

RESOLUTION NO. _____

A RESOLUTION AUTHORIZING THE MAYOR TO ENTER INTO AN AGREEMENT WITH THE U.S. ARMY CORPS OF ENGINEERS FOR SCOPE OF WORK RELATIVE TO THE FLOOD PLAIN MANAGEMENT SERVICES PROGRAM, CONTRACT NO. S-13-004, CITICO AND MOUNTAIN CREEK WATERSHEDS AND OTHER MINOR UNNAMED TRIBUTARIES, AUTHORIZING A FIFTY (50%) PERCENT MATCH, FOR AN AMOUNT NOT TO EXCEED ONE HUNDRED FIVE THOUSAND DOLLARS (\$105,000.00).

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CHATTANOOGA, it is hereby authorizing the Mayor to enter into an agreement with the U.S. Army Corps of Engineers for scope of work relative to the Flood Plain Management Services Program, Contract No. S-13-004, Citico and Mountain Creek Watersheds and other minor unnamed tributaries, authorizing a 50% match, for an amount not to exceed \$105,000.00.

ADOPTED: _____, 2013.

/mms

City of Chattanooga



Resolution Request Form

(This form is only required for resolutions requiring expenditure of City funds)

Date: June 3, 2013

Preparer: William C. Payne

Department: Public Works - Engineering

Brief Description of Purpose for Resolution:

Resolution Number (if approved by Council): _____

A City Council Action is requested to authorize the Mayor to execute an agreement with the U.S. Army Corps of Engineers for scope of work relative to the Flood Plain Management Services Program, Contract No. S-13-004, Citico & Mountain Creek Watersheds and other minor unnamed tributaries, authorizing a 50% match in the amount not to exceed \$105,000.00.

Name of Vendor/Contractor/Grant, etc.	<u>U.S. Army Corp of Engineers</u>	New Contract/Project? (Yes or No)	<u>Yes</u>
Total project cost \$	<u>105,000.00</u>	Funds Budgeted? (YES or NO)	<u>Yes</u>
Total City of Chattanooga Portion \$	<u>105,000.00</u>	Provide Fund	<u>6031</u>
City Amount Funded \$	<u>105,000.00</u>	Provide Cost Center	<u>K80111</u>
New City Funding Required \$	<u>0.00</u>	Proposed Funding Source if not budgeted	<u>N/A</u>
City's Match Percentage %	<u>50%</u>	Grant Period (if applicable)	<u>N/A</u>

List all other funding sources and amount for each contributor.

Amount(s)	Grantor(s)
\$	

Agency Grant Number _____

CFDA Number if known _____

Other comments: (Include contingency amount, contractor, and other information useful in preparing resolution)

Approved by: DESIGNATED OFFICIAL/ADMINISTRATOR

Reviewed by: FINANCE OFFICE

Please submit completed form to @budget, City Attorney and City Finance Officer

PLANNING ASSISTANCE TO STATES AGREEMENT

BETWEEN

THE DEPARTMENT OF THE ARMY

AND

THE CITY OF CHATTANOOGA, TENNESSEE

FOR THE CHATTANOOGA REGIONAL FLOOD PREPAREDNESS STUDY

THIS AGREEMENT is entered into this _____ day, of _____, 2013, by and between the Department of the Army (hereinafter the "Government"), represented by the District Engineer executing this Agreement, and the City of Chattanooga, Tennessee (hereinafter the "Sponsor"), represented by the Mayor of Chattanooga executing the Agreement.

WITNESSETH, that

WHEREAS, Section 22 of the Water Resources Development Act ("WRDA") of 1974 (Public Law 93-251), as amended, authorizes the Secretary of the Army, acting through the Chief of Engineers, to assist the States, as therein defined, in the preparation of comprehensive plans for the development, utilization and conservation of water and related resources of drainage basins, watersheds or ecosystems located within the boundaries of such State;

WHEREAS, Section 319 of the WRDA of 1990 (Public Law 101-640) authorizes the Secretary of the Army to collect fees from States and other non-Federal governmental entities for the purpose of recovering 50 percent of the cost of the program established by WRDA of 1974, Section 22;

WHEREAS, the Sponsor has reviewed the State's comprehensive water plans and identified the need for planning assistance as described in the Scope of Work incorporated into this Agreement;

WHEREAS, the Sponsor has the authority and capability to furnish the cooperation hereinafter set forth and is willing to participate in the study cost-sharing and financing in accordance with the terms of this Agreement; and

WHEREAS, the Sponsor may provide up to 100 percent of its required contribution of Study Costs by the provision of services, materials, supplies or other in-kind services.

