Williamson County

Multi-Hazard Mitigation Plan

INCLUDING:

- City of Brentwood
- City of Fairview
- City of Franklin
- Town of Nolensville
- City of Spring Hill
- Town of Thompson Station

Updated August 2011

Table of Contents

I. Introduction

This plan has been developed and updated to assist in the elimination of losses of life and property in county as that result of natural hazards. It has been formally adopted by the community of submission to the Tennessee Emergency Management Agency (TEMA) in accordance with Section 409 of the Stafford Act and 44 Code of Federal Regulations Section 206, Subpart M.

a. Purpose

Mitigation Plan Requirements:

1. S 201.6 Local Mitigation Plans: The Local Mitigation Plan is the representation of the jurisdiction's commitment to reduce risks from natural hazards, serving as a guide for decision making as they commit resources to reducing the effects of natural hazards. Local plans will also serve as the basis for the State to provide technical assistance and to prioritize project funding.
2. Section 409 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (P.L. 92-388, as amended) is the impetus of involvement of the state and local government to evaluate and mitigate natural hazards as a condition of receiving federal disaster assistance.

This Hazard Mitigation Plan is being developed in order to:

1. Comply with the requirements of Federal Emergency Management Agency in accordance with the Department of Homeland Security.
2. To assess ongoing mitigation activities in Williamson County, Tennessee, be they annual, new implementations, or singular in type.
3. To evaluate mitigation measures that have been identified that should be undertaken. As well as updated or revised processes that have taken place since the initial plan adoption.
4. Outline a strategy for implementation of mitigation projects, listed priority first.

This plan was formulated and subsequently updated with input from elected city and county officials, emergency management and emergency services personnel, agency representatives, local businesses, and interested citizens throughout the county and its cities.

b. Overview and Methodology:

Emergency management begins and ends at the local level. Locals are the first on the scene and the last to leave. As a result of this reality, a local planning initiative that identifies natural hazard vulnerability and prioritizes actions to mitigate against such vulnerabilities is essential. Williamson County is committed to identifying existing disasters , potential disasters, as well as the best possible solutions to lessen the impact of disasters county wide. Meetings for the original creation and continuing update of the Hazard Mitigation Plan include discussion of actions and projects pertaining to the mitigation of the identified vulnerabilities and hazards as well as the implementation of various Codes, Ordinances and Regulations. (*Note page 8, Section III. Planning Process as well as Appendix C Public Notice and Meeting Minutes)*

Williamson County is a large and diverse place and therefore vulnerable to many natural hazards. In order to effectively develop a complete and accurate natural hazard analysis, a comprehensive planning approach is vital to adequately address all natural hazards. This process is revisited, normally, following a natural hazard event within the County.
This approach includes all of the following elements:

1. Hazard identification – to define the type, location (if possible), magnitude and likelihood of each hazard;
2. Vulnerability analysis – to determine the ways Williamson County's residents, tourist, property, infrastructure, critical systems and facilities, and environment are vulnerable to these hazards (many reviewed upon changing development trends);

3. Capability assessment – to explain the current capacity to respond to each hazard, while understanding the strengths and weaknesses of the systems in place to manage the risk posed by each hazard; and
4. Identification and prioritization – to help select vulnerability reduction initiatives, based on collective analysis of what the greatest risks are.

The natural hazard analysis was developed and updated by identifying natural hazards that have historically affected the County at various degrees of severity.
The profile of each identified natural hazard contains a background explaining the overall nature and causes of the hazard, along with the likelihood of affecting Williamson County. The hazard will include historical findings that provide an accounting of past occurrences and includes the type of damage caused, recovery costs, and extent of property damage. This will look at areas with substantial damage, highlighting repetitive loss properties and locations. The profile attempts to identify the areas most severely affected by each hazard. The frequency, magnitude, and distribution of the hazard is also analyzed and documented to provide a clearer picture of the likely rate of reoccurrence and impact of future events.
The impact analysis for each natural hazard provides a detailed look at the vulnerabilities found in structures within hazard areas, the impact on residents and special populations, the vulnerabilities of businesses, and the impact on government's ability to deliver essential services. Depending on the hazard, this approach is broken down by the city/town to ensure a systematic way of understanding the vulnerabilities in each part of the County. Also addressed in the impact analysis is the County's overall capacity to respond to the hazard. Such analysis helps identify any possible shortcomings that may also increase vulnerability and therefore require further attention.

II. Prerequisites

a. Plan Adoption

   Plan Update resolutions per each continuing participating jurisdiction upon Mitigation plan approval from the Federal Emergency Management Agency

(FEMA) are located in Appendix K. Additional resolutions will be added upon approval of the Plan update.

III. Planning Process

For the creation and continuing updating process involving the Williamson County Hazard Mitigation Plan, each jurisdiction (Williamson County, The City of Brentwood, The City of Fairview, The City of Franklin, The Town of Nolensville, the City of Spring Hill, and the Town of Thompson Station) has identified participating personnel for representatives, along with, as necessary, additional representatives noted to have input and information needed for the Plan. During Hazard Mitigation Plan meetings, the direction, information collection and input concentrated on required elements necessary to the Plan but also additional elements that participants considered key elements. Points and considerations included, but were and are not limited to actions and possible actions and projects that would benefit the County and its participating jurisdictions as well as the environment in their implementation as mitigation to possible hazards. Examples of discussion items include, but are not limited to:

- New Codes and Zoning Ordinances to help mitigate future damage/destruction in residential areas, along with structures considered for a possible Buy-Out Program,
- The creation and future implementation of a registry for Residential and Commercial Tornado Shelters and Shelter Areas,
- Resource listing and updated listing of assets pertaining to the mitigation of severe winter threats,
- Identification and listing of Codes and Ordinances pertaining to the mitigation and effects of severe heat and drought.
- Identification and prioritization of actions and projects that would decrease or eliminate the effects of natural hazards upon implementation.
    - *See Appendix C for detailed Hazard Mitigation meeting minutes.*

The following listing includes the continuing participants with the Williamson County Hazard Mitigation Plan. The persons involved are identified per jurisdiction. Each jurisdiction has maintained identified personnel throughout the conception, creation, and continual update process of the Plan, with the lead of Williamson County Emergency Management Agency.

Williamson County Hazard Mitigation Committee

County Engineering Representative

Floyd Heflin, Engineer, Planning Department

William Andrews, Engineer, Planning Department

Williamson Emergency Management Agency

Director Mac Purdy

Planner Kate Brock

Data Collection Intern

Secretary

Lori John, Williamson County Office of Public Safety

Information Systems County Representative

Dave Thomas

Jurisdictional Representatives

City of Brentwood – Michael Walker, City Manager

City of Fairview – Andrew Hyatt Fairview City Manager

City of Franklin – Eric Stuckey, City Administrator

Town of Nolensville – Troy Buckley, Nolensville Police Department, Town Emergency Management Officer

City of Spring Hill – John Pewitt, Deputy Director of Public Works

Town of Thompson Station – Greg Langeliers, Town Administrator;

**Note: Each Jurisdiction may develop a sub-working committee in order to better collect necessary data from that area.* Also, throughout the planning process, members worked within their respective communities to integrate specific jurisdictional data into the planning effort. This section was and is subject to change as the needs of the County and it's jurisdictions are recognized as well as changing staffing patterns. (see also Appendix C for meeting minutes).

Hazard Mitigation Sub-Working Committee

Williamson County

Information Systems – Mike Jenkins

Williamson County Highway Department – Greg Boll

Williamson County Highway Department – Alan Little

City of Brentwood

Brentwood Planning Department – Todd Petrowski

Brentwood Engineering Department – Steve Foster

Brentwood Water Services Department – Todd Spangler

Brentwood Public Works Department – Rich Richardson

City of Fairview

Mayor City of Fairview – Ken Bryson

City of Franklin

Franklin Fire Department – Assistant Fire Chief Todd Horton

Town of Nolensville

Town Alderman – Larry Felts

Codes, Planning and Engineering Departments – Henry Laird

Engineering, Codes and Building Department(s) – Don Schwartz

Town of Spring Hill

Codes and Inspections – Director Ferrell White

Town of Thompson Station

Town Planner – Wendy Deats

- The Hazard Mitigation Committee and Sub-Working Committees reviewed and incorporated when/where appropriate, existing plans (including, but not limited to, 5BEOP, Zoning Ordinances, Subdivision Regulations, etc.) as it saw fit. The updated information is also referenced in the reviewed versions of the possible above mentioned plans.
- See Appendix C, for meeting participants, and meeting narratives.

State Assistance

Tennessee Emergency Management Agency Mitigation Division

Federal Assistance

Federal Emergency Management Agency
National Flood Insurance Program
Army Corps of Engineers

Emergency Management in Williamson County

The Williamson County Emergency Management Agency (WCEMA) located within the Williamson County Office of Public Safety, works in partnership with local, state, federal, non-profit, and private entities to deliver a comprehensive emergency management program that includes preparedness, response, recovery, and mitigation components. Recognized on May 21, 1979, and titled Williamson County Civil Defense Organization, it was renamed the Williamson County Emergency Management Agency in 1984 and became a full-time, funded department, due to catastrophic events that occurred from a massive train derailment in Waverly, TN. As a result of the derailment, a massive hazardous materials event occurred, forever changing emergency services in Tennessee and creating a greater need for Emergency Management services.

Preparedness

Williamson County Emergency Management Agency is responsible for developing response plans and ensuring that Williamson County is able to successfully implement them. Williamson EMA designs and conducts drills for different emergency scenarios and coordinates emergency management training. Williamson EMA plans the interagency response for a wide range of emergencies including, but not limited to:

- Severe Flooding
- Extreme Heat and severe winter weather
- Tornados and Severe Thunderstorms
- Utility service outages
- Etc.

Emergency preparedness also encompasses initiatives designed to prevent and mitigate emergencies, such as:

- Establishing a Public-Private Emergency Partnership Program
- Conducting a multi-hazard risk analysis
- Developing plans and guidelines which are needed by various organization and the public on safety issues

Review and Implementation of Existing and Updated Plans, Reports and Information

A preliminary review of existing plans, reports, and information was conducted during the initial drafting phase of creation and prior to the adoption of the Williamson County Hazard Mitigation Plan. The primary purpose of reviewing this information was to identifying local hazards, recognizing local risks, and understanding different local vulnerabilities. The following list of sources identifies some of the existing studies that were reviewed:

- State of Tennessee Hazard Mitigation Plan
- Tennessee Emergency Management Plan (TEMP)
- U.S. Census Bureau
- FEMA Mitigation "How to" Guides
- NOAA National Climatic Data Center (NCDC) storm reports
- National Weather Service/NOAA hazard scales and data
- City of Brentwood Building Codes and Regulations, Zoning Ordinances and Stormwater Regulations
- City of Fairview Building Codes and Regulations, Zoning Ordinances and Stormwater Regulations
- City of Franklin Building Codes and Regulations, Zoning Ordinances and Stormwater Regulations
- Town of Nolensville Building Codes and Regulations, Zoning Ordinances and Stormwater Regulations
- City of Spring Hill Building Codes and Regulations, Zoning Ordinances and Stormwater Regulations
- Town of Thompson Station Building Codes and Regulations, Zoning Ordinances and Stormwater Regulations
- Williamson County Building Codes and Regulations, Zoning Ordinances and Stormwater Regulations
- Williamson County Emergency Operations Plan
- National Incident Management System, Incident Command System and National Response Framework guidelines.

- Historical FEMA Disaster Declarations for Williamson County such as FEMA 1745-DR-TN (2008 Tornadoes) and FEMA 1909-DR-TN (2010 May Floods)

All of the listed plans, studies, and data sources were incorporated, fundamentally where and when applicable, into the Williamson County Hazard Mitigation Plan. These sources developed the plan's hazard, risk, and vulnerability assessment sections that in return led to the establishment of meaningful mitigation actions.

Incorporation into Planning Mechanisms

By incorporating the Williamson County Hazard Mitigation Plan into other planning documents and mechanisms, information contained in the mitigation plan can help fill-in missing gaps in existing documents, can contribute to already existing mitigation-based projects, and can create a strengthen stance of mitigation implementation and awareness within the county and its jurisdictions.

Some of the mechanisms that the Williamson County Hazard Mitigation Plan could be incorporated into include, but is not limited to:

- City of Brentwood Building Codes and Regulations, Zoning Ordinances and Stormwater Regulations
- City of Fairview Building Codes and Regulations, Zoning Ordinances and Stormwater Regulations
- City of Franklin Building Codes and Regulations, Zoning Ordinances and Stormwater Regulations
- Town of Nolensville Building Codes and Regulations, Zoning Ordinances and Stormwater Regulations
- City of Spring Hill Building Codes and Regulations, Zoning Ordinances and Stormwater Regulations
- Town of Thompson Station Building Codes and Regulations, Zoning Ordinances and Stormwater Regulations
- Williamson County Building Codes and Regulations, Zoning Ordinances and Stormwater Regulations
- Williamson County Emergency Operations Plan

The process of incorporating the hazard mitigation plan into other plans will begin during the other plan's update cycles. Williamson County Emergency Management will first review the plans side-by-side, and where deemed necessary, Emergency Management will make notes on how mitigation concepts and actions can be incorporated into the other plans. These recommendations will be submitted to the lead agencies of the other planning mechanisms for them to place relevant information within the documents.

In the past few years, information from the original Williamson County Hazard Mitigation Plan has already been incorporated into the:

- Williamson County BEOP
- Williamson County and Multi-Jurisdictional Zoning Ordinances

(This method of incorporation roughly followed the described process stated above)

Plan Revision Process

It is important to note that this countywide plan was entirely reorganized and updated head-to-toe from the original Williamson County Hazard Mitigation Plan. Williamson County reviewed and analyzed each section of the original plan and made updates in the following ways:

Section 1: Planning Process
Williamson County updated the original plan's description of the planning process to include the new or no longer participating committee members, the most recent countywide mitigation meetings that took place for the plan's update, and the latest opportunity for the public to get involved. Williamson County also compiled a new list of existing documents that they reviewed in updating their sections in the plan.

Section 2: Risk Assessment
Williamson County kept all of their listed hazards from the original mitigation plan for the update because no new hazards were identified as major risks. As part of the plan update, Williamson County updated their previous occurrence hazard listings to cover the most recent five years and re-evaluated each hazard's extent, probability, and potential impacts.

Section 3: Mitigation Strategy
Williamson County and its participating jurisdictions have updated their mitigation goals to address a more inclusive range of countywide aims. Williamson County and municipalities also have recognized new mitigation projects that were added to the list, reviewing the status of previously listed projects, based on prioritization of hazard, and reclassified, removed or inserted new project focuses. By working as an involved, multi-jurisdictional committee, the Williamson County Hazard Mitigation Committee were able to help each other recognize mitigation actions that have been implemented as routine and annual as those that are applicable, as well as be considered to be implemented by those jurisdictions whom have not previously applied such actions.

Section 4: Plan Maintenance
Williamson County updated how they would work with the other jurisdictions in monitoring, evaluating, and updating the plan; provided an updated list of mechanisms they could incorporate mitigation within; stated that now one Williamson County Hazard Mitigation Committee planning mechanism has

mitigation concepts incorporated within them; and updated how all the jurisdictions would keep the public involved in updating processes.

Public Involvement

Assisting the Public in order to better serve and protect our communities is vital to Williamson County and its jurisdictions. As a result of this, the Public was and still will be able to participate on input to this plan during the drafting process, prior to the adoption of and during the updating process of the plan in, several **different ways. The Hazard Mitigation Committee felt that giving the public, neighboring communities, agencies, businesses, academia, nonprofit organizations, and other interested parties multiple ways of communicating would be more convenient, and these will continue to be offered as the Plan progresses throughout it's future. Prior to local adoption/update resolution of the plan, the public was and will be given an opportunity to review and comment on the final plan and revision process, during an advertised formal public meeting. This opportunity was provided via a public hearing notice. Due to the nature of the meetings held to date, public, businesses, non-profits, and all interested parties were provided the opportunity to participate in the planning** process. Initially there were three (3) ways that the Public could be informed:

U.S. Mail to

Hazard Mitigation
1320 West Main, Suite B-30
Franklin, TN 37064

Via E-mail

Mitigation@williamson-tn.org (link currently under construction) Meetings

Public Information and Notices with Meeting Minutes

a. All Notices are sent to:
   i. The Tennessean, Williamson AM Section
   ii. Williamson Herald
   iii. The Fairview Observer
   iv. Various Local Radio Stations
   v. City of Franklin website

b. Public Notices (Same statement, only date changes)

P U B L I C N O T I C E

The Williamson County Hazard Mitigation Planning Team will meet Tuesday, 8 March 2005, at 9:30 a.m., in the office of the Williamson County Emergency Management Agency. Anyone requesting an accommodation due to a disability should contact Risk Management at 615-790-5466. This request, if possible, should be made three working days prior to the meeting.

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Mac Purdy
Director

County-Wide Profile

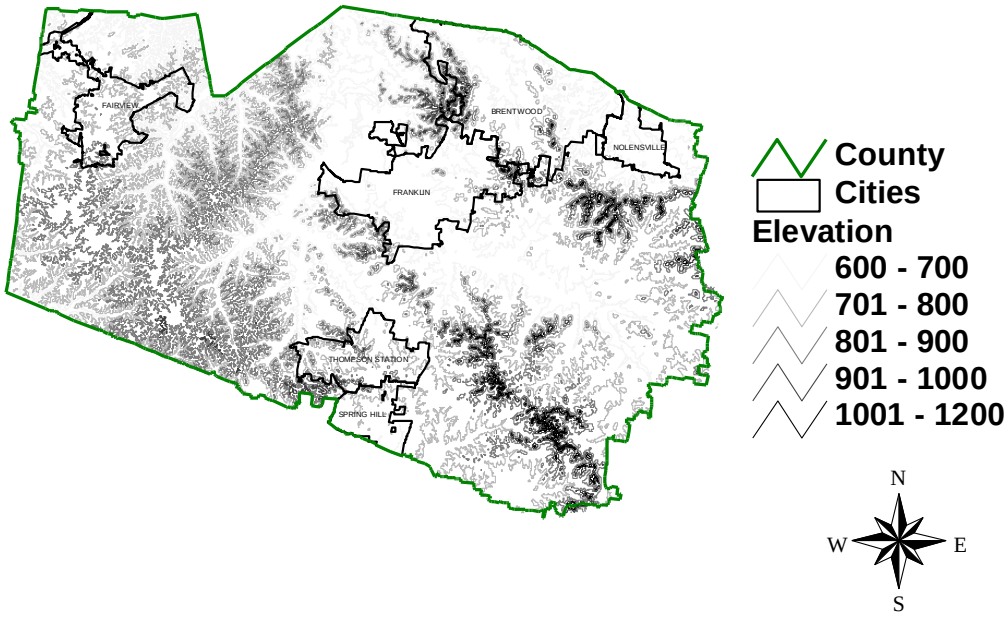
Williamson County is vulnerable to a variety of hazards. Its geographic location exposes it to a number of weather related hazards; the number of historical structures makes it susceptible by amplifying damage to the aged structures from any hazard; and its population opens it to the potential for mass casualties. (See Appendix E for Cities' and Town's populous).

Geography:

Latitude: 35.92515

Longitude: -86.86881

Williamson County Topography



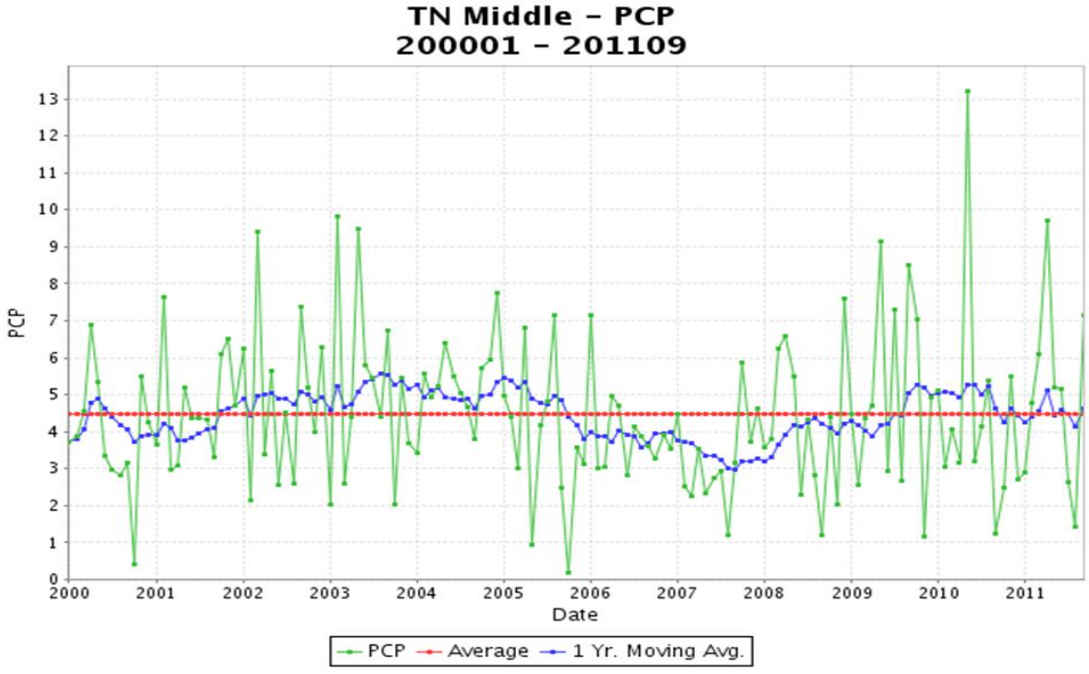
The County contains six cities/towns. The City of Brentwood lies at the northern border of Williamson County, on the county line at Davidson and Williamson Counties. The City of Fairview is situated at the northwestern corner of Williamson County, and is

bordered by Dickson, Cheatham and Hickman Counties. The City of Franklin is located at the center of Williamson County just south of the City of Brentwood. The Town of Nolensville can be found at the northeastern corner of Williamson County bordered by both Davidson and Rutherford Counties and at its western border by the City of Brentwood. The City of Spring Hill is located at the southwestern portion of Williamson County straddling the county lines between Williamson and Maury Counties, with mostly residential structures located on the Williamson County side of the City. The Town of Thompson Station can be found just northeast of the southern border of Williamson County, located on the northern side of the City of Spring Hill, in Williamson County.

Climate:

Williamson County has an annual precipitation of 54.33 inches. Rainfall is fairly evenly distributed throughout the year, with the wettest month on average being March, with 5.78 inches of

rain



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The temperature can range between an average high of 89 °F during the Summer months and an average low of 30 °F during the Winter months (these temperatures reflect

daytime highs and lows). The warmest month of the year is typically July with an average maximum temperature of 88.90 °F, while the coldest month of the year is usually January with an average minimum temperature of t 25.20°F.

Average Daily Temperature	High	Low
January	46.9° F	28.4° F
June	86.4° F	65.1° F
	Annual Average	58.8° F

Annual average precipitation: 59.5"

Annual relative humidity: 70%

Annual average snowfall: 8.2"

Prevailing winds: SE

The annual mean temperature is 56 °F. January's average temperature is 25 °F, and July's 89 °F.

Weather conditions generally approach Williamson County from the west or south, as the area is on the path of most storms and fronts that come across the continent. The result is higher summer temperatures and mild winter ones. Warm and cold periods may be irregular in the fall and spring months, whereas winter and summer tend to stay at a regular frequency. Temperature variations between night and day tend to be moderate during Summer with a difference that can reach 23°F, and moderate during Winter with an average difference of 21°F.

