduction efficiency discussed in the bottom of each recommended solution page
5. Methods and data cited and verifiable	<p>Section 3</p> <ul style="list-style-type: none"> Throughout (pp. 38-93); data and methods for water quality analyses, point source analyses, and source estimations discussed with references in footnotes as appropriate and links to project modeling and water quality analysis reports <p>Section 4</p> <ul style="list-style-type: none"> Throughout (pp. 105-110); data for load reduction goals discussed, links to project modeling report included
Element C: Management Measures Identified	
1. Specific management measures are identified	<p>Section 5</p> <ul style="list-style-type: none"> pp. 115-150; specific measures described, including technical and financial support needed, roles and responsibilities, etc. <p>Section 6</p> <ul style="list-style-type: none"> pp. 153-164; specific educational measures described, including responsible parties
2. Priority areas	<p>Section 5</p> <ul style="list-style-type: none"> pp. 115-150; discussion of priority areas for each category of specific focus <p>Section 6</p>

Element	Report Section(s) and Page Number(s)
	<ul style="list-style-type: none"> pp. 153-164; general description of intended audiences/areas for educational activities
3. Measure selection rationale documented	Section 5 <ul style="list-style-type: none"> pp. 112-113; specific description of guiding principles for selection and selection process pp. 151; summary of selection process and intention Section 6 <ul style="list-style-type: none"> pp. 153-155; description of Partnership's goals for selected educational measures
4. Technically sound	Section 5 <ul style="list-style-type: none"> pp. 115-150; specific measures described, including technical detail Section 6 <ul style="list-style-type: none"> pp. 153-164; specific educational measures described Section 7 <ul style="list-style-type: none"> pp. 166-169; specific implementation strategies for measures in general, and pet waste as a focus
Element D: Technical and Financial Assistance	
1. Estimate of technical assistance	Section 5 <ul style="list-style-type: none"> pp. 115-150; technical assistance needs detailed for each measure in their one-page summaries
2. Estimate of financial assistance	Section 5 <ul style="list-style-type: none"> pp. 115-150; financial assistance needs detailed for each measure in their one-page summaries Appendix D <ul style="list-style-type: none"> List of potential funding sources related to measures in this WPP
Element E: Education/Outreach	
1. Public education/information	Section 6 <ul style="list-style-type: none"> pp. 153-164; description of public outreach activities
2. All relevant stakeholders are identified in outreach process	Section 1 <ul style="list-style-type: none"> pp. 3-7; description of initial outreach, forming the Partnership, links to Public Participation Plan for the project Section 6 <ul style="list-style-type: none"> pp. 153-164; description of public outreach activities including existing partners/roles and focus areas
3. Stakeholder outreach	Section 1 <ul style="list-style-type: none"> pp. 3-7; description of initial outreach, forming the Partnership, links to Public Participation Plan and Stakeholder Outreach Report for the project
4. Public participation in plan development	Section 1 <ul style="list-style-type: none"> pp. 3-7; description of initial outreach, forming the Partnership, links to Public Participation Plan and Stakeholder Outreach Report for the project Section 3 <ul style="list-style-type: none"> pp. 57-60; description of Partnership process in identifying sources and assumptions (specific to each source, pp. 65-89) Section 4 <ul style="list-style-type: none"> pp. 105-110; description of stakeholder choices in reduction linkage, load allocation, etc. Section 5 <ul style="list-style-type: none"> pp. 112-114; description of stakeholder participation in measures selection Section 6