NOW THEREFORE, the parties agree as follows:

ARTICLE I - DEFINITIONS

For the purposes of this Agreement:

A. The term "Study Costs" shall mean all disbursements by the Government pursuant to this Agreement, from Federal appropriations or from funds made available to the Government by the Sponsor and all negotiated costs of work performed by the Sponsor pursuant to this Agreement. Study Costs shall include, but not be limited to: labor charges; direct costs; overhead expenses; supervision and administration costs; the costs of participation in Study Management and Coordination in accordance with Article IV of this Agreement; the costs of contracts with third parties, including termination or suspension charges; and any termination or suspension costs (ordinarily defined as those costs necessary to terminate ongoing contracts or obligations and to properly safeguard the work already accomplished) associated with this Agreement.

B. The term "estimated Study Costs" shall mean the estimated cost of performing the Study as of the effective date of this Agreement, as specified in Article III.A. of this Agreement.

C. The term "study period" shall mean the time period for conducting the Study, commencing with the release to the U.S. Army Corps of Engineers Nashville District of initial Federal funds following the execution of this Agreement and ending when the U.S. Army Corps of Engineers Nashville District provides the last deliverable to the Sponsor.

D. The term "Scope of Work" (SOW) means a description of the work to be performed. The SOW will be attached to this Agreement and not be considered binding on either party and is subject to change by the Government, in consultation with the Sponsor.

E. The term "fiscal year" shall mean one fiscal year of the Government. The Government fiscal year begins on October 1 and ends on September 30.

F. The term "negotiated costs" shall mean the costs of in-kind services to be provided by the Sponsor in accordance with the SOW.

ARTICLE II - OBLIGATIONS OF PARTIES

A. The Government, subject to receiving funds appropriated by the Congress of the United States (Congress), using funds and in-kind services provided by the Sponsor and funds appropriated by the Congress, shall expeditiously prosecute and complete the Study, in accordance with the provisions of this Agreement and Federal laws, regulations, and policies.

B. In accordance with this Article and Article III.A., III.B. and III.C. of this Agreement, the Sponsor shall contribute cash and/or in-kind services equal to fifty (50) percent of Study Costs. If agreeable to all parties, in-kind services may comprise up to one hundred (100) percent of the Sponsor's contributions. The in-kind services to be provided by the Sponsor, the estimated negotiated costs for those services, and the estimated schedule under which those services are to be provided are specified in the SOW. Negotiated costs shall be subject to an audit by the Government to determine reasonableness, allocability, and allowability.

C. The Sponsor understands that the schedule of work may require the Sponsor to provide cash or in-kind services at a rate that may result in the Sponsor temporarily diverging from the obligations concerning cash and in-kind services specified in paragraph B. of the

Article. Such temporary divergences shall be identified in the quarterly reports provided for in Article III.A. of this Agreement and shall not alter the obligations concerning costs and services specified in paragraph B. of the Article or the obligations concerning payment specified in Article III of this Agreement.

D. If, upon the award of any contract or the performance of any in-house work for the Study by the Government, cumulative financial obligations of the Government and the Sponsor would exceed \$210,000, the Government and the Sponsor agree to defer award of that and all subsequent contracts, and performance of that and all subsequent in-house work, for the Study until the Government and the Sponsor agree to proceed. Should the Government and the Sponsor require time to arrive at a decision, the Agreement will be suspended in accordance with Article X., for a period of time not to exceed six months. In the event the Government and the Sponsor have not reached an agreement to proceed by the end of the 6-month period, the Agreement may be subject to termination in accordance with Article X.

E. No Federal funds may be used to meet the Sponsor's share of Study Costs unless the Federal granting agency verifies in writing that the expenditure of such funds is expressly authorized by statute.

F. The award and management of any contract with a third party in furtherance of this Agreement which obligates Federal appropriations shall be exclusively within the control of the Government. The award and management of any contract by the Sponsor with a third party in furtherance of the Agreement which obligates funds of the Sponsor and does not obligate Federal appropriations shall be exclusively within the control of the Sponsor, but shall be subject to applicable Federal laws and regulations.

G. Notwithstanding any provision of this Agreement, this Agreement and the Government's obligations hereunder shall not be effective and will not commence until Federal funds have been appropriated and allocated to the District Engineer, U.S. Army Corps of Engineers Nashville District for the implementation of this Study. In the event that Federal funds are allocated to the District Engineer for this Study after the date that the parties hereto execute this Agreement, the effective date of this Agreement shall be the date that funding approval is provided to the District Engineer.