Monthly Averages | Table Display | Graph Display

Month	Avg. High	Avg. Low	Mean	Avg. Precip	Record High	Record Low
Jan	48°F	27°F	38°F	3.95 in.	78°F (1952)	-21°F (1985)
Feb	53°F	30°F	42°F	4.77 in.	82°F (1962)	-12°F (1951)
Mar	61°F	37°F	49°F	4.79 in.	87°F (1982)	0°F (1980)
Apr	71°F	45°F	58°F	4.50 in.	94°F (1965)	21°F (1942)
May	78°F	55°F	67°F	5.95 in.	96°F (1941)	30°F (1986)
Jun	86°F	64°F	75°F	3.98 in.	106°F (1952)	39°F (1966)
Jul	90°F	68°F	79°F	4.28 in.	108°F (1930)	43°F (1972)
Aug	90°F	66°F	78°F	3.60 in.	106°F (2007)	41°F (1953)
Sep	84°F	59°F	72°F	3.83 in.	105°F (1954)	30°F (1942)
Oct	73°F	47°F	60°F	3.33 in.	94°F (1953)	21°F (1987)
Nov	62°F	38°F	50°F	4.70 in.	84°F (1946)	-3°F (1950)
Dec	51°F	30°F	41°F	5.37 in.	79°F (1964)	-11°F (1989)

Franklin, TN Weather Facts

- July is the average warmest month.
- The highest recorded temperature was 108°F in 1930.
- The average coolest month is January.
- The lowest recorded temperature was -21°F in 1985.
- The most precipitation on average occurs in May.

Land Area in square miles:

Brentwood: 42 Square Miles

Fairview: 14 Square Miles

Franklin: 41.5 Square Miles

Nolensville: 9.5 Square Miles

Spring Hill: 6 Square Miles (Williamson County Only)

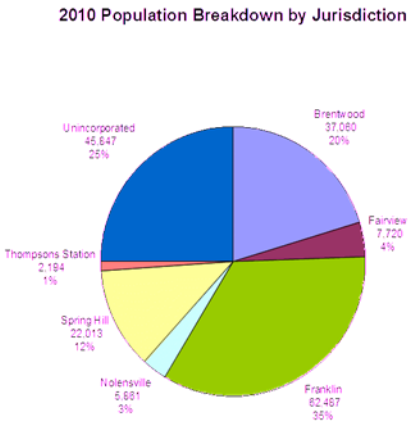
Thompson Station: 14.7 Square Miles

Population and Demographics:

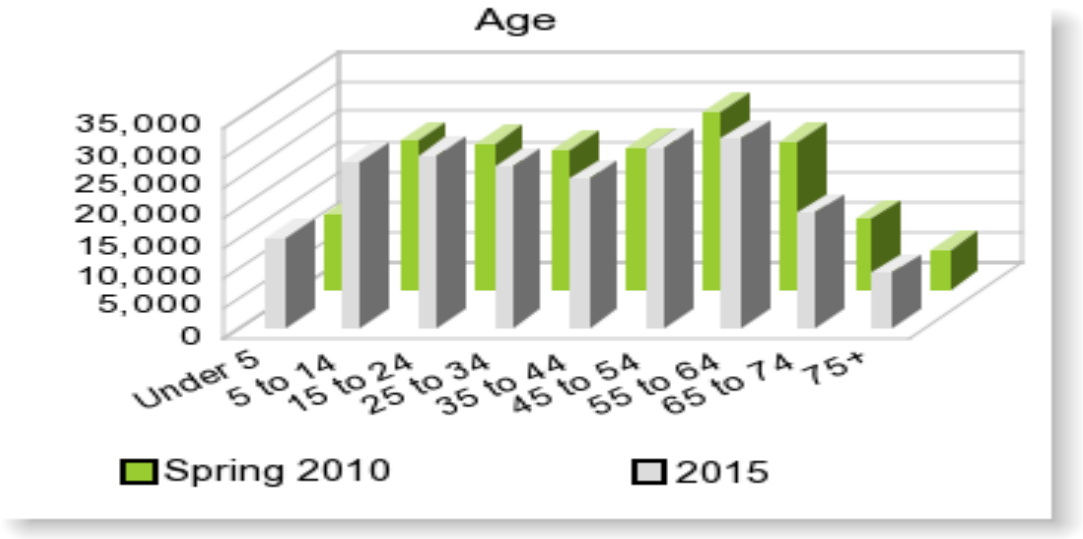
Based on the 2010 census, Williamson County has a total population of 183,182. The majority of the population may be found in the City of Brentwood, at 37,060, and the City of Franklin, at 62,487.

A. Legal Jurisdictions

a. Williamson County (population 183,182; projected at 212,352 in 2015), Unincorporated 45,847)
b. City of Brentwood (population 37,060)
c. City of Fairview (population 7,720)
d. City of Franklin (population 62,487)
e. Town of Nolensville (population 5,861)
f. City of Spring Hill (Williamson County portion22,013)
g. Town of Thompson Station (population 2,194)

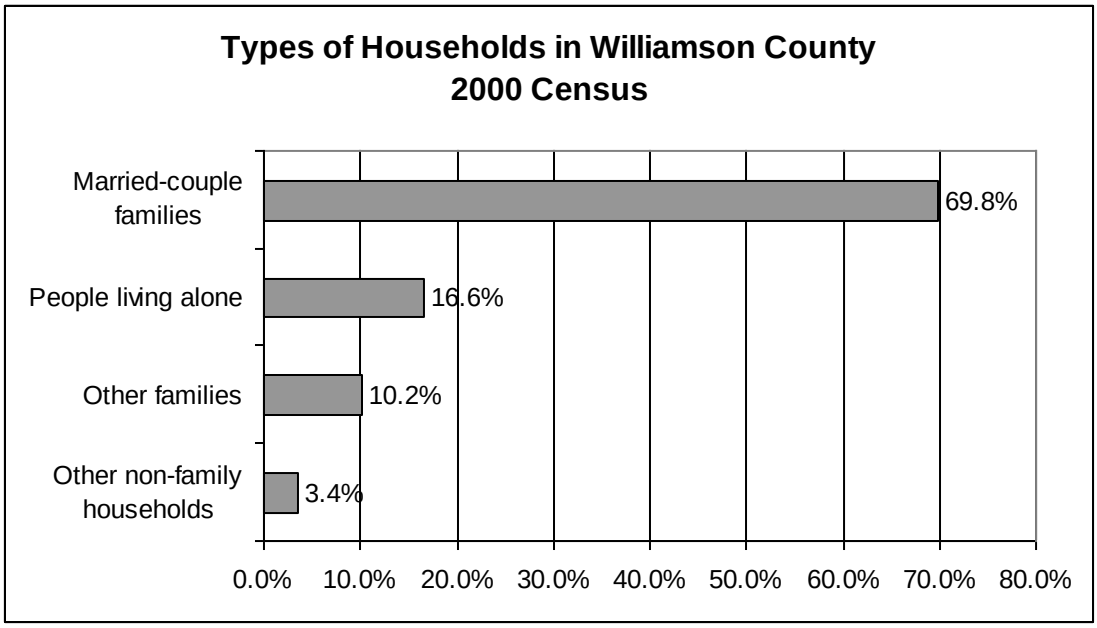


According to the U.S. Census Bureau in 2001, Williamson County had a estimated of 63,325 housing units: Williamson County had a household population of 180,891: 91,793 (50.7%) females and 89,098 (49.3%) males. The median age is 37.6 years.



For people reporting one race: 89.4% were white alone, 4.3% were African American or black, 0.2% were Native American or Alaskan native, 3.0% were Asian. 1.5% reported two or more races, with 4.5% were either Hispanic, or Latino, or of either decent. People of Hispanic origin may be of any race.

In 2009 there were 63,352 households in Williamson County. The average household size was 2.87 people. Families made up 83.2% of the households in Williamson County that year. This figure includes both married-couple families (68.1%) and other families (2.2%). Non-family households made up 29.7% of all households in Williamson County. Most of the non-family households were people living alone, but some were comprised of people living in households in which no one was related to the householder.



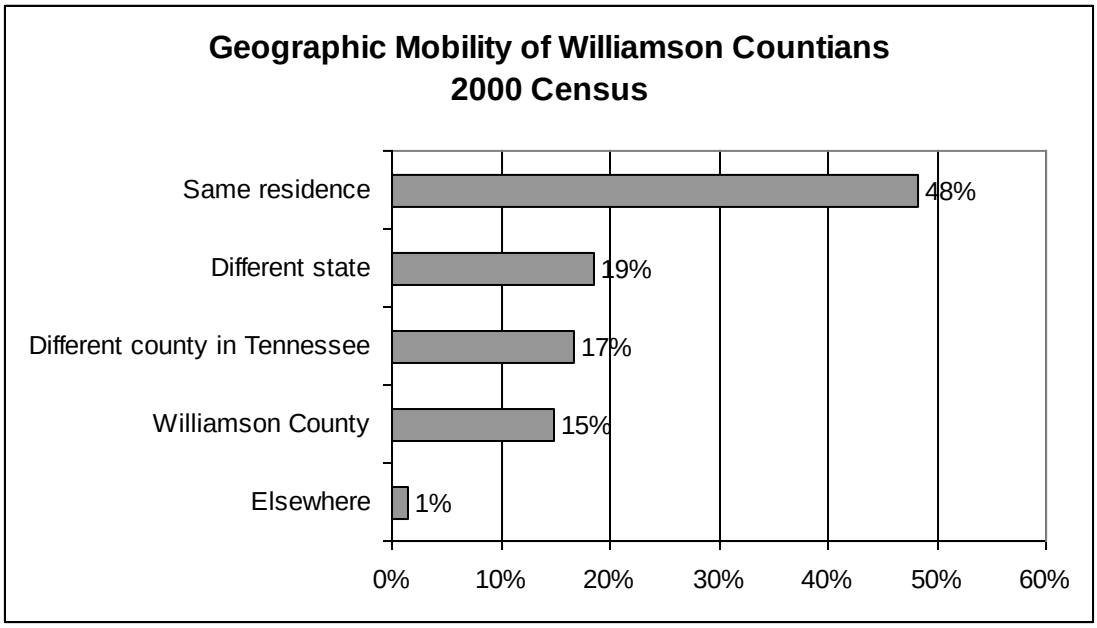
Nativity and Language:

3.9 percent of the people living in Williamson County in 2000 were foreign born. 96.1 percent were native, including 47.1% native to the State of Tennessee.

Among those at least five years and older living in Williamson County in 2000, 5.4 percent spoke a language other than English at home. Of those speaking a language other than English at home, 2.5 percent of those spoke Spanish and 2.4 percent spoke some other language; 4.4 percent reported that they did not speak English "very well".

Geographic Mobility

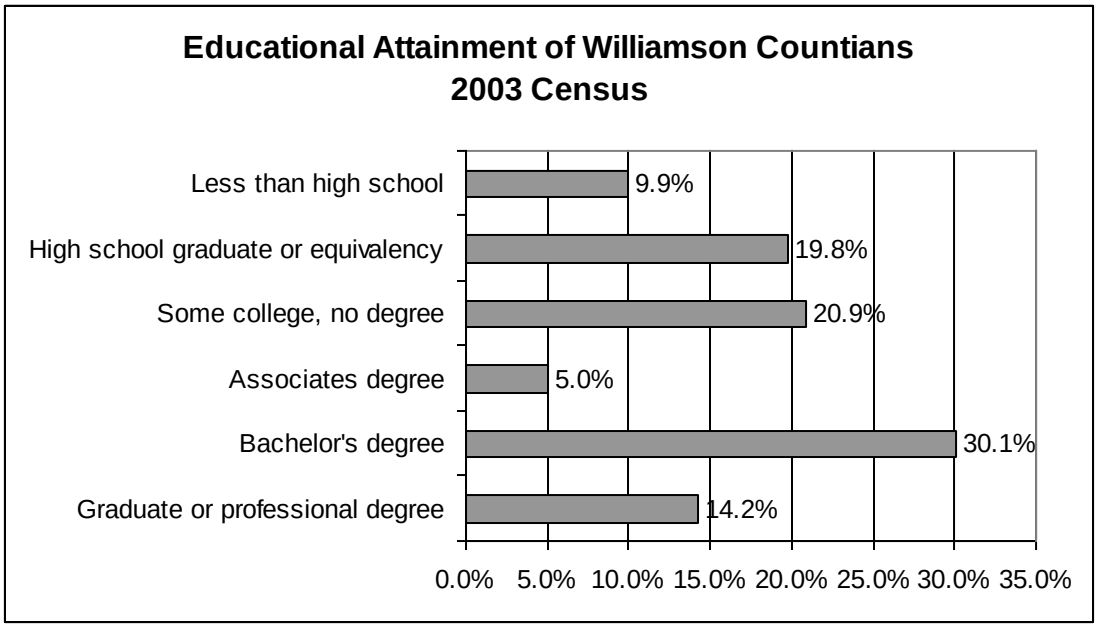
In 1995, 48.2 percent of those at least five years old living in Williamson County were living in the same residence one year earlier, 14.9 percent had moved from another residence in the same county, 16.7 percent from another state, and 1.5 percent from another country.



Education:

In 2010, 93.9% of people 25 years and over had at least graduated from high school and 50.2% had a bachelor's degree or higher. Among people 25 years and over, 9.9 percent were dropouts or did not receive a degree (per 2000 Census); they were not enrolled in school and had not graduated from high school.

The total school enrollment in Williamson County, in 2000, was 35,558 in 2000. Pre-primary school enrollment was 3,281 and elementary or high school enrollment was 28,195 children. College or higher education enrollment was 4,118.



Disability

In Williamson County, among people 5 to 20 years of age, 5.6 reported a disability; between 21 and 64 years, 7,803 reported a disability; and persons 65 years and over reported 3,723 with disability.

Travel to Work

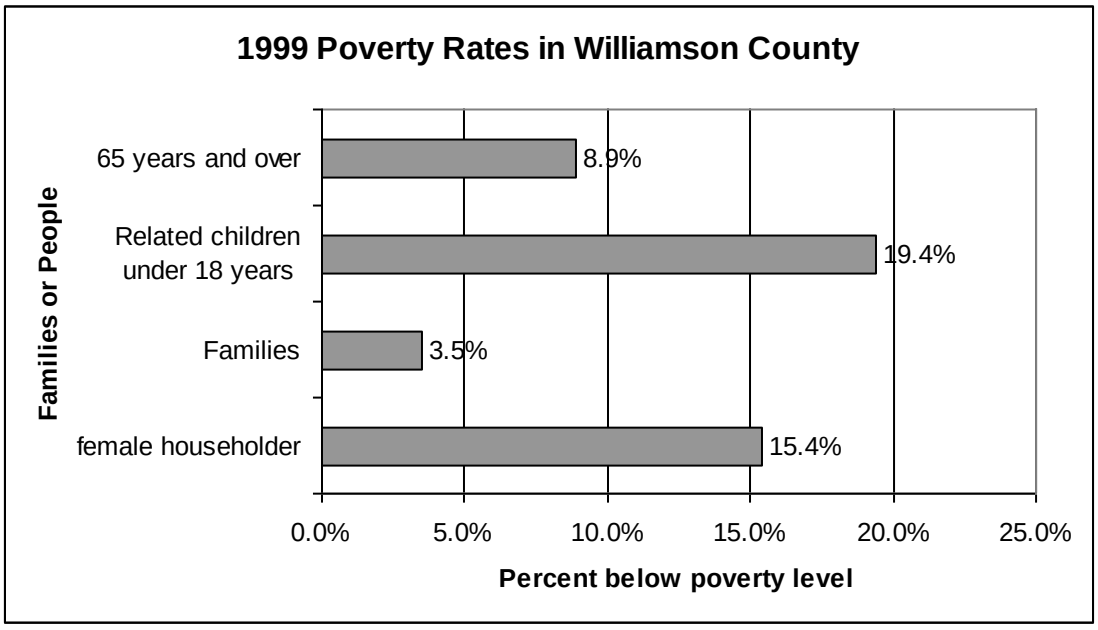
Of all Williamson County workers, 83.6 percent drove to work alone in 2000, 9.3 percent carpooled, 0.2 percent took public transportation, and 0.9 percent used other means. The remaining 5.4 percent worked at home. Among those who commuted to work, it took them on average 26.3 minutes.

Income

The median income of households in Williamson County, per the 2010 Census was $82,737. 90.5 percent of the households received earnings and 11.6 percent of the households received retirement income other than Social Security. 16.6 percent received Social Security. The average income from Social Security was $7,458. These income sources are not mutually exclusive; that is, some households received income from more than one source.

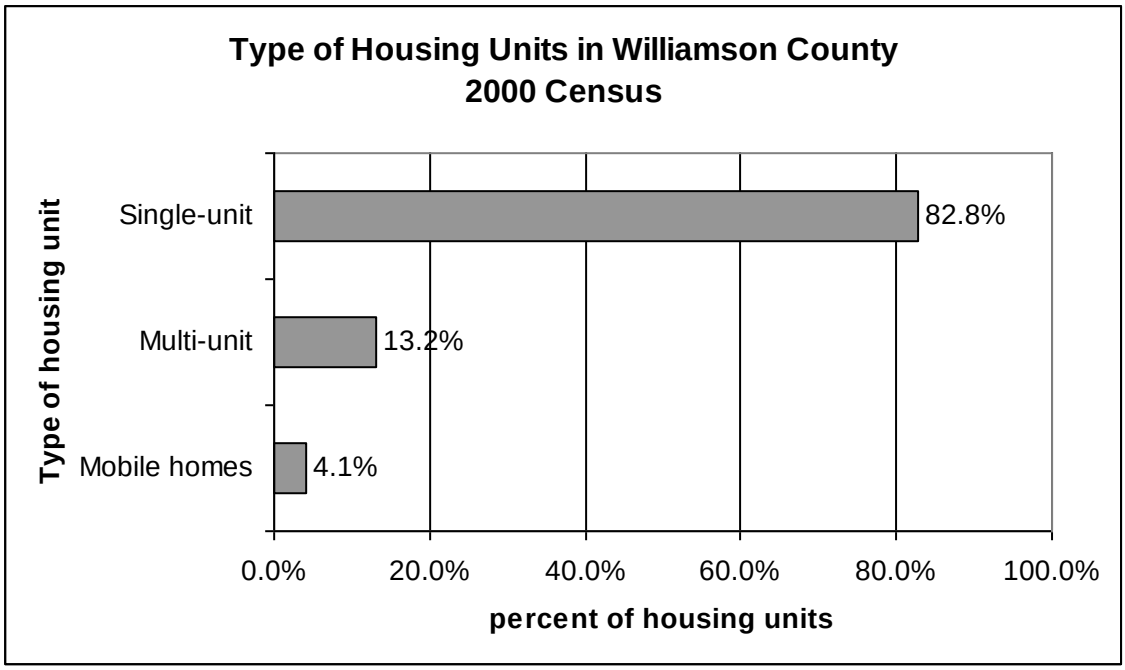
Poverty and Participation in Government Programs:

In 1999, 4.7 percent of people in Williamson County were living in poverty, with 5.4 percent of related children under 18 below poverty level, compared with 8.9 percent of people 65 years and over. A total of 3.5 percent of all families and 15.4 percent of families with a female householder and no husband present had incomes below the poverty level.



Housing Characteristics

In 2000, Williamson County had a total of 47,005 housing units, 4.9 percent of which were vacant. Of the total housing units, 82.7 percent were in single-unit structures, 13.2 percent were in multi-unit structures, and 4.1 percent were mobile homes. 56.2 percent of the housing structures were built between 1995 and March of 2000.



Occupied Housing Unit Characteristics

In 2010, Williamson County had 65,599 occupied housing units – 51,369 owner occupied and 10,524 renter occupied. In 2000, 0.8 percent of the households did not have telephone service, but per the 2010 Census estimates 1.8 percent of the households did not have access to a car, truck, or van for private use. 20 percent had one vehicle and another 78.2 percent had two or more.

Housing Costs:

The median monthly housing costs for (specified) mortgaged owners was $1,482, (specified) non-mortgaged owners $354, and (specified) renters $744.00, with 20.6 percent of selected monthly owner costs spent 30 percent or more of household income on housing.

Utilities, Public Works, and Transportation:

1. Public Works including Highway Department Responsibilities:

A. Williamson County Highway Department:

- Tree trimming, fence repair, grass seeding and strawing. General maintenance, done mainly by inmates of the Williamson County Judicial Correction Facility
- Road construction for new or existing roads. This includes building a brand new road or major reconstruction on an existing road.
- Road grading activities. Preformed due to washouts or whenever base rock is used.
- Snow and ice removal activities.
- Mowing (bush-hogging) of the county road right-of-ways during the growing season.
- Patching. This involves filling potholes with either hot or cold mixed asphalt.
- General road maintenance. This involves the cleaning, cleaning or widening of the existing ditches on county right-of-way. Bridge repair and maintenance is included here.
- Erection and replacement of road signs.
- Rock hauled. Rock is quarried hauled from our rock quarry on Columbia Ave. and is used on our roads. This is a major activity and a necessity for road maintenance.
- Paving of roads.

B. City of Brentwood Public Works:

- Street Maintenance and Repairs as needed.
- Street sweeping, cleaning and debris removal as needed
- Removal of snow and distribution of salt
- Brush removal service to all homes in the city
- Traffic signal maintenance
- School crossing signal maintenance
- Maintenance of all drainage ditches and areas thereof

- Right-of-way mowing and maintenance
- Installation, repair and maintenance of street signs
- Removal of animal carcasses city-wide
- Litter pick up

C. City of Fairview Public Works:

- Basic water and sewer maintenance repairs and placement
- Sewer collection and treatment
- Streets:
    - The Street Department performs a variety of services during the year. Summer months require mowing and maintenance for the right-of-way and intersections. Also the school zone signals and traffic lights are the responsibility of this department. During the warm weather, the department also paves and resurfaces city streets and patches potholes and cuts in the pavement due to construction. The Street Department also provides leaf removal and a chipping service to remove limbs, due to tree maintenance and storm damage. However, trees taken down by commercial contractors are the responsibility of the contractor or the property owner.

D. City of Franklin Public Works:

- Administrative Assistance
- Bond Inspection
- Road and sidewalk inspection, maintenance, repair and creation of.
- Landscape maintenance
- Street maintenance
- Leaf service
- Street sweeping

- Service repairs of Street Department equipment
- Traffic signal maintenance
- Street marking
- Street signage
- Stormwater inspection
- Drainage improvement

E. Town of Nolensville Public Works:

- Debris Removal from streets
- Tree, limb and leaf removal
- Street Repairs
- Placement and replacement of signs
- Right-of-way and Town property mowing

F. City of Spring Hill Public Works:

- Maintain right of ways along city streets, sewer line and water line easements including the following;
    - Culver, ditches, and area drain cleaning as needed.
    - Street cleaning where needed.
    - Mowing or clearing undergrowth as needed.
- During inclement weather, winter or flooding events;
    - Salting major intersections as necessary.
    - Providing high water signs or road closed/detour signs as necessary.
- Basic street maintenance.
- Basic bridge maintenance.
- Traffic and city sign maintenance.
- Provide chipping services for trees, limbs, and such.
- Responding to request from citizens for various services.
- Maintenance of city owned buildings and properties, including the structural maintenance and grounds keeping.

- Locating of city owned utilities for "TN One Call" for any digging operations within the city limits.
- Provide staff and equipment for city sponsored events as necessary.

G. Town of Thompson Station Public Works:

- Currently contracts with Williamson County Highway Department, and is in process of creating Public Works Department, now at Public Works Committee Stage.

