SCOPE OF WORK
FOR
PLANNING ASSISTANCE TO STATES

JONESBORO, ARKANSAS MASTER PLAN STUDY

1. GENERAL.

The following paragraphs describe the scope of work to be accomplished by the U.S. Army Corps of Engineers, Memphis District and the City of Jonesboro, Arkansas for the Jonesboro, Arkansas Master Plan, Planning Assistance to the States Study (PAS). Planning Assistance to the States provides authority for the Corps of Engineers to assist the states, local governments, and other non-Federal entities in the preparation of comprehensive plans for the development, utilization, and conservation of water and related land resources. The City of Jonesboro has requested planning assistance under the PAS program to assist in developing a comprehensive plan for long-term operations, maintenance, and improvements to the city's Municipal Separate Storm Sewer System (MS4). The PAS assistance would allow the City to be in a better position to manage storm water and its associated infrastructure within the community.

2. DETAILS OF STUDY.

This is a multi-year study and will be accomplished in four (4) years. The first phase of work will be accomplished in eighteen months. This phase will focus on master drainage planning for the Big Creek Basin and its tributaries. The second phase of work will be accomplished in twelve months and focus on Viney Slough Ditch and its tributaries. Phase three will focus on Little Bay Ditch and its tributaries and be completed within a twelve month period. The final phase of work will be completed in a six month period and will focus on miscellaneous channels and tributaries in the Valley View area. During the planning process, emphasis will be placed on developing a sustainable drainage system that not only mitigates flooding but also improves water quality, promotes environmental stewardship, and provides possible recreational opportunities.
The items to be included in the Master Drainage Plan study for each watershed is as follows:

1. Engineering description of the watershed drainage system and the major physical and institutional factors impacting drainage;
2. Classification of existing drainage ways to include both open-channels and piped networks as either primary, secondary, or tertiary drainage ways based on criteria to be established as part of study;
3. Recommendations for both short- and long-term maintenance of these classified facilities;
4. Re-delineation of drainage sub-basins from each point source discharge to a secondary drainage way;
5. Identification of existing rights-of-ways and easements associated with each drainage way;

6. Analysis of the adequacy of each drainage way to convey floodwaters without inundating, entering, or otherwise damaging private property or structures;
7. Methodology for prioritizing drainage improvement projects along the identified drainage ways so that the public is adequately protected from damages caused by floodwaters;
8. Hydrologic models (GIS compatible) for each drainage sub-basin;
9. Hydraulic models (GIS compatible) for each drainage way; and,
10. Conceptual designs with supporting models and analysis to mitigate flooding within the basins being studied.

Conceptual designs are to include:

1. Planning level maps with all recommended improvements identified;
2. Proposed rights-of-way for classified drainage ways including provisions for recreational trails, green spaces, and access for maintenance, as applicable;
3. Typical sections drawings for the classified drainage ways;
4. Recommendations for bank stabilization practices, grade checks, and vegetation management;
5. Budgetary cost estimates for plan implementation; and,
6. A recommended phasing plan for construction.

All modeling work and supporting documentation shall be done in accordance with the Federal Emergency Management Agency (FEMA) Guidelines and Specifications for Flood Hazard Mapping Partners with the intent of updating the Digital Flood Insurance Rate Maps (DFIRMs) for the City and requesting CLOMRs (Conditional Letter of Map Revisions) and LOMRs (Letter of Map Revisions) as part of the phased implementation of the Master Plan.

3. DETAILED PHASE OF WORK.

Phase 1 – Big Creek & Tributaries

The first phase of work will consist of master plan development within the Big Creek Watershed. Some of the sub-basins to be studied are Rogers Bayou, Big Creek Upper, Lost Creek, and Christian Creek. The tasks to be accomplished are listed in Table 1 below. Detailed descriptions of the items associated with each task are depicted in section 2 above, Details of Study. This phase of work will require eighteen months for completion.