ARTICLE III - METHOD OF PAYMENT

A. The Government shall maintain current records of contributions provided by the parties, current projections of Study Costs, current projections of each party's share of Study Costs. At least quarterly, the Government shall provide the Sponsor with a report setting forth this information. As of the effective date of this Agreement, estimated Study Costs are \$210,000 and the Sponsor's share of estimated Study Costs is \$105,000. In order to meet the Sponsor's requirements for its share of estimated Study Costs, the Sponsor must provide cash and/or in-kind contributions currently estimated to be a value of \$105,000. The dollar amounts set forth in this Article are based upon the Government's best estimates, which reflect the scope of the Study described in the SOW, projected costs, price-level changes, and anticipated inflation. Such cost estimates are subject to adjustment by the Government and are not to be construed as the total financial responsibilities of the Government and the Sponsor.

B. The Sponsor shall provide its cash contribution required under Article II.B. of this Agreement in accordance with the following provisions:

1. For purposes of budget planning, the Government shall notify the Sponsor by November 30 of each year of the estimated funds that will be required from the Sponsor to meet the Sponsor's share of Study Costs for the upcoming fiscal year.

2. No later than 60 calendar days prior to the scheduled date of the Government's issuance of the solicitation for the first contract for the Study or for the Government's anticipated first significant in-house expenditure for the Study, the Government shall notify the Sponsor in writing of the funds the Government determines to be required from the Sponsor to meet its required share of Study Costs for the first fiscal year of the Study. No later than 30 calendar days thereafter, the Sponsor shall provide the Government with the full amount of the required funds by delivering a check payable to "FAO, USAED, Nashville District" to the District Engineer or verifying to the satisfaction of the Government that the Sponsor has deposited the required funds in an escrow account or other account acceptable to the Government, with interest accruing to the Sponsor, or presenting the Government with an irrevocable letter of credit acceptable to the Government for the required funds, or providing an Electronic Funds Transfer in accordance with the procedures established by the Government.

3. For the second and subsequent fiscal years of the Study, the Government shall, no later than 60 calendar days prior to the beginning of the fiscal year, notify the Sponsor in writing of the funds the Government determines to be required from the Sponsor to meet its required share of Study Costs for that fiscal year, taking into account any temporary divergences identified under Article II.D. of this Agreement. No later than 30 calendar days prior to the beginning of the fiscal year, the Sponsor shall make the full amount of the required funds available to the Government through any of the funding mechanisms specified in paragraph B.2. of this Article.

4. The Government shall draw from the funds provided by the Sponsor such sums as the Government deems necessary to cover the Sponsor's share of contractual and in-house fiscal obligations attributable to the Study as they are incurred.

5. In the event the Government determines that the Sponsor must provide additional funds to meet its share of Study Costs, the Government shall so notify the Sponsor in writing. No later than 60 calendar days after receipt of such notice, the Sponsor shall make the full amount of the additional required funds available through any of the funding mechanisms specified in paragraph B.2. of this Article.

C. Within 90 days after the conclusion of the Study Period or termination of this Agreement, the Government shall conduct a final accounting of Study Costs, including disbursements by the Government of Federal funds, cash contributions by the Sponsor, and credits for the negotiated costs of the Sponsor, and shall furnish the Sponsor with the results of this accounting. Within 30 days thereafter, the Government, subject to the availability of funds, shall reimburse the Sponsor for the excess, if any, of cash contributions and credits given over its required share of Study Costs, or the Sponsor shall provide the Government any cash contributions required for the Sponsor to meet its required share of Study Costs.

ARTICLE IV - STUDY MANAGEMENT AND COORDINATION

To provide for consistent and effective communication, the Government's Project

Manager for the Study and the Sponsor's designated representative shall communicate regularly until the end of the Study Period.

ARTICLE V - DISPUTES

As a condition precedent to a party bringing any suit for breach of this Agreement, that party must first notify the other party in writing of the nature of the purported breach and seek in good faith to resolve the dispute through negotiation. If the parties cannot resolve the dispute through negotiation, they may agree to a mutually acceptable method of non-binding alternative dispute resolution with a qualified third party acceptable to both parties. The parties shall each pay 50 percent of any costs for the services provided by such a third party as such costs are incurred. Such costs shall not be included in Study Costs. The existence of a dispute shall not excuse the parties from performance pursuant to this Agreement.