2. Utilities Systems:

A. City of Brentwood:

- Nashville Electric Systems
- Middle Tennessee Electric Membership Corporation
- Nashville Gas
- ATMOS Energy
- AT&T
- Brentwood Water System
- Brentwood Sewer System
- Metro Nashville Water System
- Metro Nashville Sewer System
- Mallory Utility District
- Nolensville Utility District
- College Grove Utility District
- Harpeth valley Utility District
- Comcast Cable
- Level 3 Communications

B. City of Fairview:

- Fairview Water Systems
- Water purchase from:
    - Harpeth Valley

    - Dickson County Water Authority
- Fairview Wastewater Systems
- Bell South
- Middle Tennessee Electric Membership Cooperation
- Nashville Gas
- Comcast Cable

C. City of Franklin:

- Middle Tennessee Electric Membership Corporation
- ATMOS Energy
- AT&T
- Nashville City Gas
- Milcrofton Utility District
- Mallory Valley Utility District
- HB&TS Utility District
- City of Franklin Water Management System
- City of Franklin Sewer System
- Harpeth valley Utility District
- Comast
- Level 3 Communications
- Kentucky Datalink
- XO Communications
- Piedmont Gas

D. Town of Nolensville:

- ATMOS Energy
- Water Treatment Facilities
- Nolensville/College Grove Water Systems
- Middle Tennessee Electric Membership Cooperation
- United Telephone
- Comcast Cable
- Solid Waste:

- Clean Earth
- BFI
- Convenience Center

E. City of Spring Hill (Williamson County Only):

- Spring Hill Water Distribution System
- Spring Hill Wastewater Collection System
- ATMOS Energy
- Middle Tennessee Electric Membership Corporation
- Columbia Power & Water (Electric Only)
- Bell South
- Charter Cable
- Waste Management (Contracted Garbage Collector)

F. Town of Thompson Station:

- Middle Tennessee Electric Membership Cooperation
- ATMOS Energy
- Bell South
- HB&TS Water Systems
- Comcast Cable

3. Public Transportation Systems

A. City of Franklin

B. TMA Group (Transit Management Authority)

V. Risk Assessment

A. Identification and Background of Common Hazards.

Primary Hazards – These hazards are prioritized by frequency, severity, and cost of occurrence.

1. Floods
2. Tornados & Wind Storms
3. Winter & Ice Storms
4. Drought & Extreme Heat

Hazard Types

1. **FLOODING:** Parts of the county are located on or near floodplains and drainage ways. Heavy rains cause localized flooding in certain areas. Floods are an inevitable part of life along rivers and their tributaries. There may be little time between detection of flood conditions and the arrival of the flood crest.

Most flash flooding is caused by slow-moving thunderstorms that repeatedly move over the same area and may be associated with heavy rains form hurricanes and tropical storms. During a hurricane the greatest rainfall occurs near the arrival time of tropical storm winds. Heavy rains exceeding 20 inches can precede an approaching hurricane by as much as 24 hours. This heavy and sustained rainfall is a primary cause of riverine flooding as storm-water accumulates and flows seaward. A typical flash flood begins with a slow moving thunderstorm. This usually takes longer to move out of the affected areas and causes the area to endure a greater amount of rainfall for a longer period of time.

In addition, a thunderstorm may pass over an affected area repeatedly, dumping even more rainfall. The heavy rainfall associated with these storm systems contributes to urban flooding in a number of ways. Primarily, heavy rainfall will often overwhelm the capacity of the conventional drainage system made up of storm drains, catch basins, sewers, and additional natural mechanisms for storm-water management. These systems typically cannot handle more than one or two inches of rainfall per hour before they begin to backup and overflow. This amount is further diminished if the storm drains, and other components of the storm-water management system, have not been adequately maintained, are clogged with debris such as trash or natural waste, or are old and in a state of disrepair.

Heavy rainfall, combined with storm-water runoff, can cause local waterways to rise and overflow their banks. Periods of heavy rainfall can also saturate the ground to a point where storm-water cannot be absorbed any longer, or at a rate disproportionate to the rate of the rainfall. This will cause the water to "pool" and eventually find its way into the low-lying areas, nearby waterways, and streets. Heavy rain can result in flash floods that hinder drivers' ability and damage residential and commercial properties. Flooding can contaminate or disrupt the water supply, prompt neighborhood evacuations, damage public, commercial and residential structures, and/or bring serious injuries or fatalities. Additionally, severe flooding can disrupt utility services, such as power and gas service.

2. <u>TORNADOS, THUNDERSTORMS, AND LIGHTNING:</u> The county is at risk from tornados for several months each year. Williamson County is susceptible to severe weather in the form of tornados, thunderstorms and lightning. Severe thunderstorms have the potential to produce deadly lightning, flash floods, hail, and devastating winds up to 120 miles per hour. In most cases, however, the damage from thunderstorms is relatively minor.

Lightning occurs in all thunderstorms and poses a serious threat to human life and property. All lightning originates around 15,000 to 20,000 feet above sea level when raindrops are carried upward until some will convert to ice. For reasons that are not widely agreed upon, a cloud-to-ground lighting flash originates in this mixed water/ice region. The charge then moves downward in 50 yard sections call step leaders. It keeps moving toward the ground in these steps and produces a channel along which charge is deposited. Eventually, it encounters something on the ground

that is a good connection. At this point the circuit is complete and the charge is lowered from the cloud to the ground. The return stroke is a flow of charge (current), which produces luminosity much brighter than the part that comes down. This entire event usually takes less than a half a second.

Lightning causes thunder. The bright light of the lightning flash caused by the return stroke mentioned above represents a great deal of energy. This energy heats the air in the channel to above 50,000 degrees Fahrenheit in only a few millionths of a second. The air that is now heated to such a high temperature has no time to expand, resulting in a very high pressure. The high-pressure air then expands outward into the surrounding air, compressing it and causing a disturbance that propagates in all directions away from the stroke. The disturbance is a shock wave for the first 10 yards, after which it becomes an ordinary sound wave, or thunder.

Thunderstorms arise when clouds develop sufficient upward motion and are cold enough to provide the ingredients (ice and super-cooled water) to generate and separate electrical charges within the cloud. At the very top of giant thunderstorms, air temperatures can sometimes drop to below -100 degrees Fahrenheit. Usually on a hot summer day, this air originates near the ground at 100 degrees Fahrenheit. Thunderstorms carry the sun's emergency from the surface into the cooler reaches of the atmosphere. Without this convective heat transport it is estimated that the mean temperature of the planet would increase by over 20 degrees Fahrenheit, making many areas uninhabitable. By definition, the National Weather Service classifies a thunderstorm as severe if it contains hail of three-quarters an inch or larger, and/or wind gusts of 58 miles per hour or higher, and/or a tornado. Severe thunderstorms watches, meaning conditions are suitable for severe thunderstorm development during the next several hours, are issued for areas several hundred miles on a side by the NWS Storm Prediction Center, in Norman, Oklahoma. A severe

thunderstorm warning is issued by the local NWS office, usually for a county or several counties over an hour or so, based on spotter reports or radar indications of conditions exceeding severe levels. If there is a distinct threat or actual observation of a tornado, a tornado warning is issued.

A tornado is a violent atmospheric disturbance characterized by one or several twisting, funnel-shaped clouds. Tornados are spawned by powerful thunderstorms (and sometimes hurricanes), and are produced when a southwesterly flow of warm, moist air combines with both northwesterly and southwesterly flows of cool, dry air, forcing the warm air to rise rapidly. Most damage from a tornado results from high wind velocity and windblown debris, as well as large hail. Tornado season is generally March through August, although tornados can occur at any time of year. More than 80 percent of all tornados strike between noon and midnight. Depending on the intensity of the tornado, damage can range from broken tree limbs to downed power lines to the destruction of houses and businesses and loss of life. Tornados account for an average of 70 fatalities and 1,500 injuries nationwide each year.

Tornados are measured according to their wind speed on the Enhanced Fujita Scale or EF Scale.

Enhanced Fujita Tornado Damage Scale

Developed in 1971 by T. Theodore Fujita of the University of Chicago

The Enhanced Fujita Scale was implemented in the United States on February 1, 2007

ORIGINAL FUJITA SCALE		ENHANCED FUJITA SCALE	
F5	261-318 mph	EF5	+200 mph
F4	207-260 mph	EF4	166-200 mph
F3	158-206 mph	EF3	136-165 mph
F2	113-157 mph	EF2	111-135 mph
F1	73-112 mph	EF1	86-110 mph
F0	<73 mph	EF0	65-85 mph

These precise wind speed numbers are actually hypothesized and have never been scientifically verified. Different wind speeds may cause similar-looking damage from place to place or even from building to building. Without a thorough engineering analysis of tornado damage in any event, the actual wind speeds needed to cause that damage are unknown. Tornado winds can uproot trees, carry debris, damage buildings, destroy roadways and bridges, cause power outages, contaminate water supplies, cause structure fires, disrupt delivery or essential services, and prevent rescue personnel from reaching injured people in a timely manner.

3. <u>WINTER WEATHER:</u> The County periodically experiences ice storm events which result in economic hardship due to the inability to safely travel on roadways, the loss of electric utility services, and demands for county and municipal services that exceed normal capabilities.

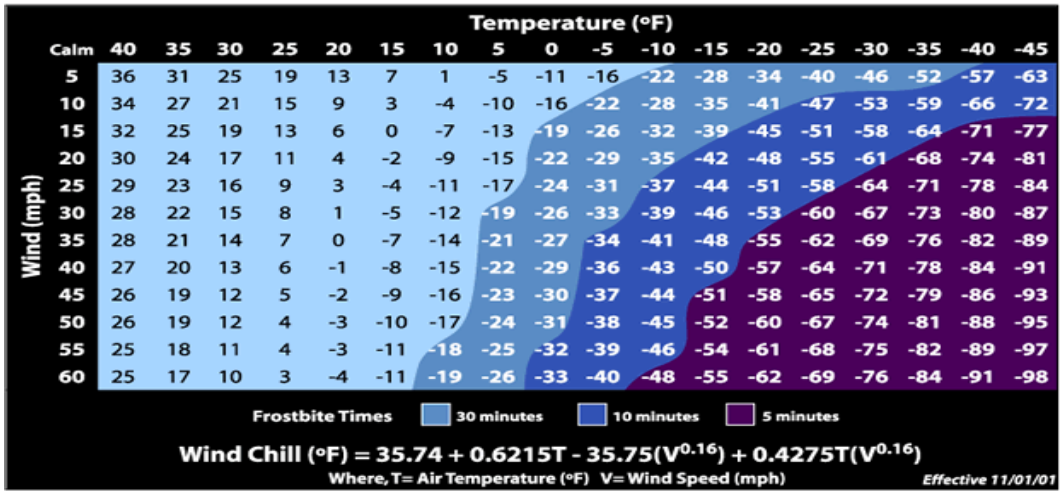
Extreme winter weather is characterized by a combination of low to very low temperatures, high winds, and heavy accumulations of snow and ice. Between the months of November and April, Williamson County will experience periods of winter weather. Because of Williamson County's geographical location, extreme winter weather is not a normal occurrence, but for that same reason the County's location and weather patterns make is susceptible to mixed precipitation during the winter months with rain, sleet, snow and ice. Three components are needed to form a winter storm.

The first is cold air. The temperature must be below freezing in the clouds and near the ground in order to form snow and ice. The second ingredient is moisture which comes from water evaporating from the ocean or a lake. Finally, lift is the third ingredient that causes moisture to rise and form clouds and precipitation.

While snow is a key element in severe winter weather, varying types of snowfall can affect the severity of a winter weather event. Snow flurries refer to light snow that falls for short durations and creates only a light dusting or no accumulation. Snow showers refer to snow that falls at varying intensities for brief periods of time. Accumulations of 1 inch or less can generally be expected. Snow squalls are brief intense snowfalls coupled with strong, gusty winds. Significant accumulations, along with blowing and drifting snow, can generally be expected. Blowing snow is often a combination of falling snow, and snow already on the ground, that is being whipped into the air by high winds.

Originally devised in 1945, and revised by the NWS in November of 2001, the Wind Chill Index measures how cold people feel when outside. A complex formula, the wind chill index is derived from the rate of heat loss caused by wind and cold as it moves across exposed areas of the human body. As the wind increases, it draws heat from the body, driving down skin temperature and eventually internal body temperatures.

Wind Chill Chart

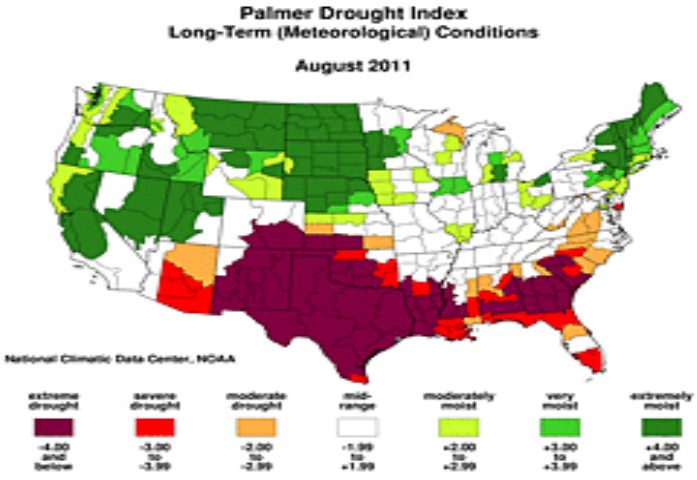


Winter weather kills hundreds of people each year in the United States. The primary winter weather related deaths are from traffic accidents, overexertion and exposure. High snowfall can make roads impassable, increase emergency response time, disrupt public transportation and threaten the structural stability of some buildings and scaffolds. In addition, ice accumulation can cause above ground power lines to snap, resulting in power disruptions – ice can add as much as 15 to 20 pounds per foot to the weight of a power line. Prolonged periods of cold temperatures can freeze water and gas mains, which sometimes leads to the rupture of pipes.

4. <u>DROUGHT AND EXTREME HEAT:</u> A significant portion of Middle Tennessee suffers from events of extreme heat and drought. Williamson County is strongly agricultural and highly populated, where, if an incident of extreme heat and/or drought were to occur, economic and life safety issues may occur.

Extreme summer weather is characterized by a combination of very high temperatures and exceptionally humid conditions. While not as dramatic as other kinds of severe weather, extreme heat can be a life threatening condition. Because extreme summer heat can affect large numbers of people as well as wide geographical areas, special assistance in responding to the more destructive elements associated with extreme summer weather may be necessary. Heat waves occur when an area of high atmospheric pressure stalls over a region, slowly spiraling down and outward for thousands of miles from a radiant, cloudless sky. Droughts do not occur

spontaneously, they evolve due to lower-than-normal precipitation levels. Urban droughts generally affect areas dependant on reservoirs for water. Droughts usually lead to restrictions on non-essential water use, such as lawn watering and car washing. Prolonged periods of heat challenge the County's infrastructure, residents, commuters and visitors. Higher temperatures lead to increased energy and water usage. In Williamson County, electrical demand soars during periods of "peak usage", between 10 a.m. and 2 p.m. in commercial areas and between 7 p.m. and 11 p.m. in residential areas. Increased demand strains the County's electrical distribution systems and may result in power disruptions that can last a few hours, days, or weeks. The elderly, people with medical problems or on certain kinds of medications are particularly at risk because they may not be able to adequately keep cool using air conditioners or fans. In addition to increased electrical demand, extreme heat can result in lower water pressure due to illegal operation of fire hydrants, increased demand for water, or pump failure due to loss of electricity This situation can hamper the County's fire and rescue suppression capabilities.



An estimation on the size and magnitude of a drought, is based on analyses of the historical record, the pattern for the dry months, water

quality, subsystem storage balances, delivery system status, system construction, maintenance operations, precipitation patterns, forecasts, and other factors. Because no two droughts have the same characteristics, no single probability profile can be identified in advance that would generally apply to the declaration of a drought emergency.

Hazards in Williamson County

Hazard Vulnerability Analysis Chart

Priority / Hazard	Probability	Human	Magnitude /Severity	Property	Previous Occurrances	Business	Impact/Vulnerabil
Hazardous Materials (HAZMAT)	H/5	3	H	2	Y	1	H/H
Transportation Accident (including train derailment; plane crash)	H/5	3	H	2	Y	1	H/H
Floods – County	H/3	4	H	5	Y	3	H/H
Tornadoes	H/3	4	H	5	Y	4	H/H
Biological (Including epidemics; disease outbreak)	M/2	4	M	1	Y	1	M/M
Energy Failure/Communications Failure	M/2	2	M	1	Y	2	M/M
Severe Winter Weather/Ice	M/3	3	M	2	Y	2	M/M
Terrorism (Cyber, Chemical, Biological, Radiological, Conventional)	M/2	1	M	1	Y	3	M/M
Drought/Extreme Heat	M/3	3	M	2	Y	1	M/M
Financial System Collapse	L/1	1	M	4	N/A	5	M/L
Civil Disturbance (Including riots; civil unrest)	L/1	3	M	3	N/A	3	M/L
Dam or Levee Failure	L/1	2	L	2	N/A	1	L/L
Enemy Attack/War	L/1	5	L	5	N/A	5	L/L
Nuclear Accident (Fixed Nuclear Facilities; Nuclear Exp Centers)	N	0	N	0	N	0	N

NOTE: Priority = High (H), Medium (M), Low (L) Nominal Signifigance = Lowest (1), Highest (5)

**With few obvious exceptions, all hazards are possible in Williamson County etc., however the table represents those hazards of prime concern to Williamson County and the municipalities of Brentwood, Fairview, Franklin, Nolensville, Spring Hill, and Thompson's Station.*

Probability - Likihood of hazard occurring within a given span of years

L: Hazard is present with low probability of occurrence.
M: Hazard is present with a medium probability of occurrence.
H: Hazard is present with a high probability of occurrence.
N: Hazard is not present in the jurisdiction.
1: Less than once every 10 years
2: About once every 5-10 years
3: About once every 2-5 years
4: About once a year
5: More than once a year

Human Risk of injuries and deaths from the hazard

1: Death very unlikely, unjuries are unlikely
2: Death unlikely, unjuries are minimal
3: Death unlikely, injuries may be substantial
4: Death Possible, injuries my be substantial
5: Deaths probable, unjuries will likely be substantial

Magnitude

L: Result of this hazard would be minor.
M: Result of this hazard would be minor.
H: Result of this hazard would be significant.
N: Hazard is not present in the jurisdiction.

Property - Amount of residential property damage associated from the hazard

1: Less than $ 500 in damages
2: $ 500- $10,000 in damages
3: $10,000 - $ 500,000 in damages
4: $500,000 - 2,000,000 in damages
5: More than $2,000,000 in damages

Previous occurrence

Y: Hazard has occurred in jurisdiction before….
N: Hazard has not occurred in jurisdiction before….

Business - Amount of business damage associated from the hazard

1: Less than 3 businesses closed for only a day
2: More than 3 businesses closed for a week
3: More tha 3 businesses closed for a few months
4: More than 3 businesses closed indefintly or relocated
5: A top-10 local employer closed indefinitely

Impact/Vulnerability (Socio-Economic)

H: High impact/vulnerability
M: Moderate impact/vulnerability
L: Low impact/vulnerability

b. Vulnerability Analysis

A. Potential Hazard Probability Rankings

a. Flood — High
b. Tornado — High
c. Winter & Ice Storms — Medium
d. Extreme Heat/Drought — Medium

1. <u>FLOODING HAZARDS:</u> The County and several of its included cities have experienced flooding, on and near the local Harpeth River and branching creeks, resulting in property damage. Flooding events count as one of the highest natural threats in Williamson County and associated jurisdictions, with potential threats to life loss and property damage. For Williamson County, at the Harpeth River at Franklin Flood Gauge (located in Pinkerton Park, Latitude: 35.920556° N, Longitude: 86.865556° W, Horizontal Datum: NAD83/WGS84) the Flood Stage, according to the USGS is 30ft, although there are impacts felt throughout the County and it's jurisdictions prior to hitting 30 feet:

- 38 feet - water may approach properties and structures near the river on third avenue south...first avenue south...and east main street. These roads and others in the area may be subject to closure at higher river levels.
- 35 feet - flooding of hillsboro road and mack hatcher memorial parkway begins...and may close these major roads at higher river levels.
- 34 feet - pinkerton park is completely flooded. 32 flooding of properties and structures adjacent to the river near the hillsboro road and mack hatcher memorial parkway intersection can be expected.
- 30 feet - flooding of pinkerton park begins...including walking trails and picnic areas.
- 28 feet - flooding of properties adjacent to the river begins near hillsboro road and mack hatcher memorial parkway.
- 24 feet - flooding will affect areas along the harpeth river from franklin to bellevue. In franklin, water will reach the city park, 4th street, and portions of 431.
- 23 feet - water begins to inundate low lying areas along the banks...including the nursery at hillsboro road and fulton greer lane.

- 22 feet - flood waters reach highway 431 (lewisburg pike) in franklin.

**Flood Impacts provided by USGS from the National Weather Service's Advanced Hydeologic Prediction Service Site for the Harpeth River at Franklin*

In addition to the impact on the public and essential county services, private sector interests also have the potential to be seriously impacted by the effects of a flash flood or torrential rainfall. Businesses could be forced to close and evacuate due to severe flooding conditions. Those would not only affect revenue but damage to the structure and its contents as well. A disruption in transportation corridors could also impact business by disrupting shipments or deliveries of goods in, out, and around the County. In Williamson County it has been, according to historical flooding events, that the areas primarily affected by this type of hazard incident include, but is not limited to, unincorporated areas of Williamson County, The City of Brentwood, the City of Franklin as well as the Town of Nolensville.

Williamson County can account for approximately 64 structures reporting repetitive flood losses as of May 2011; of those 64 structures 29 have accounted for 3 or more reported losses. For Williamson Count alone, 13 (12 single family and 1 non-residential) structures have reported with 4 of those having reported 3 or more times. The City of Brentwood has a documented 24 repetitive loss structures(all structures single family dwellings) with 12 of those structures having 3 or more reported losses. The Town of Nolensville has 2 repetitive loss structures (both single family). The City of Franklin reports a total of 25 repetitive loss structures (20 single family, 4 non-residential and 1 2-4 family dwelling) with 13 of said structures reporting 3 or more repetitive losses.

There are also costs to the county and cities for public works repairs after each event. On an annual basis, flooding causes the most damage in Tennessee. From 1963 through 1993, flooding had resulted in 16 Presidential declared disasters across the state, with expenditures in the

excess of $ 30 million. In early May of 2010 Williamson County experienced one of it's worst flooding disasters in recorded history. Damages and their repair costs, along with emergency actions resulted in nearly $2.5 million for Williamson County alone, other municipalities such as the Cities of Brentwood and Franklin reported independently due to the massive scope of the flooding and damages. Flooding occurs several times a year in Williamson County and associated jurisdictions, most of which is of the minor flash flood variety. Floods can affect 10-20% of the county's population on an annual basis.

**Assistance for Disasters are broken down into two main groups: Individual Assistance (IA) for the citizens and business and Public Assistance (PA) for governmental and public response or involved agencies. Disaster Damage totals as in those listed above only reflect PA costs not IA.*

For records on the Harpeth River's top historical crests see **Appendix A**. The following are situations that may occur during a heavy rainfall event and identify county-wide vulnerabilities:

- Severe flooding caused by the amount of impermeable surfaces within the County and associated jurisdictions, reducing the natural absorption of storm-water.
- Reduced visibility on roadways causes traffic accidents.

- Roadways and parking lots are rendered impassable, stranding vehicles and drivers.
- Reduced visibility may strand boaters unable to navigate the County's and associated jurisdictions', waterways.

- Storm-water management systems become overwhelmed and begin to back flow into streets, homes and businesses.

- Contaminated runoff spills into waterways, public water supply, and other environmentally sensitive areas.
- Utility (electrical, natural gas, sewer and water) disruptions affect homes, businesses, and government offices.
- An increase in mosquito breeding grounds from standing water left behind may contribute to the spreading of the West Nile Virus.