Element	Report Section(s) and Page Number(s)
	<ul style="list-style-type: none"> pp. 153-155; description of stakeholder decisions on outreach strategies Section 7 <ul style="list-style-type: none"> pp. 166-169; description of stakeholder input on implementation strategies Section 8 <ul style="list-style-type: none"> pp. 185-190; description of the Partnership's role in determining how the project evaluates success
5. Emphasis on achieving water quality standards	Section 1 <ul style="list-style-type: none"> pp. 6-7; description of specific water quality goals for the project/Partnership All Other Sections <ul style="list-style-type: none"> Water quality standards are the focus of water quality analyses (Section 3), the focus of all load reduction calculations (Section 4), the focus of recommended solutions (Section 5 and 6), the focus of implementation strategies (Section 7), and the primary measure of success (Section 8).
6. Operation and maintenance of BMPs	Section 5 <ul style="list-style-type: none"> pp. 115-150; discussion of specifics of recommended solutions are included with each solution and/or solution category description
Element F: Implementation Schedule	
1. Includes completion dates	Section 7 <ul style="list-style-type: none"> pp. 170-183; implementation schedule
2. Schedule is appropriate	Section 7 <ul style="list-style-type: none"> pp. 170-183; implementation schedule
Element G: Milestones	
1. Milestones are measurable and attainable	Section 7 <ul style="list-style-type: none"> pp. 170-183; milestones described for all measures
2. Milestones include completion dates	Section 7 <ul style="list-style-type: none"> pp. 170-183; milestones described for all measures
3. Progress evaluation and course correction	Section 8 <ul style="list-style-type: none"> pp. 185-190; describes all methods uses to evaluate success for the project; pp. 190 specifically describes adaptive management processes
4. Milestones linked to schedule	Section 7 <ul style="list-style-type: none"> pp. 170-183; Milestones described for all measures with timeframes indicated
Element H: Load Reduction Criteria	
1. Criteria are measurable and quantifiable	Several sections detail the process of developing load reductions, including (as noted in Element B) Section 3 (source loads), Section 4 (load reductions), and Section 8 (evaluation criteria).
2. Criteria measure progress toward load reduction goal	Section 8 <ul style="list-style-type: none"> pp. 185-190; describes evaluation criteria and data sources used to evaluate both water quality and programmatic milestones.
3. Data and models identified	Section 8 <ul style="list-style-type: none"> pp. 185-190; describes evaluation criteria and data sources used to evaluate both water quality and programmatic milestones.
4. Target achievement dates for reduction	Throughout the document, the plan states that 2030 is the intended goal year (as noted previously). Section 4 bases load reductions on this timeline. Section 5/6 recommendations are based on time period within this planning horizon. Section 7 schedule and milestones are based on this period. Section 8 evaluation criteria also assumes this date.

Element	Report Section(s) and Page Number(s)
5. Review of progress toward goals	Section 8 <ul style="list-style-type: none"> pp. 185-190; details the methods that will be used to evaluate progress regarding water quality pp. 188-190; details the methods that will be used to evaluate progress regarding programmatic means
6. Criteria for revision	Section 8 <ul style="list-style-type: none"> pp. 188-190; describes the indicators of success and adaptive management process
7. Adaptive management	Section 8 <ul style="list-style-type: none"> pp. 190; describes the adaptive management process
Element I: Monitoring	
1. Description of how monitoring used to evaluate implementation	Section 8 <ul style="list-style-type: none"> pp. 185-189; describes the monitoring plan and other potential data sources
2. Monitoring measures evaluation criteria	Section 8 <ul style="list-style-type: none"> pp. 187-189 describes the indicators of success, including water quality/monitoring outcomes
3. Routine reporting of progress and methods	Section 8 <ul style="list-style-type: none"> pp. 185-190, describes both the monitoring process and its reporting/evaluation, as well as the project evaluation and formal reviews process with the Partnership (Table 43, etc.)
4. Parameters are appropriate	Section 8 <ul style="list-style-type: none"> pp. 185-186 describes the monitoring program
5. Number of sites is adequate	Section 8 <ul style="list-style-type: none"> pp. 185-186 describes the monitoring program
6. Frequency of sampling is adequate	Section 8 <ul style="list-style-type: none"> pp. 185-186 describes the monitoring program
7. Monitoring tied to QAPP	Section 8 <ul style="list-style-type: none"> pp. 185-186 describes the monitoring program under CRP QAPP pp. 186-188 describes the potential use of other data sources
8. Can link implementation to improved water quality	Section 8 <ul style="list-style-type: none"> pp. 185-186 discusses the monitoring program pp. 188-190 discussed water quality indicators of success

Appendix B. Wastewater Treatment Facilities

Table B. 1 East Fork San Jacinto River watershed WWTF permittees at study initiation

Permittee	Permit Number
FOREST GLEN INC	TX0071765
STEELY LUMBER CO INC	TX0123421
UTILITIES INVESTMENT CO INC	TX0133167
UNIVERSAL FOREST PRODUCTS TEXAS LLC	TX0028169
QUADVEST LP	TX0134996
SAM HOUSTON AREA COUNCIL BOY SCOUTS OF AMERICA	TX0136948
QUADVEST LP	TX0136921
PLUM CREEK FWSD NO 1	TX0136867
DALASU 686 LP	TX0141372
CITY OF CLEVELAND	TX0053473

Appendix C. Agricultural Best Management Practices

This appendix details the typical practices implemented in WQMPs and similar agricultural land management projects¹²². Emphasis for this WPP is put on practices that reduce animal wastes or impede transmission of wastes to water.