ARTICLE VI - MAINTENANCE OF RECORDS AND AUDIT

A. Within 60 days of the effective date of this Agreement, the Government and the Sponsor shall develop procedures for keeping books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to this Agreement. These procedures shall incorporate, and apply as appropriate, the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 C.F.R. Section 33.20. The Government and the Sponsor shall maintain such books, records, documents, and other evidence in accordance with these procedures and for a minimum of three years after the period of design and resolution of all relevant claims arising therefrom. To the extent permitted under applicable Federal laws and regulations, the Government and the Sponsor shall each allow the other to inspect such books, documents, records, and other evidence.

B. In accordance with 31 U.S.C. Section 7503, the Government may conduct audits in addition to any audit that the Sponsor is required to conduct under the Single Audit Act. Any such Government audits shall be conducted in accordance with Government Auditing Standards and the cost principles in OMB Circular No. A-87 and other applicable cost principles and regulations. The costs of Government audits shall be included in total Study Costs and cost shared in accordance with the provisions of this Agreement.

ARTICLE VII - RELATIONSHIP OF PARTIES

The Government and the Sponsor act in independent capacities in the performance of their respective rights and obligations under this Agreement, and neither is to be considered the officer, agent, or employee of the other.

ARTICLE VIII - OFFICIALS NOT TO BENEFIT

No member of or delegate to the Congress, nor any resident commissioner, shall be admitted to any share or part of this Agreement, or to any benefit that may arise therefrom.

ARTICLE IX - FEDERAL AND STATE LAWS

In the exercise of the Sponsor's rights and obligations under this Agreement, the Sponsor agrees to comply with all applicable Federal and State laws and regulations, including Section 601 of Title VI of the Civil Rights Act of 1964 (Public Law 88-352) and Department of Defense Directive 5500.11 issued pursuant thereto and published in 32 C.F.R. Part 195, as well as Army Regulations 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army."

ARTICLE X - TERMINATION OR SUSPENSION

A. This Agreement shall terminate at the conclusion of the Study Period, and neither the Government nor the Sponsor shall have any further obligations hereunder, except as provided in Article III.C.; provided, that prior to such time and upon 30 days written notice, either party may terminate or suspend this Agreement. In addition, the Government shall terminate this Agreement immediately upon the failure of the parties to extend the Study under Article II.D. of the Agreement, or upon failure of the Sponsor to fulfill its obligation under Article III. of this Agreement. In the event that either party elects to terminate this Agreement, both parties shall conclude their activities relating to the Study and proceed to a final accounting in accordance with Article III.C. of this Agreement. Upon termination of this Agreement, all data and information generated as part of the Study shall be made available to both parties.

B. Any termination of this Agreement shall not relieve the parties of liability for any obligations previously incurred, including the costs of closing out or transferring any existing contracts.

ARTICLE XI – LIMITATION ON GOVERNMENT EXPENDITURE

In accordance with Section 22 of WRDA of 1974, as amended, the Government financial participation in the cooperative preparation of comprehensive plans for development, utilization, and conservation of water and related resources pursuant to said authority shall be limited to the expenditure of not more than \$2,000,000 in any one year in any one State.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement, which, subject to the provisions of Article II.G. of this Agreement, shall become effective upon the date it is signed by the District Engineer for the U.S. Army Corps of Engineers, Nashville District.

DEPARTMENT OF THE ARMY

CITY OF CHATTANOOGA

BY: _____
James A. DeLapp
Lieutenant Colonel
Corps of Engineers
District Engineer

BY: _____
Andy Berke
Mayor

DATE: _____

DATE: _____

Attachments - Scope of Work - Budget Estimate

CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Andy Berke
Mayor

DATE: _____

**Attachment I -
Chattanooga Regional Flood Preparedness Study, Phase II
Planning Assistance to States (PAS) - Scope of Work
April 2013**

1. State/District/Project Location: Tennessee/Nashville District/Chattanooga and Hamilton County.

2. Background/Introduction/Project Objectives:

After middle and western Tennessee experienced record flooding in May 2010, the Tennessee Valley Authority (TVA) ran models of the Tennessee River with a storm of similar magnitude centered in eastern Tennessee, upstream of the City of Chattanooga (Chattanooga). The results indicate that if the May 2010 storm was centered just a few hundred miles to the east and south, the flooding in Chattanooga would exceed that experienced in the City of Nashville (Nashville), where damages were greater than \$2 billion and eleven fatalities occurred. This captured Chattanooga's attention and that of a group of federal and state agencies that had met to further the Silver Jackets initiative in Tennessee. The group recommended Chattanooga be considered as the next focus area for a multi-agency approach to flood preparedness. Nashville has been the focus of an aggressive flood risk management venture that includes multiple federal, state and local agencies to address the weaknesses in Nashville's flood preparedness.