Flooding is the only hazard within this plan that can have any set area recognized for the hazard. The areas of highest known risk to flooding in Williamson County and associated jurisdictions, according to historical incidents and other gathered information include:
High:

City of Franklin

City of Brentwood

Town of Nolensville

Grassland area of Williamson County

All other areas are seen at a Moderate Level.

2. TORNADO, THUNDERSTORM, AND LIGHTNING HAZARDS: A tornado, along with wind storms and severe rain storms, can cause serious property damage, bodily injury, and death. A significant concern for the County and associated jurisdictions, during severe weather is damage from falling trees. Falling trees not only endanger people, they can also damage homes and cars, and block roadways, preventing emergency vehicles from accessing certain areas.

Although there are no specific portions or jurisdictions that would be considered higher risk areas for tornadic activity, Jurisdictions such as the City of Brentwood and the City of Franklin pose to have the greatest losses based on the economic development of those municipalities,

Although many of the County and associated jurisdiction's, utilities operate below ground, toppled trees can rip down power lines and other aerial utilities, causing power outages. Thunderstorms may also produce large hail, which can cause serious property damage. In addition, lightning accounts for a number of brush fires and deaths each summer. Negative

impacts on the community include, but are not limited to, the disruption of county and city's services and utility services, a demand for such services that exceed normal working capabilities, and loss of use of homes, schools, churches, businesses, and other structures and. Hospitals and care facilities could lose power, affecting patient care. The impact of such power disruption could be exacerbated during severe thunderstorms when there is a potential increase in the number of patients seeking hospital care.

Severe weather could affect the response and set-up time of services provided by organizations such as the Salvation Army and the American Red Cross. The weather conditions may require these organizations to set up temporary shelters and/or food stations.

Departments such as County Highway and cities' public works, street departments and Solid Waste lead the effort in clearing debris from roadways, parks, and neighborhoods. The Departments of Codes and Zoning may reach out to the contractors for repairs. In a wide-spread event affecting all six cities/towns, these agencies could face significant issues with staffing and resources.

Emergency responders may also encounter roadway obstructions and traffic conditions that delay response time. Public transportation could be limited, delayed, stopped, and overcrowded due to the direct effects of severe weather. Severe weather can also have an effect on both short term and long term business.

Short term effects can include structural damage and possible looting. Long term effects after a severe weather incident include loss of revenue and higher insurance premiums. In some instances, businesses may even re-locate and/or shut down.

Williamson County and participating jurisdictions could suffer power outages that may result in loss of revenue and an increase in overtime costs. There could be delays in returning power to affected areas. Weather related power outages might also cause food spoilage that affects restaurants and food providers in particular. Financial institutions may be affected by power outages resulting from severe weather. These entities may lose records, be unable to conduct monetary transactions, and have their overall business operations disrupted.

Property damage that occurs during a severe weather incident may cause insurance rates to rise. When claims are in one area, some insurance companies face multiple losses, causing a loss of revenue on a grand scale, possibly preventing the companies from offering insurance in the affected community in the future. Severe weather can displace residents for extended periods of time. Effects associated with weather events can destroy homes, neighborhoods, and towns with increasing demands on shelters. Property owners suffering property damage can either file insurance claims or pay out-of-the-pocket expenses to lower losses. In some cases, the owner and other residents in the home can be displaced due to severe damage to the home. Renters may become displaced in the time of a disaster.

Displacement creates additional strain on shelters and hotels in the area. Williamson County and associated jurisdictions are very diverse and have

many non-English speaking peoples. As a result of such diversity, disseminating instructions to non-English speakers is difficult. The elderly and special needs populations may require regular transportation or electrical power and will likely face difficulty in severe weather situations. In April 1998, Williamson County along with several of the mentioned participating jurisdictions, had costs due to tornado activities, within the State of Tennessee approximately $ 49,518,515worth of Federal Aid monies was distributed for this event. During severe weather in early May 2003, tornado activity created several of thousands of dollars worth of damage to Williamson County and it's subsequent jurisdictions, some of which, the county has yet to recover from.

In early May of 1999, as tornados and other severe storm events occurred throughout middle Tennessee, the county suffered large amounts of damage due to high winds that added to the necessary disaster declaration on May 12 of that year. The spring-time months, from mid-March through the first of June, are the peak months for tornado activity; however, tornados can and have occurred in every month of the year. In early February of 2008 Tornadoes and straight line winds struck Williamson County, with damages concentrated in the West and Southwest portions of the county resulting in more than $ 366,000. The afternoon and early evening hours from 1500 to 2100 hours are the best time for tornado development. In Williamson County and associated jurisdictions, significant tornados occur about once every five years and affect up to 25% of the county's population. It is impossible to predict where tornados may strike, however, past occurrences may be tracked. For further records of Williamson County tornado incidences see **Appendix A**.

3. <u>WINTER WEATHER HAZARDS:</u> In Williamson County and participating jurisdictions, winter weather not only becomes an immediate problem for the community and the environment but may leave a lasting impression on roadways, structures, people, and the economy after its passing. Winter weather affects Williamson County and it's jurisdictions equally.

The severe ice conditions can cause damage to roadways and are a threat to public safety. Severe winter weather can severely affect Williamson County as well as it's associated jurisdictions. High winds, low temperatures, heavy snow fall and rainfall accumulations, along with ice build up, can seriously affect the County and municipalities mobility, as well as present collapse hazards for structures, power lines, trees, and awnings. The occurrence of severe winter weather can tax the County/Cities/Towns' infrastructure.

Snow and/or icy streets, sidewalks, and increased demands for heating can greatly affect the county's public works, among other agencies. These agencies face the greatest challenges in terms of clearing streets and downed tree limbs whole providing logistical resources as needed.

Winter weather can affect transportation in a number of ways, directly and indirectly. Snowfall and freezing rain can block roads and highways as well as contribute to dangerous driving conditions. Ice accumulation on trees, power lines, and streetlights can cause them to collapse, further obstructing traffic flow.

Reduced capabilities for motorists can lead to overcrowding, causing major delays. Winter weather can disrupt power lines and other energy-producing facilities. A power disruption during a period of extreme cold or severe winter weather is particularly problematic due to the high demand for home heating.

As with any event in which transportation and communications are affected, businesses face the potential of reduced capacities from the effects of a winter storm. Snow and/or ice covered roads would keep workers and customers home, and would force the closings of many businesses and schools.

Most people at risk during extreme winter weather conditions are outside laborers, the elderly, children, and those in poor physical health. Studies have found that many deaths attributed to severe winter weather could have been prevented. One of the populations at greatest risk during winter weather is the elderly. Often living on a fixed income, the elderly are sometimes unwilling or unable to take advantage of the home heating assistance offered by several private assistance organizations. Additionally, large snow and/or ice fall accumulations can sometimes confine the elderly in their homes, making it very difficult to obtain food and other supplies.

During a winter storm in 1994, due to heavy snow and ice conditions, Williamson County and participating jurisdictions. suffered massive damage resulting in a presidential disaster declaration, for it and other surrounding counties. Those disaster monies totaled $ 889,317.00 in Williamson County alone. On the average, these storms occur every five years and can affect the entire county. See **Appendix A** for records.

4. <u>DROUGHT AND EXTREME HEAT HAZARDS:</u> Because Tennessee is known for it's agricultural contributions, drought, along with causing economic problems, may pose a secondary wildland. Life safety issues, threatening Williamson County and participating jurisdictions, whom hosts a portion of the Natchez Trace and several large farming areas. The areas with the greatest potential loss due to this hazard type, are those unincorporated areas of Williamson County that have a higher agricultural population and land use.

Photo courtesy of T. Eiber

The hazards associated with extreme heat, include utility overloads, illness, death, and are exacerbated in areas such as cities, where a phenomenon known as the "heat island effect". Essentially, the Heat Island effect is created when the sun's heat is absorbed by buildings, sidewalks, and paved roadways during the day and is radiated into the environment at night.

According to meteorologists, a Heat Island is a well defined area where temperatures are higher than those in the surrounding region, sometimes as much as 15 °F higher. Materials such as concrete, asphalt and metals trap solar radiation faster than wooded parks and suburban lawns and fields, and hence, cool more slowly, radiating furnace-like heat. Unfortunately, heat waves have traditionally resulted in an increase in the local mortality and morbidity. The intensity of the heat necessary to be called a heat wave varies with location. A period of hot, humid weather in Chicago, Detroit or New York could be considered average meteorological conditions in Atlanta, New Orleans, or Houston. Although Williamson County does not have large quantities of tightly placed business structures of increased density development, heat can still be trapped. In highly urbanized areas, with large amounts of glass and metal

structures as well as an equally large number of roadways, these areas, like the Cool Springs area can have temperatures that may be higher by several degrees than more rural areas, hence the “heat island”.

Williamson County Emergency Management Agency coordinates efforts between cities/towns agencies and utility districts for water conservation measures. County/city/town utilities carry out the following water conservation efforts when water levels drop below the recommended amount to support consumption:

- Departments of Water and Sewer – Suspend street flushing activities.
- Parks Departments – Restrict water use for fountains and golf courses and stops providing water for artificial ponds and lakes.
- Proper departments will request plumbing leak surveys, perform appropriate repair work, and seek installation of low flow devices in specified structures.
- Williamson County Emergency Management in accordance with local fire/rescue and law enforcement departments – Conduct joint efforts to shutdown illegally opened hydrants. Pressure of hydrants is checked and sprinkler caps are distributed to neighborhood hydrants for flow restriction.
- Wash downs of all county/city fleet vehicles cease.

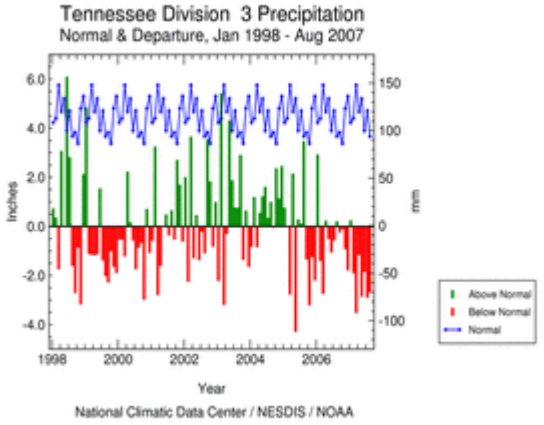
In 1992 there were almost 3,000 occurrences of wild-land fires in Tennessee, burning just under 26,000 acres. Significant wild-land fires occur annually across the entire state. The eastern and middle portion of the state are most affected. Significant wild-land fires occur about once every two years. However, several lesser events occur annually in the County. A single event usually impacts less than 5% of the County’s population. Recorded year blocks of droughts within the state and mid-state are: 1985-1988; 1980-1981; 1969-1971; 1966-1967;1953-1954;1940-

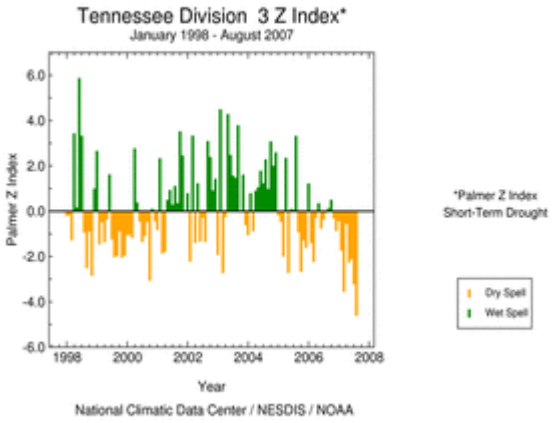
1942;1930-1931. Between 2006-2007 Tennessee was ranked among one of the top ten driest states in the USA:

August 2007 Paleoclimatic Analysis for Central Tennessee

Much of Tennessee has experienced moderate drought conditions since late 2005, but conditions dramatically worsened this spring and summer. The U.S. Drought Monitor for late August/early September showed most of the state to be in category D4, "exceptional drought". Conditions were worse in some local areas. Tennessee Division 3 (central Tennessee) has experienced dry conditions since 2005 and has been persistently dry since February 2007. The Palmer Drought Severity Index (PDSI) for central Tennessee for August 2007 was -5.28, the lowest value ever recorded for any month during the instrumental period.

Precipitation Ranks for Tennessee Division 3, 2006-2007	
Period	**Rank**
Aug	2nd driest
Jul-Aug	1st driest
Jun-Aug	1st driest
May-Aug	1st driest
Apr-Aug	1st driest
Mar-Aug	1st driest
Feb-Aug	1st driest
Jan-Aug	1st driest
Dec-Aug	1st driest
Nov-Aug	1st driest
Oct-Aug	1st driest
Sep-Aug	1st driest





In Williamson County and participating jurisdictions, droughts and severe high temperatures occur approximately every ten to fifteen years, and although mitigation efforts in recent years have been able to lessen the end result, droughts are still a threat. Drought, as a hazard, can affect Williamson County and participating jurisdictions equally. Refer to **Appendix A** for records.

C. Critical Infrastructure

1. Definition of –Those facilities and other infrastructure located in Williamson County and its associated jurisdictions that are vital to the basic livelihood of the County in everyday functions.

2. Jurisdictions
    a) Williamson County
        - Government Buildings
        - Water Treatment Facilities
            - 8 Sewer Plants
        - Transportation
            - 4 Road Bridges
            - 2 River Bridges
        - Critical Private Corporations
        - ACL and/or BCLS Medical Facilities
            - 1 BCLS Medical Facility
        - Public Safety Structures
            - 7 Fire Stations
            - 1 Tennessee Highway Patrol Post
            - 2 Emergency Medical Services Stations
        - Utilities
            - 2 Natural Gas Transmission Lines
            - 4 MTEMC Substations
            - 1 South Central Bell Switching Station
            - 1 United Telephone Station
        - Public Works
        - Media Facilities
        - Schools and Shelter Area
            - 2 High Schools
            - 2 Middle Schools
            - 8 Elementary Schools
        - Solid Waste Centers
            - 1 Landfill

    b) City of Brentwood
        - Government Buildings
            - 1 City Hall
        - Water Treatment Facilities
            - 16 Water Tanks
            - 14 Water Booster Pump Stations

        - 10 Sewer Lift Stations
        - 2 Sewer Monitoring Stations
    - Transportation
        - 3 Road Bridges
        - 6 Railroad Bridge
        - 3 River Bridges
    - Critical Private Corporations
    - ACLS and/or BCLS Medical Facilities
    - Public Safety Structures
        - 4 Fire Stations
        - 1 Police Station
        - 2 Emergency Medical Services Stations
    - Utilities
        - 1 MTEMC Station
        - 1 NES Station
        - 4 BellSouth Carrier Huts
        - 1 AT&T Data Center
        - 1 AT&T Central Office
    - Public Works
        - 1 Public Works Facility
    - Media Facilities
    - Schools and Shelter Areas
        - 2 Public High Schools
        - 1 Private High School
        - 2 Middle Schools
        - 6 Elementary Schools
        - 1 Public Library
        - 20 Religious Structures
    - Solid Waste Centers

c) City of Fairview
    - Government Buildings
        - 1 City Hall
    - Water Treatment Facilities
        - 1 Sewer Plant
    - Transportation
        - 1 Tennessee Department of Transportation Station
        - 2 Road Bridges
    - Critical Private Corporations
    - ACLS and/or BCLS Medical Facilities
        - 1 Public Health Facility
    - Public Safety Structures
        - 2 Fire Stations

        - 1 Police Station
        - 1 Emergency Medical Services Station
    - Utilities
    - Public Works
        - 1 Public Works Facility
    - Media Facilities
    - Schools and Shelter Areas
        - 1 High School
        - 1 Middle School
        - 2 Elementary School
    - Solid Waste Centers

d) City of Franklin
    - Government Buildings
        - 1 City Hall
        - 2 Government Administration Buildings
        - 1 Court House
        - 1 Judicial Center
        - 2 Post Offices
    - Water Treatment Facilities
        - 1 Wastewater Treatment Plant
        - 26 Wastewater Lift Stations
        - 1 Water Treatment Plant
        - 3 Water Pump Stations
        - 14 Water Tanks
    - Transportation
        - 1 Tennessee Department of Transportation Station
        - 11 Road Bridges
        - 17 River Bridges
        - 3 Railroad Bridges
        - 1 Pedestrian Bridge
    - Critical Private Corporations
    - ACLS and/or BCLS Medical Facilities
        - 1 ACLS Medical Facility
        - 5 BCLS Medical Facilities
        - 1 Public Health Facility
    - Public Safety Structures
        - 3Police/Sheriff's/THP Stations
        - 7 Fire Stations
        - 2 Emergency Medical Services Stations
        - 2 City 800 MHz EMA Towers
        - 1 County 800 MHz EMS Tower
    - Utilities

- 1 MTEMC Central Office
- 6 MTEMC Substation
- 1 South Central Bell Switching Station
- 1 AT&T Fiber Optic Cable Line
- 1 Atoms Natural Gas Office
- 3 Utility Districts
- 11 Cellular Towers

- Public Works
  - 2 City Street/County Highway Departments
- Media Facilities
  - 1 Comcast Cable Station
  - 2 Newspaper Buildings
  - 2 Radio Stations
  - 1 Radio Broadcast Tower
- Schools and Shelter Areas
  - 3 Public High Schools
  - 1 Private High School
  - 2 Middle Schools
  - 1 Private Middle School
  - 7 Elementary Schools
  - 2 Private Elementary Schools
  - 1 Community College
  - 6 Recreation Centers/ Complexes (Shelter)
  - 13 Churches
  - 1 Agricultural Exhibition Center (Shelter)
  - 1 Public Library
  - 3 Other Known Shelters
- Solid Waste Centers

e) Town of Nolensville

- Government Buildings
  - 1 City Hall
- Water Treatment Facilities
- Transportation
  - 11 Highway and side road bridges
- Critical Private Corporations
- ACLS and/or BCLS Medical Facilities
- Public Safety Structures
  - 1 Fire Station
  - 1 Police Station
- Utilities
  - 1 United Telephone Station
  - Nolensville/College Grove Utilities

    - Metro Nashville Water and Sewer
    -
- Public Works
- Media Facilities
- Schools and Shelter Areas
    - 2 Elementary School
    - 1 Middle School
    - 1 Recreation Center (Shelter)
    - 1 Public Library
    - 1 Community Center
- Solid Waste Centers

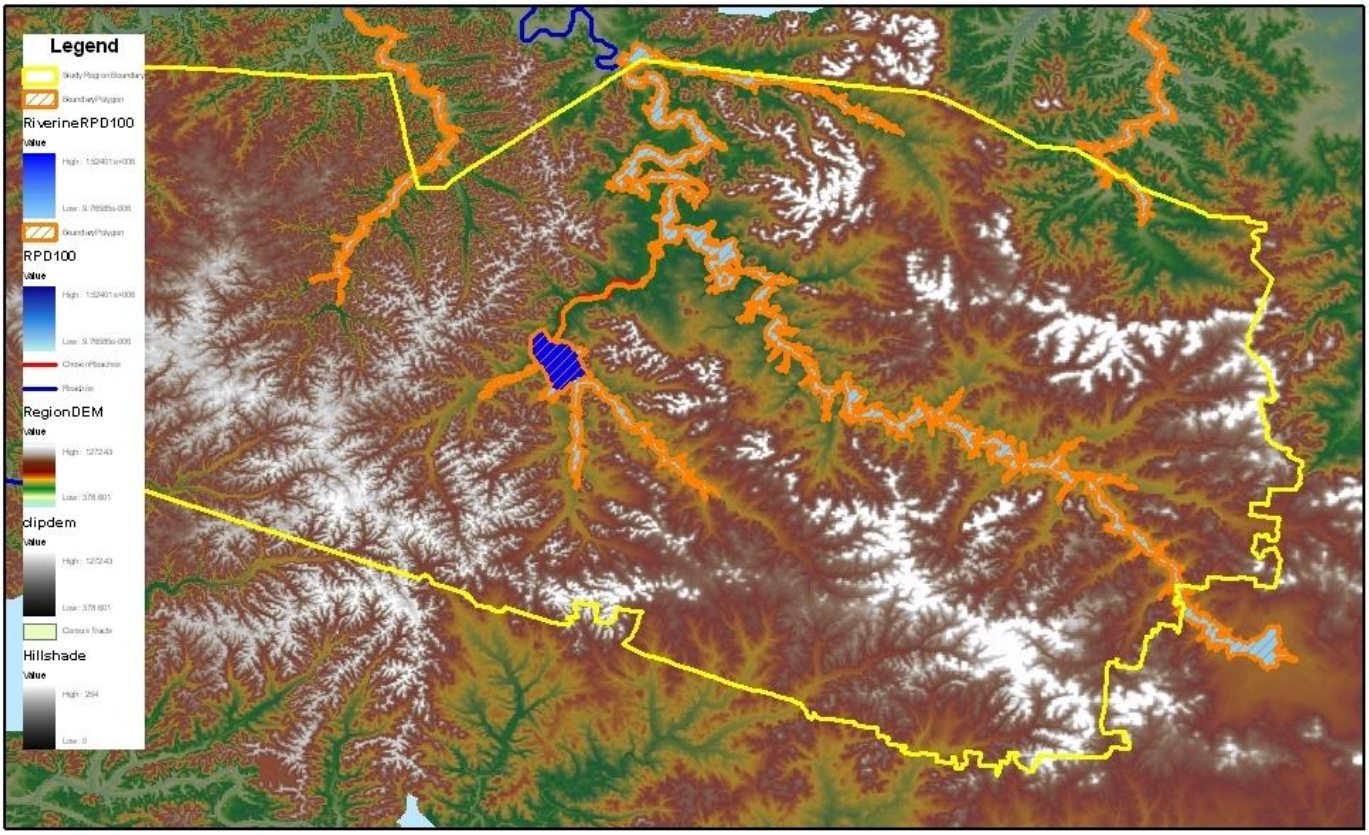
f) City of Spring Hill (On Williamson County Side Only)
- Government Buildings
- Water / Wastewater Treatment Facilities
    - 2 Water Distribution Storage Tanks
    - 1 Water Distribution Pump Station
    - 5 Sewer Collection System Lift Stations
    - 2 Water Booster Pumps
- Transportation
    - 1 Road Bridge
- Critical Private Corporations
- ACLS and/or BCLS Medical Facilities
- Public Safety Structures
    - 1 Fire Station
    - 1 120 foot Communications Tower
- Utilities
    - 1 BellSouth Switching Station
    - 4 BellSouth Carrier Huts
    - 1 Natural Gas Transmission Line
- Public Works
- Media Facilities
- Schools and Shelter Areas
    - 1 Elementary School (Thompson's Station)
    - 1 Middle School (Thompson's Station)
- Solid Waste Centers

g) Town of Thompson Station
- Government Buildings
    - 1 City Hall
- Water Treatment Facilities
- Transportation
- Critical Private Corporations
- ACLS and/or BCLS Medical Facilities

- Public Safety Structures
  - 1 Fire Station
  - 1 Emergency Medical Services Station
- Utilities
- Public Works
- Media Facilities
- Schools and Shelter Areas
  - 1 Middle School
  - 1 Elementary School
- Solid Waste Centers

D. Estimation of Potential Loss (HAZUS)

HAZUS Thematic Map of Depth



HAZUS-MH: Flood Event Report

Region Name: Williamson

Flood Study Case: County 2

Print Date: Tuesday, April 12, 2005

Disclaimer:
The estimates of social and economic impacts contained in this report were produced using HAZUS loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific Flood. These results can be improved by using enhanced inventory data and flood hazard information.

Table of Contents

General Description of the Region

HAZUS is a regional multi-hazard loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences (NIBS). The primary purpose of HAZUS is to provide a methodology and software application to develop multi-hazard losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery.

