I. PROJECT MANAGEMENT AND COORDINATION

1. Kickoff and coordination meetings with Study partners.
2. Three public meetings.
3. Stakeholder/executive briefings.
4. Coordination with North Cleveland regarding adoption of floodplain ordinances that meet NFIP minimum standards (FIF grant requirement).
5. Project Report – All project deliverables will be compiled in an overall project report. This report will be made available for public review.

II. DATA COLLECTION AND REVIEW

1. Collect relevant items for planning, including existing studies, plans, models, GIS data, gauge information, etc.
2. Review the collected data for the project area and leverage the information provided for model updates and completing remaining project tasks.
3. Conduct up to two site visits within the project area and document with field observation report.
4. Document conditions in a field observation report that includes photographs.

III. EVALUATION OF PRE-RELEASES

1. Utilize the H&H models developed as part of the San Jacinto Regional Watershed Master Drainage Plan, the San Jacinto Regional Flood Plan, and/or other most up-to-date modeling data available.
2. Determine the efficacy and comprehensive benefit of the strategy of pre-releases at Lake Conroe and Lake Houston, considering:
    i. The proposed spillway and gate improvements recommended by the City of Houston as part of their on-going efforts to evaluate, design, and construct spillway modifications at Lake Houston Dam
    ii. Water surface elevations along the West Fork of the San Jacinto River upstream and downstream of each dam,
    iii. Number of structures impacted by flooding,
    iv. Water quality in both lakes,
    v. Volume accounting as defined by water rights for both lakes,
    vi. Water supply and operations of water treatment plants.
3. Evaluate pre-release scenarios. Scenarios will evaluate combinations of pre-release parameters and storm events of various sizes.
4. Develop inundation mapping along San Jacinto River between Lake Conroe and Lake Houston for each scenario.
5. Evaluate consequences of pre-releases based on inaccurate rainfall predictions.
6. Summarize assumptions, procedures, findings, and recommendations in a report.
7. Develop a pre-release communications plan for the general public, emergency managers, service providers, and others as appropriate.

IV. FLOW FORECASTING AT LAKE HOUSTON

1. Develop a Lake inflow forecasting system for Lake Houston that evaluates/relies on:
   i. Existing rainfall and streamflow gage network,
   ii. Publicly and/or privately available radar rainfall,
   iii. Rainfall forecasts from National Weather Service,
   iv. Existing models for the San Jacinto River Watershed,
   v. Output from existing real-time forecast systems.
2. For a wide range of potential rainfall events, the system will be used to:
   i. Forecast peak water surface elevations within Lake Houston,
   ii. Estimate magnitude/timing of flows for all major streams entering Lake Houston,
   iii. Estimate volumes of runoff for all major streams entering Lake Houston.
3. Coordinate with stakeholders on system needs and incorporate these needs into the inflow forecasting system.
4. System will be developed for Lake Houston dam configuration including modifications proposed by City of Houston as part of existing and on-going Lake Houston Dam Spillway Improvements.
5. Evaluate system performance with historical storms of various rainfall intensities, including October 1994, Memorial Day 2015, Tropical Storm Imelda, and potentially others.
6. Prior to final release, conduct further testing with real historical rainfall events to determine final adjustments and improvements.
7. Provide recommendations to expand existing rainfall and streamflow gage network to improve forecasts of inflows and stages at Lake Houston.
8. Prepare a User's Manual describing procedures to operate the system.
9. Conduct workshop(s) with stakeholders to demonstrate and train appropriate staff on the Lake inflow forecasting system.

V. GATE OPERATIONS POLICY FOR LAKE HOUSTON DAM

1. Support development of gate operations policy for Lake Houston Dam. The policy will be developed under separate contract by the consultant on the Lake Houston Dam Spillway Improvements Project.
2. Incorporate Lake Conroe data to ensure dams operate efficiently and effectively in series.
3. Work with CWA to incorporate Lake inflow forecasting system (developed in Task IV) in gate operations policy for Lake Houston Dam.
4. Document coordination with CWA in a technical memorandum.
5. Hold workshop(s) with study partners/stakeholders to present and review results of this task.