Table C. 1 Agricultural best management practices

Practice	Description
Residue Management	Management of the residual material left on the soil surface of cropland, to reduce nutrient and sediment loss through wind and water erosion.
Critical Area Planting	Establishes permanent vegetation on sites that have, or are expected to have, high erosion rates, and on sites that have physical, chemical, or biological conditions that prevent the establishment of vegetation with normal practices.
Filter Strips	Establishes a strip or area of herbaceous vegetation between agricultural lands and environmentally sensitive areas to reduce pollutant loading in runoff.
Nutrient Management	Manages the amount, source, placement, form, and timing of the application of plant nutrients and soil amendments to minimize agricultural nonpoint source pollution of surface and groundwater resources.
Riparian Forest Buffers	Establishes an area dominated by trees and shrubs located adjacent to and up-gradient from watercourses to reduce excess amounts of sediment, organic material, nutrients, and pesticides in surface runoff and excess nutrients and other chemicals in shallow groundwater flow.
Terraces	Used to reduce sheet and rill erosion, prevent gully development, reduce sediment pollution/loss, and retain runoff for moisture conservation.
Grassed Waterways	Natural or constructed channel-shaped or graded and established with suitable vegetation to protect and improve water quality.
Prescribed Grazing	Manages the controlled harvest of vegetation with grazing animals to improve or maintain the desired species composition and vigor of plant communities through adaptive multi-paddock grazing and other techniques.
Riparian Herbaceous Buffers	Establishes an area of grasses, grass-like plants, and forbs along watercourses to improve and protect water quality by reducing sediment and other pollutants in runoff, as well as nutrients and chemicals in shallow groundwater.
Watering Facilities	Places a device (tank, trough, or other water-tight container) that provides animal access to water and protects streams, ponds, and water supplies from contamination through alternative access to water.
Field Borders	Establishes a strip of permanent vegetation at the edge or around the perimeter of a field.
Conservation Cover	Establishes permanent vegetative cover to protect soil and water.
Stream Crossings	Creates a stabilized area or structure constructed across a stream to provide a travel way for people, livestock, equipment, or vehicles, improving water quality by reducing sediment, nutrient, organic, and inorganic loading of the stream.
Alternative Shade	Creation of shade reduces time spent loafing in streams and riparian areas, thus reducing pollutant loading and erosion of riparian areas.

¹²² Technicians work with local landowners/producers to design WQMPs on a site-specific basis. More information about WQMPs, standard practices, and related TSSWCB programs can be found at <https://www.tsswcb.texas.gov/programs/water-quality-management-plan>.

Appendix D. Potential Funding Resources

This appendix contains examples of funding resources, by category, that may be utilized to implement aspects of this WPP's recommendations. These resources represent potential external sources of funding other than existing or local contributions (*ad valorem* tax revenue, landowner contributions, etc.). The Partnership will continue to track, evaluate, and match grant sources for potential implementation activities as part of the ongoing facilitation of this WPP.

Table D. 1 Potential funding sources

Grant Program	Grantor	Uses
Clean Water Act 319(h) Nonpoint Source grants	TCEQ, TSSWCB	Multiple implementation and outreach activities
Clean Water Act 604(b) water quality management planning grants	TCEQ	Data development, forestry outreach
Flood Infrastructure Fund / Flood Mitigation Assistance Program	TWDB	Flood mitigation, resilience
Clean Water State Revolving Fund	TWDB	Utility infrastructure, related planning
Community Development Block Grant (MIT/DR)	GLO/HUD	Flood mitigation, resilience
Private Foundation Grants	Private Foundations (e.g., Houston Endowment, Hershey Foundation, Powell Foundation, and others)	Multiple, specific to foundations
Various grant programs	TPWD	Wildlife, parks and recreation, farm and ranchland preservation, trails
Building Resilient Infrastructure and Communities (BRIC)	FEMA/Texas Division of Emergency Management	Disaster resilience
WQMP	TSSWCB	Agricultural best practices
Regional Conservation Partnership Program (RCPP)	USDA NRCS	Conservation
H-GAC OSSF SEP	TCEQ/WWTFs; Harris County	OSSF remediation for low-income households
Restoring America's Wildlife Act	TPWD	Federal support for ecosystem restoration and related projects.
Farm Bill Programs (EQIP, and others)	USDA NRCS, local SWCDs	Landowner support for property improvements with environmental benefits, including conservation easements, forest reserves, watershed protection, wetland mitigation, water quality, etc.
Corporate donations	Corporate partners	Varies by entity
Land and Water Conservation Fund	US Forest Service	Conservation

Grant Program	Grantor	Uses
Various grant programs	US Fish and Wildlife Service	Conservation, habitat restoration, wetlands restoration, endangered species
Various grant programs	National Park Service	Outdoor recreation, conservation
Various other grant programs	EPA	Coastal watersheds/estuaries, brownfields, clean water
Wetland and Stream Mitigation Banks	USACE	Wetland and stream mitigation banking
Deepwater Horizon/RESTORE Act Settlement funds	Gulf Coast Ecosystem Restoration Trust Fund, State of Texas (representative)	Conservation, restoration, resilience
Inflation Reduction Act/Bipartisan Infrastructure Law funded programs	Multiple	Multiple, including forestry, water quality, etc.