The flood loss estimates provided in this report were based on a region that included 1 county(ies) from the following state(s):

- Tennessee

Note:
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 583 square miles and contains 2,610 census blocks. There are over 45 thousand households in the region and has a total population of 126,638 people (2000 Census Bureau data). The distribution of population by State and County for the study region is provided in Appendix B.

There are an estimated 53,791 buildings in the region with a total building replacement value (excluding contents) of 8,833 million dollars (2002 dollars). Approximately 98.57% of the buildings (and 84.14% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

HAZUS estimates that there are 53,791 buildings in the region which have an aggregate total replacement value of 8,833 million (2002 dollars). Table 1 and Table 2 present the relative distribution of the value with respect to the general occupancies by Study Region and Study Case respectively. Appendix B provides a general distribution of the building value by State and County.

Table 1
Building Exposure by Occupancy Type for the Study Region

Occupancy	Exposure ($1000)	Percent of Total
Residential	7,432,199	84.1%
Commercial	1,077,644	12.2%
Industrial	162,593	1.8%
Agricultural	19,766	0.2%
Religion	80,661	0.9%
Government	36,928	0.4%
Education	23,285	0.3%
Total	8,833,076	100.00%

Table 2
Building Exposure by Occupancy Type for the Study Case

Occupancy	Exposure ($1000)	Percent of Total
Residential	1,946,989	88.9%
Commercial	179,213	8.2%
Industrial	27,796	1.3%
Agricultural	4,214	0.2%
Religion	23,517	1.1%
Government	4,707	0.2%
Education	3,696	0.2%
Total	2,190,132	100.00%

Essential Facility Inventory

For essential facilities, there are 1 hospitals in the region with a total bed capacity of 126 beds. There are 40 schools, 7 fire stations, 7 police stations and no emergency operation centers.

Flood Scenario Parameters

HAZUS used the following set of information to define the flood parameters for the flood loss estimate provided in this report.

Study Region Name:	Williamson
Scenario Name:	County 2
Return Period Analyzed:	100
Analysis Options Analyzed:	0

Essential Facility Damage

Before the flood analyzed in this study case, the region had 0 hospital beds available for use. On the day of the study case flood event, the model estimates that 0 hospital beds are available in the region.

Table 3: Expected Damage to Essential Facilities

		# Facilities		
Classification	Total	At Least Moderate	At Least Substantial	Loss of Use
Fire Stations	7	0	0	0
Hospitals	1	0	0	0
Police Stations	7	0	0	0
Schools	40	4	0	4

If this report displays all zeros or is blank, two possibilities can explain this.

(1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.

(2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Induced Flood Damage

Debris Generation

HAZUS estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories: 1) Finishes (dry wall, insulation, etc.), 2) Structural (wood, brick, etc.) and 3) Foundations (concrete slab, concrete block, rebar, etc.). This distinction is made because of the different types of material handling equipment required to handle the debris.

Analysis has not been performed for this Study Case.

Social Impact

Shelter Requirements

HAZUS estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. HAZUS also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 1,049 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 2,137 people (out of a total population of 126,638) will seek temporary shelter in public shelters.

Economic Loss

Analysis has not been performed for this Study Case.

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood.

Analysis has not been performed for this Study Case.

Table 4: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Analysis has not been performed for this Study Case.						

Tennessee
- Williamson

	Population	Building Value (thousands of dollars)		
		Residential	Non-Residential	Total
Tennessee				
Williamson	126,638	7,432,199	1,400,877	8,833,076
Total State	**126,638**	**7,432,199**	**1,400,877**	**8,833,076**
Total Study Region	**126,638**	**7,432,199**	**1,400,877**	**8,833,076**

E. Development Trends (Urban Growth)

Urban and Economic Development Plans

1. City of Brentwood

a. Urban Growth in Square Miles;

- Current Land Area: 42
- To Acquire: 7
- Total Future Land Area: 49

2. City of Fairview

a. Urban Growth in Square Miles:

- Current Land Area: 14
- To Acquire: 36.97
- Total Future Land Area: 50.97

3. City of Franklin

a. Urban Growth in Square Miles:

- Current Land Area: 41.51
- To Acquire: 33.83
- Total Future Land Area: 75.34

4. Town of Nolensville

a. Urban Growth in Square Miles:

- Current Land Area: 9.5
- To Acquire: 15.2
- Total Future Land Area: 24.7

7. City of Spring Hill (Williamson County Only)

a. Urban Growth in Square Miles:

- Current Land Area: 6
- To Acquire: 2.79
- Total Future Land Area: 8.79

6. Town of Thompson Station

a. Urban Growth in Square Miles;

- Current Land Area: 14.7
- To Acquire: 12.17
- Total Future Land Area: 26.87

VI. Capability Assessment

Williamson County in cooperation with all associated jurisdictions have incorporated all applicable previously existing plans and any enforcements thereof into the Natural Hazard Mitigation Plan. (Examples of the fore-mentioned plans may be seen in the Current Mitigation Activities and Enforcement Section, as well as Appendices IX-2 through IX-4.

Several Departments, Government Entities, and other applicable groups, assisted with the creation and/or information either by physical or researched participation.

- **National Flood Insurance Program (NFIP)** – Williamson County, City of Brentwood, City of Fairview, City of Franklin, and City of Spring Hill are current participants of the NFIP program, with Towns of Nolensville and Thompson Station working at this time to get to NFIP acquired standards for future application. The NFIP provides flood insurance to homes and businesses located in floodplains at a reasonable cost, and encourages the location of new development away from the floodplain. The program is based upon mapping areas of flood risk, and requiring local implementation to reduce that risk, primarily through guidance of new development in floodplains.
- **Local Emergency Operations Plans (EOPs)** – Williamson County, City of Brentwood, City of Franklin, and the City of Spring Hill have established these plans to define the roles and responsibilities associated with incidents that occur within the county, dealing with preparedness, response, and recovery efforts directed at natural and man-made hazards and events.
- **Warning Systems** – Warning sirens have been installed within the Cities of Franklin and Brentwood, with future plans for installation within Williamson County and the Town of Nolensville. The warning sirens will be able to alert citizens when natural or manmade emergencies occur which require rapid dissemination to the populace. The warning system for the City of Franklin is tested the first Saturday of every month at 1100 hours

central time, whereas the City of Brentwood also tests on the first Saturday of the month, but at 1300 hours central time.

- **Geographic Information Systems (GIS)** – Williamson County began using GIS mapping in the late 1980s, this informational mapping, better helps Williamson County and associated jurisdictions determine areas prone to natural hazards, and therefore assists with mitigation of those said hazards.
- **American Red Cross** – Williamson County is proud to host the Williamson County Chapter of the American Red Cross, with whom assists with both small and large disaster or response situations. The American Red Cross assists with sheltering, feeding and clothing of any person or persons in need from any number of incidents that may have occurred.
- **The National Weather Service (NWS)** – The Natural Weather Service provides weather, hydrologic, and climate forecasts and warnings for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community.
- **NOAA Alert System** – NOAA, the voice of the National Weather Service, provides up to date weather information, 24 hours a day, every day out of the year. Watches, warnings, and weather statements from the NWS are given out over the NOAA Alert System. It is also a major part of the Emergency Alert System that speeds critical information through commercial broadcast outlets. Williamson County Emergency Management Agency has worked with local school systems in an effort to install weather radios within all schools to better assist in pre-alert efforts, as well as written emergency plans to deal with natural weather hazard situations.
- **Department of Agriculture (USDA)** – There are several departments within the USDA that are vital to mitigation against natural hazards that may occur within the County. Because Williamson County also as an agricultural economy:

Crop	Planted (1,000 acres)	Harvested (1,000 acres)	Yield per harvested acre (bushels)	Production (1,000 bushels)
Corn	4	3.4	126	430
Oats	4	3.4	126	430
Soybeans	4.8	4.4	34	150
Wheat, All	5.2	2.4	45	108
Wheat, Winter	5.2	2.4	45	108

Agriculture remains important to the local economy as Williamson County derives a significant amount of revenue from the source.

  - Forest Service – Their primary responsibility lies in prevention and suppression of wild land fires on all land outside of municipalities. All activities are aimed at reducing the number of fires and the acres burned through fire prevention, fire suppression, training, and working with local fire departments. In Williamson County, not only is there the presence of agriculture but with Natchez Trace Park and

several other woodland areas, the assistance of the Forest Service is vital to the well being of rural and outlying areas.

- Soil Conservation Service – The SCS can provide technical assistance in the conservation, development and productive use of soil and water resources. Their activities include:
  - Watershed Protection and Flood Prevention – The SCS provides technical and financial assistance to local organizations to plan and install works of improvement for watershed protection, flood prevention, agricultural water management, and other approved purposes. (Watershed Protection and Flood Protection Act, Public Law 83-566).
  - Flood plain Management Studies – Assistance for cooperative floodplain management studies is provided to local communities or units of government to provide information and large scale mapping needed in alleviating potential flood dangers. Funding is 80/20 (Public Law 83-566, Section 6).
  - Emergency watershed Protection – Emergency watershed protection assistance is provided to reduce hazards to life and property in watersheds damaged by severe natural events (Section 403-405, Agricultural Credit Act of 1978; Section 216, Flood Control Act of 1950, Public Law 81-576).
  - Conservation Technical assistance – In addition to the specific program activities, the SCS can provide technical assistance to land users in the planning and application of conservation treatments to control erosion and reduce upstream flooding along with other purposes such as sediment reduction (Public Law 74-46).

- **U.S. Army Corps of Engineers (USACE) Nashville Division** – The Civil Works Program for he Corps encompasses a broad range of resource development activities for navigation, flood control, major drainage, shore and beach restoration and protection, flood protection, related hydroelectric power development, water supply, water quality control, fish and wildlife conservation and enhancement, outdoor recreation, and development, including consideration of environmental impacts or proposals and alternatives.
- **Tennessee Department of Economic and Community Development** – The Tennessee Floodplain management Coordinator for the National Flood Insurance Program is housed in the TDECD. The Coordinator assists communities with preparation, adoption and administration of flood plain management ordinances or resolutions and integrates floodplain management into comprehensive community planning documents and processes (Executive Orders, TCA Title 13).
- **Tennessee Department of Commerce and Insurance (TDCI), State Fire Marshal's Office** – The State Fire Marshal's Office investigated and prosecutes arson; enforces fire and building codes; regulates users of explosives; regulates LP gas facilities; inspects electrical installations; coordinates Public Fire Education campaigns through the dissemination of educational videos and literature and produces and designs "Duck and Cover" and Fire Safety videos for schools and civic groups.
- **Tennessee Department of Transportation** – Primary mitigation responsibility involves strengthening and hardening of roads and bridges as a result of repairing or replacement. TDOT maintains an inventory of barricades and high water signs for use on the event of

roadway flooding; personnel monitor streams as flood warnings dictate. TDOT maintains personnel and equipment to clear roadways in the event of blockage from storms, tornadoes, winter storms, and landslides.

- **Local County/City/Town Zoning Ordinances** – These documents were created and adopted in order to increase safety and to help mitigate against damage that may occur to properties and/or persons in the involvement of structures and/or the surrounding areas. These documents often include foliage on or around roads and streets as well.
- **Stormwater Regulations** – Williamson County along with several of the associated jurisdictions have implemented and are enforcing Stormwater regulations to help prevent damages that may occur as a result of flooding. These documents regulate the use of proper drainage systems that have and will occur within the County by using specific guidelines (see Appendix F for on file Stormwater Regulations).
- **Detention Pond Regulations** – These regulations were created and adopted to enhance and assist with the Stormwater Regulations as well as decrease with the flooding problems that occur within the County (see Appendix F for on file Detention Pond Regulations).
- **Subdivision Regulations** – Subdivision regulations dictate additional requirements for developments creating new parcels of land. While most new parcels in the County our residential, floodplain and Stormwater design elements are enforced for the protection of health, safety, and general welfare.

VIII. Mitigation Strategies

A. Goals and Objectives

1. Goals

a) To provide the residents of Williamson County and participating jurisdictions, a safe environment through minimum exposure to the risks of natural hazards.

b) To protect and properly manage the county's floodplains.

c) To promote public awareness of natural hazards, such as tornados, ice storms, floods and drought/extreme heat, and to instruct residents of individual activities, which can lessen exposure to those hazards.

2. Objectives

a) Annually develop and review a hazard mitigation plan for the purpose of alleviating risks associated with natural hazards.

b) Continue as a program participant in good standing with the NFIP through the enforcement of ordinances and regulations and the mitigation of past effects.

c) Develop and implement a community wide public information program targeting flood, tornado, fire and winter storm preparedness.

* *The Hazardous Mitigation Committee has determined that the Goals and Objectives has not changed since the initial inception nor through the update process of this plan.*

B. Current Mitigation Activities and Enforcement - These current and future mitigations projects and actions address reducing the effects of hazards on new and existing buildings through current and future codes.

a. Williamson County (04/01/1978), City of Brentwood (02/01/1978), City of Fairview (09/01/90), City of Franklin (07/02/1980), City of Spring Hill (05/87), and City of Brentwood (05/04/1987), Towns of Nolensville (10/5/2006), Thompson Station (9/29/2006), are National Flood Insurance Program (NFIP) participants, have adopted and enforce ordinances regulating development in the floodplain. Below is a listing of the County and it's participating municipalities with CID numbers:

1) 470204# WILLIAMSON COUNTY *
2) 470205# BRENTWOOD, CITY OF
3) 470242# FAIRVIEW, CITY OF
4) 470206# FRANKLIN, CITY OF
5) 470425# NOLENSVILLE, TOWN OF
6) 470278# SPRING HILL, CITY OF
7) 470424# THOMPSON'S STATION, TOWN OF

To continue compliance with the NFIP, the jurisdictions have identified, analyzed, and prioritized three mitigation strategies to stay active with the program.

1. Continue to evaluate improved standards that are proven to reduce flood damage.
2. Maintaining supplies of FEMA/NFIP materials to help homeowners evaluate measures to reduce damage.
3. Maintaining a map of areas that flood frequently and prioritizing those areas for inspection immediately following heavy rains or flooding event.

b. In Williamson County as a whole there are approximately 675 structures that have NFIP coverage. Storm drainage systems are designed to insure adequate storm water management. To reduce the potential for flooding, storm water management is incorporated in new developments. All proposed developments are reviewed for potential flooding problems, and county, as well as included jurisdictions, codes and/or engineers review all new developments prior to construction. Catch basins, culverts, open channels, detention/retension ponds, and other Stormwater best management practices (BMPs) are used to control surface water runoff. This process limits the potential for excessive water runoff in new developments.

c. Planning commissions review site plans of all new commercial and residential development. The plans are reviewed for compliance with local codes and ordinances, including floodplain regulations and zoning regulations, and to ensure that the site has access for emergency vehicles and water flows for fire fighting. Storm water management practices are incorporated in the review comments. Williamson County has developed a Storm Water Management Regulation document, stating the rules and codes for storm water standards and controls, whether they be man-made or a supplement to natural waterways. This document also includes the types of acceptable storm water discharges (see Appendix , for full document).

d. Williamson CountyWilliamson County (NFIP community number 470204) is in compliance with NFIP through the adoption of Section 7111 of the Williamson County Zoning Ordinance. Section 7111 was audited and approved by FEMA (through the State Planning Office) as compliant with the model flood plain ordinance. The Williamson County Ordinance actually exceeds the requirements of the model FEMA ordinance by prohibiting the modification of the floodplain for the creation of new building envelopes. New construction is only allowed within the floodplain on pre-FIRM lots of record.

Section 5.4.4 of the Williamson County Subdivision Regulations prohibits the subdivision of land where buildings or structures are within the 100 year floodplain. The Subdivision Regulations also prohibit the manipulation of the natural floodplain boundary through the placement of full material.

Section 2.1 of the Williamson County Storm Water Regulations further establishes levels of service related to storm water infrastructure in new development. No new development can negatively impact storm water floes through increased runoff or reduced floodplain capacity, and critical service roads must have no more than 3 inches of overtopping during a 100 year rain event.

In addition to participation in the NFIP, Williamson County also participates in the Community Rating System 9CRS). As a CRS community, Williamson County obtains flood insurance discounts for it's residents by performing additional flood plain management activities that reduce flood risk and increase public awareness of flood hazards.

1) Subdivision Regulations - Subdivision regulations dictate additional requirements for developments creating new parcels of land. While most new parcels in the County are residential, floodplain and storm water design elements are enforced for the protection of health, safety, and general welfare.

e. City of Brentwood

1) Subdivision Regulations, Appendix A, Article 6.17 – Suitability of Land, "The Planning Commission shall not approve the subdivision of land if, from adequate investigations by all public agencies concerned, it has been determined that the site is not suitable for platting and development purposes of the kid proposed. Land Subject to flooding and land deemed to be topographically unsuitable for development shall not be platted for residential, commercial, and/or service institution uses, or for any other uses that may increase flood hazard, endanger life, health, or property."

2) Stormwater Management, Erosion Control and Flood Prevention, Chapter 56, Article II. Purpose, "It is the purpose of this article to promote the public health, safety and general welfare and to minimized public and private losses due to flood conditions in specific areas. This articles is designed to: (a) 1) Restrict or prohibit uses which are vulnerable to flooding or erosion hazards, or which result in damaging increases in erosion, flood heights, or velocities; 2) Require that uses vulnerable to floods, including community facilities, be protected against flood damage at the time of initial construction; 3) Control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of floodwaters; 4) Control filling, grading, dredging and other development which may increase flood damage or erosion; and 5) Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands. (b) The objectives of this article are: 1) To protect human life, health, safety and property; 2) To minimize expenditures of public funds for costly flood control projects; 3) To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at

the expense of the general public; 4) To minimize prolonged business interruptions; 5) To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, and streets and bridges located in floodprone areas; 6) To help maintain a stable tax base by providing for the sound use and development of floodprone areas to minimize blight in flood areas; 7) To ensure that potential homebuyers are notified that property is in a floodprone area; and 8) To maintain eligibility for participation in the NFIP." (Ord. No. 2009-13).

3) Stormwater Management, Erosion Control and Flood Prevention, Chapter 56, Article I. Purpose, "Land disturbances and Stormwater can contribute to the degradation of land surfaces and steams, erosions, siltation, earth slides, mud flows, dusty conditions, clogged storm sewers, additional road maintenance cost, increased water runoff and localized flooding. It is the intent of this chapter to protect the health and safety of residents and to preserve adjoining or nearby properties, including hilltops, hillsides, waterways, vegetation, structures and other natural and manmade features, through the regulation of land disturbances and Stormwater runoff and the imposition of erosion control and Stormwater management measures."

f. City of Fairview

1) Subdivision Regulations, Article IV Requirements for Improvements, and Reservations, and Designs, Subsection 4-101.4 Character of the Land, Part 4-101.403 Protection Against Flood Damage "Where protection against flood damage is necessary, in the opinion of the planning commission, flood damage protection techniques may include, as deemed appropriate by the planning commission:" Subpart a " imposition of any surety and deed restriction s enforceable by the planning commission to regulate the future type and design of uses within the flood prone areas; and…" Subpart b "flood protection measures designed so as not to increase, either individually or collectively, flood flow, height, intensity, duration, or damages, and so as not to infringe upon the regulatory floodplain." Section 4-102 Lot Requirements, Subsection 4-102.1 Lot Arrangement, Part 4-102.103 Lots Subject to Flood " No portion of a "building site" (see definition) associated with any residential structure may be located in any flood prone area. However, portions of lots occurred by residential structures that are located beyond a "building site" may contain land subject to flooding, in any instance where the lot is served by subsurface sewage disposal the area of the disposal fields shall not lie within any flood prone area. Adding fill material within the one hundred-year flood boundary area will not be permitted unless approved by the planning commission. In the event that filling within the flood boundary is approved, the fill shall be protected against erosion by rip=rap, vegetative cover, or other methods deemed acceptable by the planning commission. On non residential building sites outside a one hundred-year flood boundary the use of structural flood-proofing methods specified in Subsection 4-101.403, (Protection Against Flood Damage), of these regulations, as an alternative to fill material,

may be approved by the planning commission, as provided in Subsection 2-101.4, of these regulations.".

2) Zoning Ordinance, Article VIII Overlay Districts, Section 8-301 Floodplain District Regulations, Subsection 8-305 Provisions For Flood Hazard Reduction, Part 8-305.2 Standards for Subdivision Proposals, "Subdivision proposals and other proposed new development, including manufactured home parks or subdivisions, shall be reviewed to determine whether such proposals will be reasonably safe from flooding. If a subdivision proposal or other proposed new development is in a flood prone area, any such proposals shall be reviewed to ensure that: 1. All subdivision proposals shall be consistent with the need to minimize flood damage. 2. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize or eliminate flood damage. 3. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards. 4. Base flood elevation data shall be provided for subdivision proposals and other proposed development (including manufactured home parks and subdivision) which is greater than fifty (50) lots and/or five (5) acres".

g. City of Franklin

1) Subdivision Regulations, Section 2.2.5. Suitability of the Land: (1) The Planning commission shall not approve the subdivision of land if, and after adequate investigations have been conducted by the public agencies concerned, the Planning Commission determines that, in the best interest of the public, the particular site is not suitable or the type of platting and development proposed. (2) All subdivision proposals shall be consistent with the need to minimize flood damage. (7) All proposed developments containing Floodplain areas shall be guided and controlled by the Floodplain Insurance Study, which is the study presented to the City at a public hearing May 24, 1979. The Floodway and Floodway Fringe areas places on the Zoning Map are meant to be the same areas expressly delimited in this study which is entitled Flood Insurance Study of Franklin, Tennessee, Williamson County, "dated March 22, 1979, and subsequently amended, and which study is made a part of the Subdivision Regulations as if set forth herein verbatim. (8) Any development more than five acres and within or adjacent to a flood-prone area, as designated on the maps of the Federal Emergency Management Agency, must have established, at locations approved by the City, permanent elevation bench marks referenced to the U.S.G.S. datum…". Also contained in the City of Franklin Subdivision Requirements is sections consisting of Storm Drainage [3.1.4.; (1), (2), (3), (4)], 4.1. Preliminary Plat: [4.1.3.; (30), (32), (33), (34)], [4.2.3.; (16)] See Appendix F).

2. Town of Nolensville

1) The Town of Nolensville adopted the National Flood Insurance Program on the 5th of October, 2006, and amended the zoning ordinance #04-09 to reflect this change. The Stormwater regulations were adopted December 2, 2004

Previous Flood Pain regulations have been removed from the Zoning Ordinance and re-established as a separate ordinance numbered #08-10. Floodplain regulations also found in TITLE 18 Water and Sewers:

2) Subdivision Regulations, Section V Requirements for Improvements, Reservations and Design; Subsection 5.4 Curbs; Part 4 Floodplain "The Planning Commission shall not approve the subdivision of land if, in its opinion, building or structures would be damaged by floodwaters. Structures built on land subdivided within the 500-year floodplain as recognized in the studies mentioned above shall have a minimum elevation on the floor occupied by its inhabitants of three (3) feet above the 100-year floodplain, This shall be noted on the final plat by means of building envelopes and elevations for such building sites. In addition, all requirements of the Zoning Ordinance of Nolensville shall be met.

3) Zoning Ordinance, Section 5.5.0 Provisions for Flood Hazard Reduction, Subsection 5.5.1 General Standards, A. "Any structure placed in the floodplain shall be anchored firmly to prevent floodwaters from carrying it downstream. Such anchoring shall be sufficient to withstand velocities of up to six (6) feet per second up to and including the 100-year floodplain in a manner which ensures that debris is not caught. A written opinion from a registered professional engineer shall be submitted that states the proposed structural design meets these standards." K. "Permitted Uses and Improvements. All floodplains shall be preserved as permanently protected open space. No uses or improvements other than those listed below shall be permitted in any floodway fringe if in accordance with zoning." Part 6 "Bridges and approach fills provided that: the facility does not increase the 100-year floodway profile by more than one (1) percent; the 100-year floodway profile is not increased on adjacent pr upstream properties; the facility does not increase the height of more frequent floods on adjacent or upstream properties; and in no case shall the lowest roadway elevation of am bridge or approach be below the 50-year flood. Construction of bridges and approaches shall be designed so that no more than one (1) foot of overtopping of the approaches or structures shall occur during the 100-year storm." Part 8 "For lots of record existing prior to April 1, 1981, the effective date of the Federal Emergency Management Agency FIRM maps, the Mayor or his designee is authorized to allow uses and filling provided that the following condition are met in addition to the requirements of Section 7.5.1.A."