The Chattanooga initiative has built upon the lessons learned in Nashville and focuses the efforts of a group of federal, state, and local partners on managing flood risk in the Chattanooga and Hamilton County area. Federal partners committed to the effort include TVA, National Weather Service (NWS) offices in Nashville and Morristown, Tennessee and the Ohio River Forecast Center, US Geological Survey (USGS) and US Army Corps of Engineers (USACE) Nashville District. State partners include the Tennessee Emergency Management Agency (TEMA) and Tennessee Department of Transportation (TDOT). Local partners include Nashville (who will share lessons learned) and the following cities in Hamilton County: Chattanooga, East Ridge, East Brainerd, Collegedale, Red Bank, Lookout Mountain, and Signal Mountain. Additionally, communities in north Georgia including Walker and Catoosa Counties and the cities of Ringgold and Fort Oglethorpe may participate.

This Planning Assistance to States (PAS) initiative builds upon the Silver Jackets Pilot Study and the Flood Plain Management Services (FPMS) Study, collectively called Phase I of the Chattanooga Regional Flood Preparedness Study. The goal of Phase I was to provide real time data and information to emergency management decision makers in the community in sufficient time to allow them to warn local residents and the media. Phase I developed static inundation products for the Tennessee River Chattanooga and for streams in the South Chickamauga Creek Watershed. Concurrent with development of these modeling products is the development of a web-based viewer and improvements in the real-time gauging and data retrieving process. Lastly, ongoing goals of the Chattanooga Regional Flood Preparedness Study include increasing coverage of these products to the rest of Chattanooga and ultimately developing HEC-RTS models for these areas, including Phase I areas.

Goals of Phase II, to be completed under USACE's PAS authority, are to 1) develop static inundation and timing products for Chattanooga Creek, Citico Creek, Mountain Creek, and Local Tributaries; 2) support the continued development of the web-based viewer or other interface with the flood preparedness data 3) support the continued development of the gage network and corresponding real time data retrieval 4) continue to develop the study team and established lines of communication for the future. The remaining goals of Phase II will be completed under USACE's FPMS Authority pursuant to a separate agreement between the parties (N. Chickamauga and Lookout Creek, pilot basin to develop HEC-RTS in Chattanooga).

3. Work to Be Performed/Tasks/Deliverables:

Task 1. Develop flood preparedness information for the Chattanooga Creek Watershed.

Chattanooga Creek poses a significant risk to human life and property. It flows about 15.1 miles from Catoosa County, Georgia through multiple political jurisdictions to the Tennessee River. The watershed is about 75 square miles. The following streams will be included in the analysis: Chattanooga Creek (8 miles to limits of existing study), Left Bank Trib in the vicinity of Charger Drive (1 mile), Left Bank Trib in the Vicinity of Tennessee Avenue (1 mile), and Dobbs Branch (5.1 miles). The analysis will include collecting data, assessing existing models and GIS information, and updating and connecting the models such that they can be used to develop inundation scenarios and later for Real Time Simulation (RTS) Modeling. New hydrologic modeling for the entire watershed will also be developed. The hydraulic models will be used to develop flood alert inundation mapping for the Tennessee portion of the watershed, referenced to stream gages for five flood alert categories (No Action, Action, Flood Stage, Moderate Stage and Major Stage) where the appropriate data is available.

Deliverables: The following products will be delivered for the Chattanooga Creek Watershed for the action levels, or alert categories. All Geographical Information System (GIS) data for the Chattanooga Creek Watershed will be provided in the Universal Transverse Mercator Zone 16 (UTM16 NAD83) horizontal map projection and North

American Vertical Datum of 1988 (NAVD 88).

- Flood alert level inundation GIS Data (water surface, depth, and area)
- Inundation data will be based on the most recent City of Chattanooga-provided LIDAR
- Hydrologic and Hydraulic Analysis Summary Report

Task 2: Develop flood preparedness information for Citico Creek Watershed.