TABLE 1

Task	Item No.	Item Description
A	1 and 4	Describe Drainage Network
B	2	Classify Drainageways
C	5	Identify ROW & Easements
D	8	Build HEC-Geo-HMS Model
E	9	Build HEC-Geo-RAS Model
F	6	Determine Drainageway Capacity
G	7	Determine Method to Prioritize Improvements
H	3	Recommend Maintenance
I	10	Develop Conceptual Designs
J		No items of work to be performed

Phase 2 – Viney Slough & Tributaries

The second phase of work will consist of master plan development within the Viney Slough Watershed. Some of the sub-basins to be studied are Viney Slough Tributary 10, Higginbottom Creek and other unnamed tributaries. The tasks to be accomplished are listed in Table 2 below. Detailed descriptions of the items associated with each task are depicted in section 2 above, Details of Study. This phase of work will require twelve months for completion.

TABLE 2

Task	Item No.	Item Description
A	1 and 4	Describe Drainage Network
B	2	Classify Drainageways
C	5	Identify ROW & Easements
D	8	Build HEC-Geo-HMS Model
E	9	Build HEC-Geo-RAS Model
F	6	Determine Drainageway Capacity
G		No items of work to be performed
H	3	Recommend Maintenance
I	10	Develop Conceptual Designs
J		Perform Craighead Forest Lake Dam Breach Analysis (Viney Slough Watershed)

Phase 3 – Little Bay Ditch & Tributaries

The third phase of work will consist of master plan development within the Little Bay Ditch Watershed. Some of the sub-basins to be studied are Whitemans Creek, Turtle Creek, Lateral No. 3, Butler Ditch, Murray Creek (Lateral 1), and Bridger Creek (Lateral 2). The tasks to be accomplished are listed in Table 3 below. Detailed descriptions of the items associated with each task are depicted in section 2 above, Details of Study. This phase of work will require twelve months for completion.

TABLE 3

Task	Item No.	Item Description
A	1 and 4	Describe Drainage Network
B	2	Classify Drainageways
C	5	Identify ROW & Easements
D	8	Build HEC-Geo-HMS Model
E	9	Build HEC-Geo-RAS Model
F	6	Determine Drainageway Capacity
G		No items of work to be performed
H	3	Recommend Maintenance
I	10	Develop Conceptual Designs
J		No items of work to be performed

Phase 4 – Valley View Area

The final phase of work will consist of master plan development within the Valley View Area. Some of the sub-basins to be studied are Main Ditch 1, Main Ditch 2, and Black Fork Creek. The tasks to be accomplished are listed in Table 4 below. Detailed descriptions of the items associated with each task are depicted in section 2 above, Details of Study. This phase of work will require six months for completion.

TABLE 4

Task	Item No.	Item Description
A	1 and 4	Describe Drainage Network
B	2	Classify Drainageways
C	5	Identify ROW & Easements
D	8	Build HEC-Geo-HMS Model
E	9	Build HEC-Geo-RAS Model
F	6	Determine Drainageway Capacity

G		No items of work to be performed
H	3	Recommend Maintenance
I	10	Develop Conceptual Designs
J		No items of work to be performed

4. **SCHEDULE OF WORK.** The Jonesboro, AR Master Plan study will be a multi-year study and consist of work performed as stated above. Work will begin as soon as practical following the effective date of the Planning Assistance to States Agreement between the Memphis District and the City of Jonesboro, AR and the date of receipt by the Memphis District of the sponsor's required share of funding or notification of intent to provide its share as in-kind services or a combination of cash and in-kind services. The non-Federal sponsor has an option to provide its share as one-hundred percent (100%) work-in-kind through the provision of services, materials, supplies or other in-kind-services necessary to prepare the plan. The non-Federal sponsor also has the option to provide its share as a combination of cash and work-in-kind. The PAS study will be cost shared on a 50/50 basis. Work-in-kind must begin after the Planning Assistance to States Agreement is executed. Such work-in-kind will be documented during the study process and subject to audit upon completion. The sponsor will provide work-in-kind through items of work associated with all phases of work. A PAS report will be completed at the end of each phase of work. The report will outline the findings of the study and development of the master plan.

5. **REQUIRED MEETINGS.** Close coordination will be maintained throughout the study process. Both formal and informal meetings will be held as needed. The City of Jonesboro will be provided regular updates as to the status of study progress. Submittals will be required at 30%, 60% and 90% completions during each phase of work. Review conferences will be conducted at 30%, 60% and 90% completion. Communication and coordination is necessary to ensure that goals and objectives will be met and a quality product developed within time and cost constraints.

6. **REPORTS.** Five hard copies and one digital copy of the PAS reports completed at the end of each phase of work will be provided to the City of Jonesboro upon completion.