3. City of Spring Hill

1) Subdivision Regulations, Article IV Requirements for Improvements, and Reservations, and Design, Section 4-106, Subsection 4-106.205 Areas of Poor Drainage, "Whenever a plat is submitted for an area which is subject to flooding, the planning commission may approve such subdivision; provided, that the applicant fills affected floodway fringe area of said subdivision to place public way elevations at no more than twelve (12) inches below the regulatory flood elevation and first floor elevations (including basements) at no less than one (1) foot above the regulatory flood elevation. the plat of such subdivision shall provide for a floodway along the bank of any stream or

watercourse of width sufficient to contain or move the water of the regulatory flood, and no fill shall be placed in the floodway; neither shall any building nor flood-restrictive structure be erected or placed therein. The boundaries of the floodway and floodway fringe area, and the regulatory flood elevation, shall be determined by the planning commission based upon the review specified in Subsection 2-101.4; 4-101.4; Section 4-104 and Subsection 4-105.2, of these regulations." Subsection 4-106.206 Floodplain Areas, "The planning commission may when it deems it necessary for the health, safety, or welfare of the present and future population of the area or necessary to the conservation of water drainage, and sanitary facilities, prohibit the subdivision of any portion of the property which lies within the floodplain of any stream or drainage course. The regulatory floodway shall be preserved form an and all destruction or damage resulting from clearing, grading, or dumping of earth, waste material, or stumps. Any subdivision which contains flood prone land shall be subject to the special provisions set forth in Subsections 2-101.4; 4-101.4; Section 4-104 and Subsection 4-105.2, of these regulations."

2) Zoning Ordinance, Article IX Provisions Governing Floodway and Flood Fringe Districts; Section 5 Flood Fringe Provisions; Subsection 5.1; Part 5.1(5.3) "lots or pads are elevated on compacted fill so that the lowest habitable floor of the manufactured home is one (1) foot above the regulatory level." Section 6 Small Streams and Shallow Flooding Provisions; Subsection 6.1 " For small streams where regulatory flood elevations or floodways have not been provided and the provisions of Sections 3.3 and 3.5, cannot be fulfilled, the following requirements shall apply:" Part 6.1(1) " No building or fill material shall be located within a distance of the stream bank equal to five (5) times the width of the stream at the top of the bank or twenty (20) feet on each side from top of bank, whichever is greater." Part 6.1(2) " All new construction or substantial improvements of residential structures shall have the lowest floor, including basement, elevated to the depth number specified on the Flood Insurance Rate Map, in feet, above the highest and adjacent grade. If no depth number is specified, the lowest floor, including basement, shall be elevated at least two (2) feet above the highest adjacent grade." Part 6.1(3) " All new construction and substantial improvements of nonresidential structures shall:" Subpart 6.1(3.1) " Have the lowest floor including basement, elevated to the depth number specified on the Flood Insurance Rate Map, in feet, above the highest adjacent grade, If no depth number is specified, the lowest floor, including basement, shall be elevated at least two (2) feet above the highest adjacent grade or," Subpart 6.1(3.2) "Together with attendant utility and sanitary facilities be completely proofed to or above the level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy."

b. Town of Thompson Station:

1) Subdivision Regulations, Section V: Requirements for Improvements, Reservations, and Design., Part 2.b.(iii) "Along waterways, low-lying land subject to flooding or periodic overflow during storm periods, whether or not included in areas for dedication, shall be preserved and retained in their natural state as areas of drainage." Part 4 " The Planning Commission shall not approve the subdivision of land if in its opinion building or structures would be damaged by flood waters. Land subdivided with building or structures is strictly prohibited within the area designated as the 100-year floodplain; as identified by current U,S, Army Corps of Engineer Studies , FEMA Flood Studies and maps, or any other recognized and accepted studies by or for this Regional Planning Commission. Included is any encroachment by embankment to obtain elevations above the 100-year flood elevation. No filling whatsoever is allowed within the 100-year flood line. Structures built on land subdivided within the 500-year floodplain as recognized in the studies mentioned above shall have a minimum elevation on the floor occupied by its inhabitants, of three (3) feet above the 100-year floodplain. This shall be noted on the final plat by means of building envelopes and elevations for such building sites. In addition, all requirements of Section 7111, of the Thompson's Station Zoning Ordinance, shall apply."

2) Zoning Ordinance, Article V., General and Supplementary Provisions, Division 5100 Resource Protection and Site Performance Standards, Section 5111 Floodplains, C.3. "Bridges and approach fills meeting standards based on the following standards: a. Assuming downstream encroachment to the floodway (encroachment run), the approach fill along with the proposed bridge or culvert cannot increase the one hundred (100) year floodway profile by more than the FEMA surcharge of one(1) foot. b. The floodway for condition a., above, cannot be increased on adjacent or upstream properties. c. The approach fill and proposed bridge or culvert cannot increase the heights of more frequent floods (1 to 99 year floods), on adjacent or upstream properties. d. In no case shall the lowest roadway elevation of a bridge or approach be below the 50 year flood. Construction of bridges and approaches shall be designed so that no more than one (1) foot of overtopping of the approaches or structures shall occur during the 100 year storm." Section 5111 Floodplains, C.9. "Change of use for structures located in the floodplain. A change of use is permitted for a structure if it is located in the floodplain provided the following criteria are met: a. First floor elevation is above the 100-year elevation. b. Structure is out of the 10 year flood frequency area and the floodway. c. Proposed use is limited to office and service as identified in Section 3604.A. and F. If the first floor elevation is not above the 100-year flood elevation the conditions for approval shall be as set forth in Items 7. and 8. above." Section 5111 Floodplains, C.10. " Replacement of deteriorating existing commercial* buildings in the floodplain is permitted if the replacement building is build with a first floor elevation of one (1) foot above the 100-year floodplain and is out of the floodway."

4. The county and cities have purchased land along various floodways, and have established zoning ordinances to prohibit building in these areas. Williamson County

and the cities are also currently reviewing areas on or around the floodways that may also be purchased to prohibit construction as well. Found in the Williamson County Subdivision Regulations: Division 5.4, Section 4 Floodplain, states that "The Planning Commission shall not approve the subdivision of land if in its opinion building or structures would be damaged by flood waters. Land subdivided with building or structures is strictly prohibited within the area designated as the one hundred (100) year floodplain; as identified by current U.S. Army Corps of Engineers Studies, FEMA Flood Studies and maps, or any other recognized and accepted studies by or for this Regional Planning Commission. Included is any encroachment by embankment to obtain elevations above the one hundred (100) year flood elevation. The City of Brentwood has made several physical improvements to areas throughout that City which are prone to flooding, including but not limited to the following: (1) At 6323 Wildwood Valley Drive and 1943 Harpeth River Drive, (at corner), a high-flow drainage ditch was installed. The ditch is 20 feet across the top and with 3 to 1 slopes and a 6 foot flat bottom. (2) At 1923 Harpeth River Drive, 3 pipes were installed and a levy added to hold water from flooding. The pipes will carry water away from the area once it goes over the roadway. (3) At Belle Rive Drive and Waxwood Drive, a cross drain was installed and 500' of ditch was improved. Crews installed rip-rap and placed seed and straw in the area. (4) At, 6230 and 6232 Belle Rive Drive, 400' of drainage ditch was tied into the Little Harpeth River. Crews placed rip-rap in the bottom of the ditch to act as a dissipater, and then placed sod on the slopes. (5) At Holly Tree Gap Road at the North City Limits, crews replaced a 48-inch concrete pipe cross drain to improve drainage. No filling whatsoever is allowed within the one hundred (100) year flood line."

5. For severe weather, such as tornados, several of the cities within Williamson County have installed outdoor warning systems to warn residents. Williamson County Emergency Management Agency in accordance with other affiliated emergency services has the ability to override the local cable TV system in order to warn residents indoors of a possible natural hazard.

6. The county and cities, through their capital improvement programs (CIP), continue to improve existing drainage ways to better manage and control storm water flows and reduce the potential for flooding.

B. **Mitigation Activities:** Past, Current and Future – Numerous factors were taken into consideration in the development and selection of the mitigation strategies. The tried and true method of determining the best courses of action in addressing the stated goals/objectives was based on the three alternative method; i.e., no action, alternative 1, and alternative 2. Once a course of action was selected, an evaluation process similar to the STAPLEE method provided the framework for narrowing the list of potentialities and final selections. Unfortunately, as in most cases, fiscal constraints played the largest role in determining the prioritization of the strategies. It should be noted, many of the strategies are completed or in some stage of completion, consequently, the order in which they are listed is not necessarily the actual order of prioritization. On the other hand, the future jurisdictional strategies are listed in priority order with respect to the hazard; i.e., Flood – High, Tornado – High, etc.. The following projects are ranked in priority per the hazard identified. The ranking was determined by the Hazard Mitigation Committee

where emphasis was placed on a benefit cost review. Each project individually is seen as equally beneficial in its ability to mitigate the negative effects of the hazard in which it is listed under.

NOTE: Although the mitigation strategies reflect a concerted effort among all factions the participating jurisdictions, final strategy/activity determinations were accomplished by the Mitigation Planning Committee.

1. Flooding

    a) Williamson County

        - Past

            - Statement of the Problem – Decrease damage resulting within Williamson County.
            - Preferred Mitigation Strategy – Study watershed in North Williamson County.
            - Responsible to Implement – Williamson County Government, Community Development.
            - Implementation Schedule – Report date 1981. Recommendations were mainly related to policy and regulation development. Findings were incorporated into land use policy and the zoning ordinance.
            - Sources of Funding – unknown.
            - Estimated Costs – unknown

            - Statement of the Problem – Decrease damages resulting from flooding within Williamson County.
            - Preferred Mitigation Strategy – Corps of Engineers analysis of suitability of small detention ponds.
            - Responsible to Implement – Williamson County Government, Community Development; Army Corps of Engineers (COE).
            - Implementation Schedule – Report date 1993.
            - Sources of Funding – Williamson County and COE.
            - Estimated Costs – unknown

            - Statement of the Problem – Decrease damages to current and future structures, resulting from flooding within Williamson County.
            - Preferred Mitigation Strategy – Construct regional detention facility.
            - Responsible to Implement – Williamson County Government, Community Development.
            - Implementation Schedule – Constructed 1994.
            - Sources of Funding – Developer and Williamson County.

- Estimated Costs - $30,000.00 in County funds.

- Statement of the Problem – Decrease damages resulting from flooding within Williamson County.
- Preferred Mitigation Strategy – Evaluation of existing regional ponds (Farmington, Holly Tree Farms, and Walnut Grove).
- Responsible to Implement – Williamson County Government, Community Development.
- Implementation Schedule – Reports dated 1994, 1995.
- Sources of Funding – Williamson County Government.
- Estimated Costs - $9,300.00

- Statement of the Problem - Decrease damages resulting from flooding within Williamson County.
- Preferred Mitigation Strategy – Enlarge and improve the Farmington regional pond.
- Responsible to Implement – Williamson County Government, Community Development.
- Implementation Schedule – Fiscal Year 2000.
- Sources of Funding – Williamson County Government.
- Estimated Costs - $89,053.00

- Statement of the Problem – Decrease damages resulting from flooding within the Trace Creek Water Shed.
- Preferred Mitigation Strategy – Perform Temple Hills Drainage Study.
- Responsible to Implement – Williamson County Government, Community Development.
- Implementation Schedule – Fiscal Years 2000-2001.
- Sources of Funding – Williamson County Government and Temple Hills Homeowners Association.
- Estimated Costs - $25,000.00

- Current
  - Statement of the Problem – Decrease damages resulting from flooding within the unincorporated areas of Williamson County.
  - Preferred Mitigation Strategy – Participation in the NFIP and CRS with initial FIRMS dated November 1981; updates in 1989, 1993, 2003.
  - Responsible to Implement – Williamson County Government, Community Development.
  - Implementation Schedule Ongoing participation with updates pending for Lynnwood Branch and Cartwright Creek. Mitigation strategies were explored in conjunction with

updated existing flood studies for these two basins. Strategies included channel improvements and regional detention, but did not meet necessary cost benefits thresholds.
- Source of Funding – Williamson County Government
- Estimated Costs - $ 108,800.00

- Statement of the Problem – Reduction of flood risk for repetitive loss structures.
- Preferred Mitigation Strategy – Elevation or removal.
- Responsible to Implement – Williamson County Government, Community Development.
- Implementation Schedule – As a participant in the CRS, Williamson County performs an annual repetitive loss outreach program. This program focuses on increasing awareness in the County's two defined repetitive loss areas. If resources are available, and cost-benefit requirements can be met, the County will pursue the mitigation of its three repetitive loss structures.
- Source of Funding – Williamson County Government and available grants.
- Estimated Costs - Variable

- Statement of the Problem – Substantial damage from May 2010 flood.
- Preferred Mitigation Strategy – Voluntary acquisition and removal of qualified properties.
- Responsible to Implement – Williamson County Government, Community Development.
- Implementation Schedule – Williamson Count has been awarded an HMPG grant for the acquisition and demolition of substantially damaged properties in the regulatory flood plain. Williamson County is currently scheduling closings on three properties whose owners are continuing to participate.
- Sources of Funding – Williamson County, State of Tennessee, and FEMA
- Estimated Costs - $ 722,295 (75% Federal, 12.5% State, and 12.5% Local).

b) City of Brentwood

- Past
  - Statement of Problem - Decrease damages resulting from flooding within the City of Brentwood.
  - Preferred Mitigation Strategy - Participation in the NFIP; 1978; updates in 1982, 1989, 1992, 2003 and 2006.
  - Responsible to Implement - City of Brentwood.

- Implementation Schedule - Original beginning participation in 1978, updated 1982, 1989, 1992, 2003 and again 2006.
- Sources of Funding - City of Brentwood, National Flood Insurance Program.
- Estimated Costs - $0 for participation.

- Statement of Problem - Decrease damages resulting from flooding within the City of Brentwood.
- Preferred Mitigation Strategy - Revised Floodplain Ordinance.
- Responsible to Implement - City of Brentwood.
- Implementation Schedule - Completed January, 2003 and 2006.
- Sources of Funding - City of Brentwood.
- Estimated Costs - unknown

- Statement of Problem - Decrease damages resulting from flooding within the City of Brentwood.
- Preferred Mitigation Strategy - Use of GIS mapping in planning department to better identify floodplain.
- Responsible to Implement - City of Brentwood, Planning Department.
- Implementation Schedule - Completed January, 2003.
- Estimated Costs - unknown

- Statement of Problem - Decrease damage resulting from flooding within the City of Brentwood.
- Preferred Mitigation Strategy - Clearing of culverts and drainage structures.
- Responsible to Implement - City of Brentwood, Public Works Department.
- Implementation Schedule - Annual.
- Source of Funding - City of Brentwood.
- Estimated Costs - $100,000

- Statement of Problem - Decrease damage resulting from flooding within the City of Brentwood.
- Preferred Mitigation Strategy - Storm Water Management Ordinance.
- Responsible to Implement - City of Brentwood, Public Works Department.
- Implementation Schedule - Project completed to date.
- Source of Funding – City of Brentwood, General Funding
- Estimated Costs - unknown

- Current
  - Statement of Problem - Decrease damages resulting from flooding within the City of Brentwood.
  - Preferred Mitigation Strategy - Enforcement of the Floodplain and Storm Water Management Ordinances.
  - Responsible to implement - City of Brentwood, Engineering and Planning Departments.
  - Implementation Schedule - Current.
  - Sources of Funding - City of Brentwood.
  - Estimated Costs -unknown

  - Statement of Problem - Decrease damages resulting from flooding within the City of Brentwood.
  - Preferred Mitigation Strategy - Clearing of culverts and drainage structures.
  - Responsible to Implement - City of Brentwood, Public Works Department.
  - Implementation Schedule - Annual.
  - Sources of Funding - City of Brentwood.
  - Estimated Costs - $100,000

  - Statement of the Problem - Decrease damages resulting from flooding within the City of Brentwood.
  - Preferred Mitigation Strategy - Acquire two substantially damaged homes as a result of the May 2010 floods.
  - Responsible to Implement - City of Brentwood, TEMA and FEMA.
  - Implementation Schedule - Current.
  - Sources of Funding - Federal, State and Local.
  - Estimated Costs –$ 866,907

- Future
  - Statement of Problem - Decrease damages resulting from flooding within the City of Brentwood.
  - Preferred Mitigation Strategy - Clearing of culverts and drainage structures.
  - Responsible to Implement - City of Brentwood, Public Works Department.
  - Implementation Schedule - Annual.
  - Sources of Funding - City of Brentwood.
  - Estimated Costs - $100,000

- Statement of Problem - Decrease damages resulting from flooding within the City of Brentwood.
- Preferred Mitigation Strategy - Continued enforcement of the floodplain and storm water management ordinances.
- Responsible to Implement - City of Brentwood, Public Works and Planning Departments.
- Implementation Schedule - Current.
- Sources of Funding - City of Brentwood.
- Estimated Costs - unknown

c) City of Fairview

- Past
  - Statement of the Problem – Decrease damages resulting from flooding within the City of Fairview.
  - Preferred Mitigation Strategy – Creation and placement of twenty-two (22) detention ponds, throughout City.
  - Responsible to Implement – City of Fairview, Street Department.
  - Implementation Schedule – Ponds completed as of 7 February 2005.
  - Sources of Funding – City of Fairview, General Funding; allocation to Street Department.
  - Estimated Costs – Total investment, $ 250,000.00

  - Statement of the Problem – Decrease damages resulting from flooding within the City of Fairview.
  - Preferred Mitigation Strategy – Ogden Environmental & Energy, study of Hunting Camp Creek.
  - Responsible to Implement – City of Fairview, Street Department.
  - Implementation Schedule – Study purchased and completed Fiscal Year 1998.
  - Sources of Funding – City of Fairview, General Funding; allocation to Street Department.
  - Estimated Costs – Total investment, $ 20,000.00

  - Statement of the Problem – Decrease damages resulting from flooding within the City of Fairview.
  - Preferred Mitigation Strategy – Purchase of Bandit Chipper for removal of limbs and brush from ditches.
  - Responsible to Implement – City of Fairview, Street Department.
  - Implementation Schedule – Equipment purchased, Fiscal Year 2000.

- Sources of Funding – City of Fairview, General Funding; allocation to Street Department.
- Estimated Costs – Total investment, $19,855.00

- Statement of the Problem – Decrease damages resulting from flooding within the City of Fairview.
- Preferred Mitigation Strategy – Purchase of Tarrant Big T Vac for leaf vacuum and removal of leaves from ditches within the City.
- Responsible for Implementation – City of Fairview, Street Department.
- Implementation Schedule – Equipment purchased, Fiscal Year 2001.
- Sources of Funding – City of Fairview, General Funding, allocation to Street Department.
- Estimated Costs – Total investment, $13,250.0

- Current
  - Statement of the Problem – Decrease damages resulting from flooding within the City of Fairview.
  - Preferred Mitigation Strategy – Continuous washing and cleaning of drainage basins.
  - Responsible to Implement – City of Fairview, Fire Department.
  - Implementation Schedule - Project ongoing.
  - Sources of Funding – City resource.
  - Estimated Costs - $0.00

- Future
  - Statement of the Problem – Decrease damages resulting from flooding within the City of Fairview.
  - Preferred Mitigation Strategy – Propose to create a regional detention pond in the City Center.
  - Implementation Schedule – Implementation date to be disclosed at later date.
  - Responsible to Implement – City of Fairview, Street Department.
  - Funding Sources – To be announced
  - Estimated Costs – Unknown

d) City of Franklin

- Past
  - Statement of the Problem –Decrease damages resulting from flooding within the City of Franklin.

- Preferred Mitigation Strategy – Participation in the NFIP; 1978; updates in 1988 and 2003.
- Responsible to Implement – City of Franklin, Codes Administration.
- Implementation Schedule – Original beginning participation in 1978, updated 1988, and again 2003.
- Sources of Funding – Federal Government, FEMA.
- Estimated Costs - $0.00 for participation.

- Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
- Preferred Mitigation Strategy – Use GIS mapping in engineering to identify floodplain.
- Responsible to Implement – City of Franklin, Codes Administration Department.
- Implementation Schedule – Project completed September 1999.
- Source of Funding – City of Franklin.
- Estimated Costs - $ 1,000,000.00

- Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
- Preferred Mitigation Strategy – Identification of four dilapidated structures in the floodplain.
- Responsible to Implement – City of Franklin, Codes Administration Department.
- Implementation Schedule – Identification complete, legal proceeding to remove in 2004 or 2005.
- Source of Funding – City of Franklin, Codes Administration Department.
- Estimated Costs - $ 0.00 to date.

- Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
- Preferred Mitigation Strategy – Purchase vehicle to maneuver in disaster areas.
- Responsible to Implement – City of Franklin, Administration Department.
- Implementation Schedule – Project completed Fiscal Year 2002.
- Source of Funding – City of Franklin, General Fund.
- Estimated Costs - $ 22,156.00

- Statement of the Problem – Decrease damage resulting from flooding within the City of Franklin.

- Preferred Mitigation Strategy – Identify problem areas and monitor flood levels to modify response guidelines.
- Responsible to Implement – City of Franklin, Fire Department.
- Implementation Schedule – Established process.
- Sources of Funding – City of Franklin, Fire Department allocation.
- Estimated Costs – N/A

- Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
- Preferred Mitigation Strategy – Purchase of swift water boat and swift water rescue response and training equipment.
- Responsible to Implement – City of Franklin, Fire Department.
- Implementation Schedule – Purchased Fiscal Year 1999.
- Source of Funding – City of Franklin, Fire Department allocation.
- Estimated Costs - $ 79,270.00

- Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
- Preferred Mitigation Strategy – Create Stormwater Management Master Plan to model streams to identify needed facility improvements and stream flood plains beyond FEMA studied area.
- Responsible to Implement – City of Franklin, Engineering Department.
- Implementation Schedule – Project completed to date.
- Source of Funding – City of Franklin, Engineering Department allocation.
- Estimated Costs - $ 1,200,000.00

- Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
- Preferred Mitigation Strategy – Develop a Stormwater Management Ordinance to better protect the flood plains for the various streams and the Harpeth River; lessen runoff from developments, revise and enforce; provide stream buffers.
- Responsible to Implement – City of Franklin, Engineering Department.
- Implementation Schedule – Initial portion of project completed and adopted by City to date.
- Source of Funding – City of Franklin, Engineering Department allocation.
- Estimated Costs - $ 120,000.00

- Current
    - Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
    - Preferred Mitigation Strategy – Training, Policy and continued monitoring of flood levels through communications and mapping.
    - Responsible to Implement – City of Franklin, Fire Department.
    - Implementation Schedule – Project currently underway.
    - Source of Funding – City of Franklin, Fire Department allocation.
    - Estimated Costs – N/A

    - Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
    - Preferred Mitigation Strategy – Hill Estates drainage Improvements.
    - Responsible to Implement – City of Franklin, Street Department.
    - Implementation Schedule – Project currently underway.
    - Sources of Funding – City of Franklin, Street Department allocation.
    - Estimated Costs - $425,000.00

    - Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
    - Preferred Mitigation Strategy – Close monitoring of flood plain with emphasis on grading and buildings.
    - Responsible to Implement – City of Franklin, Codes Administration.
    - Implementation Schedule – Project begun Fiscal Year 1980 and is ongoing.
    - Sources of Funding – City of Franklin, General Fund
    - Estimated Costs – Budgeted manpower 0.00

    - Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin
    - Preferred Mitigation Strategy – Establish an open space prioritization and acquisition program to endure maximum success with limited funds.
    - Responsible to Implement – City of Franklin, Parks Department.
    - Implementation Schedule – Initial process complete, process also continuous.
    - Source of Funding – City of Franklin, Parks Department allocation, with Regional and Federal grant assistance.