Citico Creek is 2.9 miles in length and has a drainage area of 3 square miles. Citico Creek (2.9 miles) will be the only stream included in the analysis. The analysis will include collecting data, assessing existing models and GIS information, and updating and connecting the models such that they can be used to develop inundation scenarios and later for Real Time Simulation (RTS) Modeling. New hydrologic modeling for the entire watershed will also be developed. The hydraulic models will be used to develop flood alert inundation mapping for the watershed, referenced to stream gages for five flood alert categories (No Action, Action, Flood Stage, Moderate Stage and Major Stage) where the appropriate data is available.

Deliverables: See Task 1 for deliverable list. Note, we will add additional watersheds if funding allows.

Task 3. Develop flood preparedness information for Mountain Creek Watershed.

Mountain Creek is 4.6 miles in length and has a drainage area of 13.3 square miles. Mountain Creek (4.6 miles) will be the only stream included in the analysis. The analysis will include collecting data, assessing existing models and GIS information, and updating and connecting the models such that they can be used to develop inundation scenarios and later for Real Time Simulation (RTS) Modeling. New hydrologic modeling for the entire watershed will also be developed. The hydraulic models will be used to develop flood alert inundation mapping for the watershed, referenced to stream gages for five flood alert categories (No Action, Action, Flood Stage, Moderate Stage and Major Stage).

Deliverables: See Task 1 for deliverable list. Note, we will add additional watersheds if funding allows.

Task 4. Develop flood preparedness information for Minor Local Tributaries.

This task involves developing flood preparedness and inundation information for minor local tributaries to the Tennessee River in Chattanooga. These tributaries are: Trib in the vicinity of Ogrady Drive (4 miles), North Market Street Branch (1.7 miles), Trib in the vicinity of Altamont Road (1.9 miles), Trib in the vicinity of Ashland Terrace (3.8 miles), and Trib in the vicinity of Dupont Parkway (2.2 miles). These local tributaries drain a total area of 7.42 square miles. The analysis will include collecting data, assessing existing models and GIS information, and updating and connecting the models such that they can be used to develop inundation scenarios and later for Real Time Simulation (RTS) Modeling. New hydrologic modeling for the entire watershed will also be developed. The hydraulic models will be used to develop flood alert inundation mapping for the watershed, referenced to stream gages for five flood alert categories (No Action, Action, Flood Stage, Moderate Stage and Major Stage).

Deliverables: See Task 1 for deliverable list. Note, we will add additional watersheds if funding allows.

Task 5. Coordination and Communication. Develop and maintain multi-agency/multi-community team to promote and advance flood preparedness in the Chattanooga. The team will include all the partners involved in this proposal and reach out to the other cities in Hamilton County and those communities in north Georgia in the Tennessee River Basin. One goal will be to maximize the use of the tools being developed and maximize the sharing of information and resources. Another goal will be to facilitate communication between federal, state and local agencies before an emergency which will help the communication during an emergency.

4. Project Delivery Team/Stake Holders Roles and Responsibilities:

Chattanooga will do the bridge surveys to support the USACE modeling efforts. Hamilton County, which has the primary responsibility for emergency warnings in the county, will participate with staff time and GIS support. In addition, they have an emergency warning system that can notify the public thru calls to home phones as well as registered cell phones. Nashville offered to share their Nashville SAFE tool with Chattanooga and share their lessons learned in the process of developing the tool and improving their flood preparedness. TVA has the primary responsibility for managing the Tennessee River and would assist with modeling, mapping and notifications. The USGS would assist Chattanooga and Hamilton County with review of their gauging programs, installation of new gages, coordination of hardware installation, and the reporting and managing of real time data. NWS would evaluate its forecast points and consider whether additional points are needed and if so would models be available for them to use. USACE Nashville District would share their experiences with the Morristown office, which forecasts for Chattanooga. TDOT would provide bridge data for model updates as well as supply gage and other data. TEMA would participate as a stakeholder.

5. Schedule/Milestones/Cost Estimate

Title	Cost (\$1000)		Schedule	
	Federal	Non-Federal*	Start	Finish
Scope and Agreement Negotiations				
Task 1 – Modeling and Inundation Layers for Chattanooga Creek	39.5	39.5		
Task 2 – Modeling and Inundation Layers for Citico Creek Watershed	11	11		
Task 3 – Modeling and Inundation Layers for Mountain Creek Watershed	19	19		
Task 4 – Modeling and Inundation Layers for Minor Local Tributaries	28.5	28.5		
Task 5 – Coordination & Communication	7	7		
Total	105	105		