- Estimated Costs - $ 50,000.00

- Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
- Preferred Mitigation Strategy – Identification of five (5) dilapidated buildings in floodplain.
- Responsible to Implement – City of Franklin, Codes Administration Department.
- Implementation Schedule – Legal proceedings to remove structures initiated in Fiscal Year 2005 with completion date pending.
- Source of Funding – Private Funding.
- Estimated Costs - $ 85,000.00

- Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
- Preferred Mitigation Strategy – Re-establish riparian buffer zones at all applicable water resources owned by the City of Franklin.
- Responsible to Implement – City of Franklin, Parks Department
- Implementation Schedule – Project currently underway, will be ongoing
- Source of Funding – City of Franklin, Parks Department allocation with Regional, State and Federal grant assistance.
- Estimated Costs – $ 2,000.00 Yearly costs

- Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin
- Preferred Mitigation Strategy – Clean and improve drainage ditches and retention areas within the park system, as well as protection of property from flood events.
- Responsible to Implement – City of Franklin, Parks Department
- Implementation Schedule – Project currently underway, will be ongoing.
- Source of Funding – City of Franklin, Parks Department allocation.
- Estimated Costs – $ 3,000.00

- Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
- Preferred Mitigation Strategy – Purchase equipment for clearing of underbrush and dead trees along the Harpth River, Spencer Creek and future park properties along existing

tributaries, (i.e. chainsaws, tractor, skid-steer loader with brush, blade and dump truck).
  - Responsible to Implement – City of Franklin Parks Department
  - Implementation Schedule – Equipment purchase complete, process ongoing.
  - Source of Funding – City of Franklin, Parks Department allocation.
  - Estimated Costs – $ 116,000.00 for equipment purchase

  - Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
  - Preferred Mitigation Strategy – Acquired Jackson Lake Subdivision private retention pond, dredging & upgrading to make into larger, regional pond
  - Responsible to Implement – City of Franklin, Engineering Department.
  - Implementation Schedule – Initiated Fiscal year 2007, completion date pending.
  - Sources of Funding – City of Franklin, Stormwater Fund allocation.
  - Estimated Costs - $ 1,600,000.00

- Future
  - Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
  - Preferred Mitigation Strategy – Remove two pump stations in flood zones.
  - Responsible to Implement – City of Franklin, Water Management Department.
  - Implementation Schedule – Planning date initiated Fiscal Years 2005-2006, with completion date pending.
  - Sources of Funding – City of Franklin, Water Department allocation
  - Estimated Costs - $90,000.00

  - Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
  - Preferred Mitigation Strategy – Conduct new flood studies with FEMA in two new areas; requires map change in 2006.
  - Responsible to Implement – City of Franklin, Codes Administration.
  - Implementation Schedule – Planning initiated Fiscal Year 2006 with completion date pending.
  - Source of Funding – City of Franklin, Codes Administration allocation, FEMA resource assistance.

- Estimated Costs - unknown

- Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
- Preferred Mitigation Strategy – Acquire up to eight private retention ponds, dredge/upgrade and make into larger regional ponds.
- Responsible to Implement – City of Franklin Engineering Department.
- Implementation Schedule – Fiscal Year 2012.
- Source of Funding – City of Franklin, Stormwater Fund.
- Estimated Costs - $ 4,500,000.00

- Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
- Preferred Mitigation Strategy – Purchase three private detention ponds and make into larger, regional ponds.
- Responsible to Implement – City of Franklin, Engineering Department.
- Implementation Schedule – Initiated Fiscal Year 2006 with completion date pending.
- Sources of Funding – City of Franklin, Engineering Department allocation.
- Estimated Costs - $1,600,000.00

- Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
- Preferred Mitigation Strategy – Provide an additional Streams Management Master Plan for streams in the City.
- Responsible to Implement – City of Franklin, Engineering Department.
- Implementation Schedule – Project date yet unknown.
- Source of Funding – City of Franklin, Engineering Department allocation.
- Estimated Costs - $ 160,000.00

- Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
- Preferred Mitigation Strategy – Continue with the mast planning efforts until all of the stream basins in the City have been modeled.
- Responsible to Implement – City of Franklin, Engineering Department.
- Implementation Schedule – Project date yet unknown.
- Source of Funding – City of Franklin, Stormwater Fund

- Estimated Costs - $ 500,000.00

- Statement of the Problem – Decrease damages resulting from flooding within the City of Franklin.
- Preferred Mitigation Strategy – Rainfall and stream flow gauging and monitoring stations to use in stream models for calibration of model and to future predict flooding events. Additional construction rainfall and stream flow gauging and monitoring stations as seen fit.
- Responsible to Implement – City of Franklin, Engineering Department.
- Implementation Schedule – Project date yet unknown.
- Source of Funding – City of Franklin, Stormwater Fund
- Estimated Costs - $ 450,000.00

e) Town of Nolensville

- Current
  - Statement of the Problem – Decrease damages resulting from flooding within the Town of Nolensville.
  - Preferred Mitigation Strategy – Continuous cleaning of drainage ditches to help alleviate flooding.
  - Responsible to Implement – Town of Nolensville Public Works Department.
  - Implementation Schedule – Project initiated FY 2003 and is continuous.
  - Source of Funding – Town of Nolensville, General Funding.
  - Estimated Costs – Approx. $1,000.00 per year

f) City of Spring Hill

- Past
  - Statement of the Problem –Decrease damages resulting from flooding within the City of Spring Hill.
  - Preferred Mitigation Strategy – Participation in the NFIP; May1987; updates in 1994 and reviewed Feb 2002.
  - Responsible to Implement – City of Spring Hill, Codes Administration.
  - Implementation Schedule – Originally began participation in May 1987.
  - Sources of Funding – City of Spring Hill, National Flood Insurance Program.
  - Estimated Costs - $0.00 for participation.

- Statement of the Problem – Decrease damage resulting from flooding within the City of Spring Hill.
- Preferred Mitigation Strategy – Development planning review in accordance with Subdivision Regulations.
- Responsible to Implement – City of Spring Hill Planning Commission, City Engineers, Codes Administration.
- Implementation Schedule – In effect
- Sources of Funding – City of Spring Hill
- Estimated Costs - 0

- Statement of the Problem – Decrease damage resulting from flooding within the City of Spring Hill.
- Preferred Mitigation Strategy – Maintenance and inventory of drainage curb inlets.
- Responsible to Implement – City of Spring Hill, Street Department.
- Implementation Schedule - Project in progress, annual maintenance.
- Source of Funding – City of Spring Hill, General Funding
- Estimated Costs - unknown

- Statement of the Problem – Decrease damage resulting from flooding within the City of Spring Hill.
- Preferred Mitigation Strategy – Clearing of culverts and drainage pipes.
- Responsible to Implement – City of Spring Hill, Street Department.
- Implementation Schedule – Project in progress, annual maintenance.
- Source of Funding – City of Spring Hill General Funding
- Estimated Costs - unknown

- Current
  - Statement of the Problem – Decrease damages resulting from flooding within the City of Spring Hill.
  - Preferred Mitigation Strategy – Conducting new flood studies with FEMA in two new areas; requires map change in 2006.
  - Responsible to Implement – City of Spring Hill, Codes Administration.
  - Implementation Schedule – In progress
  - Source of Funding – City of Spring Hill General Funding
  - Estimated Costs - unknown

  - Statement of the Problem – Decrease damages resulting from flooding within the City of Spring Hill.

- Preferred Mitigation Strategy – Close monitoring of flood plain with emphasis on grading and buildings.
- Responsible to Implement – City of Spring Hill, Planning Commission, City Engineers and Codes Administration.
- Implementation Schedule – currently underway.
- Sources of Funding – City of Spring Hill General Funding
- Estimated Costs - unknown

- Statement of the Problem – Decrease damages resulting from flooding within the City of Spring Hill.
- Preferred Mitigation Strategy – Establish 20 foot green buffer beyond floodplain line for bank stabilization and environmental filtration.
- Responsible to Implement – City of Spring Hill, Engineering Department, Codes Administration.
- Implementation Schedule – currently underway.
- Source of Funding – City of Spring Hill General Funding
- Estimated Costs – unknown

- Future
  - Statement of the Problem – Decrease damage resulting from flooding within the City of Spring Hill.
  - Preferred Mitigation Strategy – Use GIS mapping in engineering department to identify floodplain.
  - Responsible to Implement – City of Spring Hill, City Engineer and Public Works.
  - Implementation Schedule – Planning initiated Spring 2005 with completion date pending.
  - Source of Funding – City of Spring Hill
  - Estimated Costs – unknown

g) Town of Thompson Station

- Past
  - Statement of the Problem – Decrease damages resulting from flooding within the Town of Thompson Station'
  - Preferred Mitigation Strategy – Replacement of bridge that was damaged by flood waters and to increase storm water flow capacity thereof.
  - Responsible to Implement – Williamson County Highway Department (contracted with Thompson Station).
  - Implementation Schedule – Project complete Fiscal Year 1990.
  - Source of Funding – Town of Thompson Station General Funding.
  - Estimated Cost - $ 30,000.00

- Current
    - Statement of the Problem – Decrease damages resulting from flooding within the Town of Thompson Station.
    - Preferred Mitigation Strategy – Regular maintenance on ditches and culverts.
    - Responsible to Implement – Williamson County Highway Department (contracted with Thompson Station).
    - Implementation Schedule – Project currently ongoing.
    - Source of Funding – Town of Thompson Station General Funding
    - Estimated Cost - $ 1,000.00 per year.

2) Tornados

h) Williamson County

- Past
    - Statement of the Problem - Provision of protection for persons and property in the event of a tornado.
    - Preferred Mitigation Strategy - Installation of Tornado warning sirens (28 sirens)
    - Responsible to Implement – Williamson County Government
    - Implementation Schedule – Starting 2003
    - Source of Funding – Williamson County Government, Homeland Security Grant funds, Mitigation grant funds
    - Estimated Cost – approximately $ 560,000

- Current and Future
    - Statement of the Problem - Provision of protection for persons and property in the event of a tornado.
    - Preferred Mitigation Strategy - Installation of Tornado warning sirens
    - Responsible to Implement – Williamson County Government in coordination with Williamson County Schools
    - Implementation Schedule – Current and Future project
    - Source of Funding – Williamson County Government and Williamson County Schools
    - Estimated Cost – $ 20,000 per unit

    - Statement of the Problem - Provision of protection for persons and property in the event of a tornado.
    - Preferred Mitigation Strategy – Creation and Implementation of Tornado Shelter Registry

- Responsible to Implement – Williamson County Government, Department of Information Technology
- Implementation Schedule – Current and on-going
- Source of Funding – Williamson County Government
- Estimated Cost – N/A

i) City of Brentwood

- Past
  - Statement of the Problem - Provision of protection for persons and property in the event of a tornado.
  - Preferred Mitigation Strategy - Installation of Tornado warning sirens and weather monitoring system.
  - Responsible to Implement - City of Brentwood
  - Implementation Schedule - completed
  - Source of Funding - City of Brentwood
  - Estimated Costs - $2480,000 (19 sirens)

- Current
  - Statement of the Problem - Provision of protection for persons and property in the event of a tornado.
  - Preferred Mitigation Strategy - Installation of one (1) additional tornado warning siren at Moores Lane and Franklin Road
  - Responsible to Implement - City of Brentwood
  - Implementation Schedule – Summer 2011
  - Source of Funding - City of Brentwood/ City of Franklin
  - Estimated Costs - $30,000

  - Statement of the Problem – Provision for persons and property in the event of a tornado
  - Preferred Mitigation Strategy – Installation of one (1) additional tornado warning siren at Tower Park
  - Responsible to Implement – City of Brentwood
  - Implementation Schedule – Summer 2011
  - Source of Funding – City of Brentwood
  - Estimated Costs - $ 30,000

  - Statement of the Problem - Provision of protection for persons and property in the event of a tornado.
  - Preferred Mitigation Strategy - Annual service agreement for weather monitoring system and tornado sirens.
  - Responsible to Implement - City of Brentwood/ City of Franklin

- Implementation Schedule - Current
- Source of funding - City of Brentwood
- Estimated Costs - $1,200 annually

- Future
  - Statement of the Problem - Provision of protection for persons and property in the event of a tornado.
  - Preferred Mitigation Strategy - Every two years installation of one (1) tornado warning siren (To achieve full coverage)
  - Responsible to Implement - City of Brentwood
  - Implementation Schedule - Every 1- 2 yrs.
  - Source of funding - City of Brentwood
  - Estimated Costs - $30,000 / siren

  - Statement of the Problem - Provision of protection for persons and property in the event of a tornado.
  - Preferred Mitigation Strategy - Annual service agreement for weather monitoring system and tornado sirens.
  - Responsible to Implement - City of Brentwood
  - Implementation schedule - Current
  - Source of funding - City of Brentwood
  - Estimated Costs - $1,200 annually

j) City of Fairview

- Current
  - Statement of the Problem - Provision of protection for persons and property in the event of tornados and severe storms.
  - Preferred Mitigation Strategy – Established shelter areas, such as, Fairview Middle School and High School, Local Recreation Center and Westwood Elementary School.
  - Responsible to Implement – City of Fairview
  - Implementation Schedule – Shelter project established.
  - Sources of Funding – No funding necessary.
  - Estimated Costs - $0.00

k) City of Franklin

- Past
  - Statement of the Problem – Provision of protection for persons and property in the event of tornados and severe storms.
  - Preferred Mitigation Strategy – Provide Mobile Data Terminals within response vehicles for awareness and communications of emergency incidences involving tornados, etc.

- Responsible to Implement – City of Franklin, Fire Department.
- Implementation Schedule – Project completed Fiscal Year 2000.
- Source of Funding – City of Franklin, Fire Department allocation.
- Estimated Costs – $ 250,000.00

- Statement of the Problem – Provision of protection for persons and property in the event of a tornado.
- Preferred Mitigation Strategy – Purchase and equip Command vehicle for interoperability with various agencies.
- Responsible to Implement - City of Franklin, Fire and Police Departments.
- Implementation Schedule – Project begun Fiscal Year 2004 and currently underway.
- Source of Funding – City of Franklin, Fire and Police Departments' allocations.
- Estimated Costs - $ 236,000.00

- Statement of the Problem – Provision of protection for persons and property in the event of a tornado.
- Preferred Mitigation Strategy – Purchase of 800MHz radio system for better communications.
- Responsible to Implement – City of Franklin, Fire, Police and Emergency Communications Departments.
- Implementation Schedule – Fiscal Year 2006.
- Source of Funding – City of Franklin, Fire, Police and Emergency Communications Departments allocations.
- Estimated Costs - $ 4,000,000.00

- Statement of the Problem – Provision of notification for persons in the event of a tornado.
- Preferred Mitigation Strategy – Install a weather warning system
- Responsible to Implement – City of Franklin, Fire Department.
- Implementation Schedule – Fiscal Year 2006.
- Source of Funding – City of Franklin, Fire Department allocation.
- Estimated Costs – $275,000.

- Statement of the Problem – Provision of protection for persons and property in the event of a tornado.
- Preferred Mitigation Strategy – Establish specialized rescue team.
- Responsible to Implement – City of Franklin, Fire Department.

- Implementation Schedule – Fiscal Year 2006.
- Source of Funding – City of Franklin, Fire Department allocation.
- Estimated Costs – Training equipment for confined space training for Specialized Rescue Team unknown at this time.

- Statement of the Problem – Provision of protection for persons and property in the event of a tornado.
- Preferred Mitigation Strategy – Purchase of WiFi (Wireless computer network), for better departmental communications.
- Responsible to Implement – City of Franklin, Fire Department.
- Implementation Schedule – Fiscal Year 2006.
- Source of Funding – City of Franklin, Fire Department allocation and General City Funds.
- Estimated Costs - $ 4,000,000.00

- Statement of the Problem- Provision of protection for persons and property in the event of a tornado.
- Preferred Mitigation Strategy- Purchase of Rehabilitation Trailer for emergency responders for the purpose of care and safety.
- Responsible to Implement- City of Franklin, Fire Department
- Implementation Schedule- Fiscal Year 2006
- Source of Funding- City of Franklin, Fire Department allocation.
- Estimated Costs- $12,000.00

- Current
  - Statement of the Problem – Provision of protection for persons and property in the event of a tornado,
  - Preferred Mitigation Strategy – Designate community shelters, and determine occupancy loads.
  - Responsible to Implement – City of Franklin, Fire Department.
  - Implementation Schedule – Project currently underway.
  - Source of Funding – City of Franklin.
  - Estimated Costs – N/A

  - Statement of the Problem – Provisions of protection for persons and property in the event of a tornado/
  - Preferred Mitigation Strategy – Training and Policy of Confined Space Awareness and operational training for structural collapse in a tornado situation.
  - Responsible to Implement – City of Franklin, Fire Department.
  - Implementation Schedule – Project begun Fiscal Year 2004 and currently underway.

- Source of Funding – City of Franklin, Fire Department allocation.
- Estimated Costs – N/A

- Statement of the Problem – Provision of notification for persons in the event of a tornado.
- Preferred Mitigation Strategy – Expand the weather warning system
- Responsible to Implement – City of Franklin, Fire Department.
- Implementation Schedule – Fiscal Year 2011.
- Source of Funding – City of Franklin, Fire Department allocation.
- Estimated Costs – $100,000.

- Future
  - Statement of the Problem – Provision of protection for persons and property in the event of a tornado.
  - Preferred Mitigation Strategy – Coordinate with other government entities on shelter designations.
  - Responsible to Implement – City of Franklin, Administration.
  - Implementation Schedule – To be posted.
  - Source of Funding – City of Franklin, Administration allocation.
  - Estimated Costs – Unknown to date

  - Statement of the Problem – Provision of protection for persons and property in the event of a tornado.
  - Preferred Mitigation Strategy – Work with fire department on placement of high risk patient location in shelters, and specific needs.
  - Responsible to Implement – City of Franklin Administration and City of Franklin Fire Department.
  - Implementation Schedule – To be posted.
  - Source of Funding – City of Franklin, Fire Department allocation.
  - Estimated Costs – N/A, structures previously erected.

  - Statement of the Problem: Expanded provision of protection for persons and property
  - Preferred Mitigation Strategy: Upgrade 800MHz Radio System to latest software release for better communications with other agencies.
  - Responsible to Implement: City of Franklin MIT
  - Implementation Schedule: Fiscal Year 2013
  - Source of Funding: TBD

- Estimated Costs: $1,500,000

- Statement of the Problem: Expanded provision of protection for persons and property
- Preferred Mitigation Strategy: Installation of fiber optic cable connecting City of Franklin, City of Brentwood, Williamson County, and Metro Nashville.
- Responsible to Implement: City of Franklin MIT, City of Brentwood, Williamson County, and Metro Nashville
- Implementation Schedule: Fiscal Year 2013
- Source of Funding: TBD

- Statement of the Problem – Provision of protection for persons and property in the event of a tornado.
- Preferred Mitigation Strategy – Distribute brochures to trail heads, park offices, and park properties on protecting residents near the river from tornados and flooding. Educating citizens regarding steps to take to reduce hazard vulnerability, minimize future tornado and flooding damage.
- Responsible to Implement – City of Franklin, Parks Department.
- Implementation Schedule – Future project specific date unknown.
- Source of Funding – City of Franklin, Parks Department allocation, Federal Emergency Management Agency assistance.
- Estimated Costs - $ 40,000.00

- Statement of the Problem – Provision of notification for persons in the event of a tornado.
- Preferred Mitigation Strategy – Expand the weather warning system
- Responsible to Implement – City of Franklin, Fire Department.
- Implementation Schedule – Fiscal Year 2013.
- Source of Funding – City of Franklin, Fire Department allocation.
- Estimated Costs – $100,000.

- Statement of the Problem: Expanded provision of protection for persons and property
- Preferred Mitigation Strategy: Complete fiber and WiFi installation to alleviate dependencies on outside vendors in case of major events. Complete fiber to radio tower sites, camera system to monitor all sites.
- Responsible to Implement: City of Franklin MIT

- Implementation Schedule: Fiscal Year 2013
- Source of Funding: TBD
- Estimated Costs: $1,000,000

- Statement of the Problem: Expanded provision of protection for persons and property
- Preferred Mitigation Strategy: Replace CAD software with added capabilities (specific unit dispatch, closest unit, integration with other systems in dispatch).
- Responsible to Implement: City of Franklin MIT
- Implementation Schedule: Fiscal Year 2013
- Source of Funding: TBD
- Estimated Costs: $250,000

l) Town of Nolensville

- Future
  - Statement of the Problem – Provision of Protection for persons and property in the event of a tornado.
  - Preferred Mitigation Strategy – Purchase of 3 Warning Sirens to tie into City of Brentwood's Outdoor Warning System, to alert citizens of severe weather conditions.
  - Responsible to Implement – Town of Nolensville Public Works Department.
  - Implementation Schedule – Project date yet unknown.
  - Source of Funding – Town of Nolensville General Funding, with possibility of FEMA Grant.
  - Estimated Costs – Approx. $ 68,000.00

m) City of Spring Hill

- Current
  - Statement of the Problem – Provision of protection for persons and property in the event of a tornado,
  - Preferred Mitigation Strategy – Designate community shelters, and determine occupancy loads.
  - Responsible to Implement – City of Spring Hill,
  - Implementation Schedule – Project currently underway.
  - Source of Funding – City of Spring Hill.
  - Estimated Costs – Unknown

- Future
  - Statement of the Problem – Provision of protection for persons and property in the event of a tornado.

- Preferred Mitigation Strategy – Coordinate with other government entities on shelter designations.
- Responsible to Implement – City of Spring Hill, Administration.
- Implementation Schedule – To be posted.
- Source of Funding – City of Spring Hill General Funding
- Estimated Costs – Unknown

- Statement of the Problem – Provision of protection for persons and property in the event of a tornado.
- Preferred Mitigation Strategy – Work with fire department on placement of high risk patient location in shelters, and specific needs.
- Responsible to Implement – City of Spring Hill Administration and City of Spring Hill Fire Department.
- Implementation Schedule – To be posted.
- Source of Funding – City of Spring Hill General Funding
- Estimated Costs – Unknown

n) Town of Thompson Station

- Current- Defers to Williamson County for Tornado Mitigation Acts
  - Statement of the Problem- Provision of protection for persons and property in the event of a tornado.
  - Preferred Mitigation Strategy- Installation of Tornado warning sirens (28 sirens)
  - Responsible to Implement- Williamson County Government
  - Implementation Schedule- Starting 2003
  - Source of Funding- Williamson County Government, Homeland Security Grant funds, Mitigation grant funds
  - Estimated Cost- approximately $560,000

2. Winter Weather

a) Williamson County

- Past
  - Statement of the Problem – Mitigation of damages caused by destructive winter weather
  - Preferred Mitigation Strategy – Purchase of equipment and retrofitting equipment to place salt on roadways.
  - Responsible to Implement – Williamson County Highway Department
  - Source of Funding – Williamson County Highway Department
  - Estimated Costs – ($ 20,000 per truck) $ 260,000

- Current
    - Statement of the Problem – Mitigation of damages caused by destructive winter weather
    - Preferred Mitigation Strategy - Stockpile salt for roadways @ 3,000 tons annually
    - Responsible to Implement – Williamson County Highway Department
    - Source of Funding – Williamson County Highway Department
    - Estimated Costs – $ 210,000

b) City of Brentwood

- Past
    - Statement of the Problem – Mitigation of damages caused by destructive winter weather.
    - Preferred Mitigation Strategy – Equipment Purchase to place salt. (Gradall T-30 Hydraulic Excavator, Caterpillar IT 14 Front End Loader, Case 580 Back Hoe, Case Uni-Loader, 2 one-ton Dump Truck w/ snow plow & spreader, Single axle dump truck w/ snow plow & spreader, 3 tandem axle dump trucks w/ snow plows & spreaders, 5 1-ton pick-up trucks w/ snow plows & spreaders.
    - Responsible to Implement – City of Brentwood, Public Works Department
    - Source of Funding – City of Brentwood
    - Estimated Costs - $812,500

    - Statement of the Problem – Mitigation of damages caused by destructive winter weather.
    - Preferred Mitigation Strategy – Stockpile 1,200 – 1,500 tons of salt.
    - Responsible to Implement – City of Brentwood, Public Works Department
    - Source of Funding – City of Brentwood
    - Estimated Costs - $60,000

- Current
    - Statement of the Problem – Mitigation of damages caused by destructive winter weather.
    - Preferred Mitigation Strategy – Stockpile 1,200 – 1,500 tons of salt.
    - Responsible to Implement – City of Brentwood, Public Works Department

- Implementation Schedule – Project currently ongoing
- Source of Funding – City of Brentwood
- Estimated Costs - $82,140

c) City of Fairview

- Past
  - Statement of the Problem – Mitigation of damages caused by destructive winter weather.
  - Preferred Mitigation Strategy – Purchase of professional Hopper (salt spreader).
  - Responsible to Implement – City of Fairview, Street Department.
  - Implementation Schedule – Project completed, Fiscal Year 2003.
  - Funding Sources – City of Fairview, General Funding; allocation to Street Department.
  - Estimated Costs - $3,100.00

- Future
  - Statement of the Problem – Mitigation of damages caused by destructive winter weather.
  - Preferred Mitigation Strategy – Propose to purchase two (2) snow blades for trucks.
  - Responsible to Implement – City of Fairview, Street Department.
  - Implementation Schedule – Purchase date to be announced.
  - Source of Funding – City of Fairview, General Funding; allocation for Street Department.
  - Estimated Costs – Equipment purchase $7,000.00

  - Statement of the Problem – Mitigation of damages caused by destructive winter weather.
  - Preferred Mitigation Strategy – Propose to continue annual purchase of salt (for street coverage).
  - Responsible to Implement – City of Fairview, Street Department.
  - Implementation Schedule – Date to be released, then to continue with proposed annual purchase.
  - Source of Funding – City of Fairview, General Fund; allocation to Street Department.
  - Estimated Costs – Unknown

- Statement of the Problem – Mitigation of damages caused by destructive winter weather.
- Preferred Mitigation Strategy – Propose construction of storage shed for stock pile of salt.
- Responsible to Implement – City of Fairview, Street Department.
- Implementation Schedule – Project date to be announced.
- Source of Funding – City of Fairview, General Funds; allocation to Street Department.
- Estimated Costs – estimated construction $ 20,000.00

- Statement of the Problem – Mitigation of damages caused by destructive winter weather.
- Preferred Mitigation Strategy – Proposed purchase of generators for power outages due to ice storms at water pump station.
- Responsible to Implement – City of Fairview
- Implementation Schedule – Project date to be announced.
- Source of Funding – City of Fairview, General Funds.
- Estimated Costs – Equipment costs, $40,000.00

- Statement of the Problem – Mitigation of damages caused by destructive winter weather.
- Preferred Mitigation Strategy – Propose to trim/remove trees at pump stations.
- Responsible to Implement – City of Fairview, Street Department.
- Implementation Schedule – Project date for implementation to be announced.
- Source of Funding – City of Fairview, General Funds; allocation to Street Department.
- Estimated Costs – Unknown

d) City of Franklin

- Past
  - Statement of the Problem – Mitigation of damages caused by destructive winter weather.
  - Preferred Mitigation Strategy – Purchase of two snow blades for two trucks.
  - Responsible to Implement – City of Franklin, Street Department.
  - Implementation Schedule – Project completed.
  - Source of Funding – City of Franklin, Street Department allocation.
  - Estimated Costs - $8,000.00

- Statement of the Problem – Mitigation of damages caused by destructive winter weather.
- Preferred Mitigation Strategy – Purchase and distribution of salt onto roadways, and construction of storage bins.
- Responsible to Implement – City of Franklin, Street Department.
- Implementation Schedule – Project completed.
- Source of Funding – City of Franklin, Street Department allocation.
- Estimated Costs - $12,000.00

- Statement of the Problem – Mitigation of damages caused by destructive winter weather.
- Preferred Mitigation Strategy – Purchased one dump truck and two tractors with blades for snow removal.
- Responsible to Implement – City of Franklin, Parks and Recreation Department.
- Implementation Schedule- Project completed
- Source of Funding – City of Franklin, Parks Department allocation.
- Estimated Costs - $63,000.00

- Statement of the Problem – Mitigation of damages caused by destructive winter weather.
- Preferred Mitigation Strategy – Purchase of snow chains for staff and officers cars for the purpose of increase mobility on snow and ice covered roads.
- Responsible to Implement – City of Franklin, Fire Department.
- Implementation Schedule – Completed for purchase of each individual vehicle, possibly continuous process in the event further vehicles are acquired for department.
- Source of Funding – City of Franklin, Fire Department allocation.
- Estimated Costs – Average costs of vehicular snow chains, $126.00 per staff vehicle (number of staff vehicles not given).

- Statement of the Problem – Mitigation of damages caused by destructive winter weather.
- Preferred Mitigation Strategy – Install emergency back-up generators at all existing fire station in allowance of continued operation of station during prolonged times of power outages.
- Responsible to Implement – City of Franklin, Fire Department.

- Implementation Schedule – 1994 Fire Station 3, 1997 Fire Station 4, 1998 Fire Station 1, 2000 Fire Station 5, 2004 Fire Station 2. Will continue with each constructed fire station.
- Source of Funding – City of Franklin, Fire Department allocation.
- Estimated Costs - $ 40,000.00 for generator purchase and installation, $ 200,000.00 total to date.

- Statement of the Problem – Mitigation of damages caused by destructive winter weather.
- Preferred Mitigation Strategy – Work with City Fire Department and electrical contractors to provide electrical hook-up of shelter generators.
- Responsible to Implement – City of Franklin, Codes Administration Department.
- Implementation Schedule – Beginning 2005.
- Source of Funding – City of Franklin, General Finds.
- Estimated Costs - $ 1,000.00

- Current
  - Statement of the Problem – Mitigation of damages caused by destructive winter weather.
  - Preferred Mitigation Strategy – Clearing of ice and snow for emergency vehicles and citizens.
  - Responsible to Implement – City of Franklin, Street Department.
  - Implementation Schedule – Project currently underway.
  - Source of Funding – City of Franklin, General Funds.
  - Estimated Costs – Currently Budgeted.

  - Statement of the Problem – Mitigation of damages caused by destructive winter weather.
  - Preferred Mitigation Strategy – Increase salt storage amounts by 15%.
  - Responsible to Implement – City of Franklin, Street Department.
  - Implementation Schedule – Project currently underway.
  - Source of Funding – City of Franklin, General Funds.
  - Estimated Costs - $5,000.00

  - Statement of the Problem – Mitigation of damages caused by destructive winter weather.
  - Preferred Mitigation Strategy – Coordinate with Middle Tennessee Electric on tree removal and cutting of branches twice a year for possible wind and ice storms.

- Responsible to Implement – City of Franklin, Codes Administration.
- Implementation Schedule – Project currently underway.
- Source of Funding – City of Franklin, General Funds.
- Estimated Costs - $200,000.00

- Statement of the Problem – Mitigation of damages caused by destructive winter weather.
- Preferred Mitigation Strategy – Coordinated with Middle Tennessee Electric Membership Cooperative on tree removal and branches around power lines because of ice storms and wind.
- Responsible to Implement – Middle Tennessee Membership Cooperative.
- Implementation Schedule – Beginning Fiscal Year 2004 and ongoing.
- Source of Funding – Private utility company.
- Estimated Costs - $ 279,000.00

- Statement of the Problem – Mitigation of damages caused by destructive winter weather.
- Preferred Mitigation Strategy – Purchase of snow chains for staff and officers cars for the purpose of increase mobility on snow and ice covered roads.
- Responsible to Implement – City of Franklin, Fire Department.
- Implementation Schedule – Completed for purchase of each individual vehicle, continuous process in the event further vehicles are acquired for department.
- Source of Funding – City of Franklin, Fire Department allocation.
- Estimated Costs – Average costs of vehicular snow chains, $126.00 per staff vehicle (number of staff vehicles not given).

- Statement of the Problem – Mitigation of damages caused by destructive winter weather.
- Preferred Mitigation Strategy – Install auto chains on all large fire apparatus.
- Responsible to Implement – City of Franklin, Fire Department.
- Implementation Schedule – Fiscal Year 1999 to present.
- Source of Funding – City of Franklin, Fire Department allocation.
- Estimated Costs - $ 1,974.00 per each unit, $ 17,776.00 total to date.

- Statement of the Problem – Mitigation of damages caused by destructive winter weather.
- Preferred Mitigation Strategy - Removal of dead trees, shrubbery, and stumps and evaluation, treatment and trimming of trees in area parks and other park properties.
- Responsible to Implement - City of Franklin, Parks Department.
- Implementation Schedule – Project currently underway, will also be ongoing.
- Source of Funding – City of Franklin, Parks Department allocation.
- Estimated Costs - $ 4,000.00 Yearly costs.

- Future
  - Statement of the Problem – Mitigation of damages caused by destructive winter weather.
  - Preferred Mitigation Strategy – Purchase of snow blade.
  - Responsible to Implement – City of Franklin, Street Department.
  - Implementation Schedule – Project initiated Fiscal year 2007 completion date pending as on-going.
  - Source of Funding – City of Franklin, General Fund
  - Estimated Costs - $8,000.00

  - Statement of the Problem – Mitigation of damage caused by destructive winter weather.
  - Preferred Mitigation Strategy – During power failure during ice storm, coordinate purchase and installation of generators for heat at shelters.
  - Responsible to Implement - City of Franklin, Fire Department.
  - Implementation Schedule – To be posted.
  - Source of Funding – City of Franklin General Fund
  - Estimated Costs - $5,000.00

  - Statement of the Problem – Mitigation of damage caused by destructive winter weather.
  - Preferred Mitigation Strategy – Construct an additional salt facility.
  - Responsible to Implement – City of Franklin, Street Department
  - Implementation Schedule – Fiscal year 2012.
  - Source of Funding – City of Franklin Street Department allocation
  - Estimated Costs - $85,000.00

- Statement of the Problem – Mitigation of damage caused by destructive winter weather.
- Preferred Mitigation Strategy – During power failure during ice storm, coordinate purchase and installation of 4 Battery Back-up systems.
- Responsible to Implement - City of Franklin, Street Dept.
- Implementation Schedule – To be posted.
- Source of Funding – City of Franklin General Fund
- Estimated Costs - $40,000.00

- Statement of the Problem – Mitigation of damage caused by destructive winter weather.
- Preferred Mitigation Strategy – Increase salt storage amounts by 100%.
- Responsible to Implement - City of Franklin, Street Dept.
- Implementation Schedule – Project underway
- Source of Funding – City of Franklin General Fund
- Estimated Costs - $48,000.

e) Town of Nolensville

Does not have Highway or Streets Department and must defer to Williamson County Highway Department and/or Tennessee Department of Transportation for the application of Winter Weather Mitigation Projects, past, current and future in status

- Past
  - Statement of the Problem- Mitigation of damages caused by destructive winter weather
  - Preferred Mitigation Strategy- Purchase of equipment and retrofitting equipment to place salt on roadways.
  - Responsible to Implement- Williamson County Highway Department
  - Source of Funding- Williamson County Highway Department
  - Estimated Costs- ($20,000 per truck) $260,000

- Current
  - Statement of the Problem- Mitigation of damages caused by destructive winter weather
  - Preferred Mitigation Strategy- Stockpile salt for roadways @ 3,000 tons annually
  - Responsible to Implement- Williamson County Highway Department
  - Source of Funding- Williamson County Highway Department
  - Estimated Costs- $210,000

f) City of Spring Hill

- Past
    - Statement of the Problem – Mitigation of damages caused by destructive winter weather.
    - Preferred Mitigation Strategy – Purchase of salt spreader.
    - Responsible to Implement – City of Spring Hill, Street Department.
    - Implementation Schedule – Project completed.
    - Source of Funding – City of Spring Hill General Finding
    - Estimated Costs - $8,000.00

    - Statement of the Problem – Mitigation of damages caused by destructive winter weather.
    - Preferred Mitigation Strategy – Purchase and distribution of salt onto roadways.
    - Responsible to Implement – City of Spring Hill, Street Department.
    - Implementation Schedule – Project completed.
    - Source of Funding – City of Spring Hill General Fund
    - Estimated Costs - $1,000.00

- Current
    - Statement of the Problem – Mitigation of damages caused by destructive winter weather.
    - Preferred Mitigation Strategy – Clearing of ice and snow for emergency vehicles and citizens at major intersections.
    - Responsible to Implement – City of Spring Hill, Street Department.
    - Implementation Schedule – Project currently underway.
    - Source of Funding – City of Spring Hill General Fund
    - Estimated Costs – Currently Budgeted.

    - Statement of the Problem – Mitigation of damages caused by destructive winter weather.
    - Preferred Mitigation Strategy – Increase salt storage amounts by 15%.
    - Responsible to Implement – City of Spring Hill, Street Department.
    - Implementation Schedule – Project currently underway.
    - Source of Funding – City of Spring Hill General Fund
    - Estimated Costs - Currently Budgeted.

- Statement of the Problem – Mitigation of damages caused by destructive winter weather.
- Preferred Mitigation Strategy – Tree removal and cutting of branches for possible wind and ice storms.
- Responsible to Implement – City of Spring Hill, Streets Department.
- Implementation Schedule – Project currently underway.
- Source of Funding – City of Spring Hill
- Estimated Costs - $10,000.00

- Future
  - Statement of the Problem – Mitigation of damages caused by destructive winter weather.
  - Preferred Mitigation Strategy – Purchase of additional salt spreader.
  - Responsible to Implement – City of Spring Hill, Street Department.
  - Implementation Schedule – Planning initiated Fiscal year 2006, project completion date pending.
  - Source of Funding – City of Spring Hill General Funding
  - Estimated Costs - $7,000.00

  - Statement of the Problem – Mitigation of damage caused by destructive winter weather.
  - Preferred Mitigation Strategy – During power failure due to ice storm, coordinate purchase/rental and installation of generators for heat at shelters.
  - Responsible to Implement - City of Spring Hill.
  - Implementation Schedule – To be posted.
  - Source of Funding – City of Spring Hill General Fund
  - Estimated Costs - Unknown

g) Town of Thompson Station

- Current
  - Statement of the Problem – Mitigation of damage caused by destructive winter weather.
  - Preferred Mitigation Strategy – Trimming of trees along roadway Middle Tennessee Electric Membership Cooperation power lines.
  - Responsible to Implement – Middle Tennessee Electric Membership Cooperation.
  - Implementation Schedule – Project is currently implemented, and will continue in 5 year rotations.

- Source of Funding – Town of Thompson Station, General Funding.
- Estimated Cost – MTEMC charges $ 18,000.00, with Thompson Station having 19 miles of road way, but only 1/3 to ½ needing to be trimmed.

3. Drought and Extreme Heat

a) Williamson County

- Current
  - Statement of the Problem- Prevent negative effects on the environment and persons due to drought and extreme heat.
  - Preferred Mitigation Strategy- Imposition of provision of regulated potable water available to persons attending special events in Williamson County.
  - Responsible to Implement- Williamson County Government
  - Implementation Schedule- Established and implemented for the foreseeable future.
  - Source of Funding- N/A
  - Estimated Costs- 0.00

  - Statement of the Problem- Prevent negative effects on the environment and persons due to drought and extreme heat.
  - Preferred Mitigation Strategy- Enforcement of the State of Tennessee Forestry Department Burn Permitting and Burn Banning Program.
  - Responsible to Implement- State Forestry Department with the Williamson County Rescue Squad, Peytonsville Volunteer Fire Department, College Grove Volunteer Fire Department, Arrington Volunteer Fire Department, Nolensville Volunteer Fire Department, Fairview Fire Department and Williamson County Emergency Communications cooperation and enforcement at the local level.
  - Implementation Schedule- Established and implemented for the foreseeable future
  - Source of Funding- N/A
  - Estimated Costs- 0.00

b) City of Brentwood

- Past
  - Statement of the Problem – Prevent negative effects on the environment and persons due to drought and extreme heat.

- Preferred Mitigation Strategy – Impose water restrictions in drought for the irrigation of land
- Responsible to Implement – City of Brentwood
- Implementation Schedule – Complete
- Source of Funding – N/A
- Estimated Costs -0.00

- Current & Future
  - Statement of the Problem – Prevent negative effects on the environment and persons due to drought and extreme heat.
  - Preferred Mitigation Strategy – Impose water restrictions in drought for the irrigation of land.
  - Responsible to Implement – City of Brentwood
  - Implementation Schedule – As needed
  - Source of Funding – N/A
  - Estimated Costs – 0.00

c) City of Fairview

- Current
  - Statement of the Problem- Prevent negative effects on the environment and persons due to drought and extreme heat.
  - Preferred Mitigation Strategy- Enforcement of the State of Tennessee Forestry Department Burn Permitting and Burn Banning Program.
  - Responsible to Implement- State Forestry Department with the City of Fairview Fire Department and Williamson County Emergency Communications cooperation and enforcement at the local level.
  - Implementation Schedule- Established and implemented for the foreseeable future
  - Source of Funding- N/A
  - Estimated Costs- 0.00

d) City of Franklin

- Past
  - Statement of the Problem – Prevent negative effects on the environment and persons due to drought and extreme heat.
  - Preferred Mitigation Strategy – Imposed water restrictions in drought for irrigating of land and unnecessary washing of vehicles.
  - Responsible to Implement – City of Franklin, Water Management Department.

- Implementation Schedule – Project Completed.
- Source of Funding – N/A
- Estimated Costs – 0.00

- Statement of the Problem – Prevent negative effects on the environment and persons due to drought and extreme heat.
- Preferred Mitigation Strategy – High grass and weeds must be kept cut; no large fields with high grass within 100 feet of a residential or commercial lot, ordinance.
- Responsible to Implement – City of Franklin, Codes Administration.
- Implementation Schedule – Project completed.
- Source of Funding – N/A
- Estimated Costs – 0.00

- Statement of the Problem – Prevent negative effects on the environment and persons due to drought and extreme heat.
- Preferred Mitigation Strategy- Install water lines or connections to water misters at designated shelter locations.
- Responsible to Implement- City of Franklin, Water Management Department
- Implementation Schedule- To be completed in Fiscal Year 2006.
- Source of Funding- City of Franklin General Funding
- Estimated Costs- $5,000.00

- Current
  - Statement of the Problem – Prevent negative effects on the environment and persons due to drought and extreme heat.
  - Preferred Mitigation Strategy – Clearing of underbrush and dead trees along the Harpeth River of city owned properties.
  - Responsible to Implement – City of Franklin, Parks and Recreation Department
  - Implementation Schedule – Project will be on-going in application; initial phase completed in Fiscal Year 2005
  - Source of Funding – City of Franklin, Parks Department allocation.
  - Estimated Costs - $ 50,000.00

  - Statement of the Problem – Prevent negative effects on the environment and persons due to drought and extreme heat.
  - Preferred Mitigation Strategy – Evaluate structure vulnerability to wildfire events at parks, work with Franklin Fire Department. Protection of buildings in natural settings from wild fires with good landscaping practices.

- Responsible to Implement – City of Franklin, Parks Department in coordination with City of Franklin Fire Department.
- Implementation Schedule – Project established and will be ongoing process.
- Source of Funding – N/A
- Estimated Costs - $ 0.00

- Statement of the Problem – Prevent negative effects on the environment and persons due to drought and extreme heat.
- Preferred Mitigation Strategy – Preserve environmental resources by establishing native vegetation with improved drought and disease resistance.
- Responsible to Implement – City of Franklin, Parks Department.
- Implementation Schedule – Project established and will be ongoing process.
- Source of Funding – City of Franklin, Parks Department allocation, with assistance from State resources.
- Estimated Costs - $ 2,500.00 Yearly costs.

- Future
  - Statement of the Problem – Prevent negative effects on the environment and persons due to drought and extreme heat.
  - Preferred Mitigation Strategy – In brown-out situations, provide water lines and misters to cool off in heat distress times; coordinate with local fan manufacturers.
  - Responsible to Implement – City of Franklin, Fire Department.
  - Implementation Schedule – To be posted.
  - Source of Funding – City of Franklin General Funding
  - Estimated Costs - $5,000.00

e) Town of Nolensville

- Current
  - Statement of the Problem- Prevent negative effects on the environment and persons due to drought and extreme heat.
  - Preferred Mitigation Strategy- Enforcement of the State of Tennessee Forestry Department Burn Permitting and Burn Banning Program.
  - Responsible to Implement- State Forestry Department with the Nolensville Volunteer Fire Department and Williamson County Emergency Communications cooperation and enforcement at the local level.

- Implementation Schedule- Established and implemented for the foreseeable future
- Source of Funding- N/A
- Estimated Costs- 0.00

f) City of Spring Hill

- Past
  - Statement of the Problem – Prevent negative effects on the environment and persons due to drought and extreme heat.
  - Preferred Mitigation Strategy – Imposed water restrictions in drought conditions in accordance with the city's Emergency Response Plan.
  - Responsible to Implement – City of Spring Hill, Water Department.
  - Implementation Schedule – Project Completed.
  - Source of Funding – N/A
  - Estimated Costs – 0.00

- Future
  - Statement of the Problem – Prevent negative effects on the environment and persons due to drought and extreme heat.
  - Preferred Mitigation Strategy – In brown-out situations, provide fans to cool off in heat distress times to less fortunate citizens; coordinate with local fan manufacturers.
  - Responsible to Implement – City of Spring Hill.
  - Implementation Schedule – To be posted.
  - Source of Funding – City of Spring Hill General Funding
  - Estimated Costs – Unknown to date.

g) Town of Thompson Station

- Future
  - Statement of the Problem – Prevent negative effects on the environment and persons due to drought and extreme heat.
  - Preferred Mitigation Strategy – Change zoning code standards to encourage the use of drought tolerant plant materials to help protect water resources
  - Responsible to Implement – Town of Thompson's Station, Building and Planning
  - Implementation Schedule – Summer 2012.
  - Source of Funding – N/A
  - Estimated Costs – 0.00

5. Cost Benefit

The Estimated Benefit Costs of any and all of these projects is to:

- Protect and educated the citizens of Williamson County and it's associated jurisdictions. The enforcement of many of these projects will help in creating a safer environment within the county and making the public aware of what steps could and should be taken in order to preserve and protect the lives of Williamson County Residents.
- In the event that a natural hazard were to occur within the County/Cities/Towns, the afore-mentioned projects and enforcement should decrease the resulting affects of said hazards. Zoning and Codes will help to establish more strict regulations on structures currently standing and those to be created within the County. Standards of construction have been set, are being enforced to ensure that any area or structure is sound to withstand those hazards that are common to the area.
- Drainage projects are some of the most common to this area. Williamson County is prone to flooding in many of it's areas, those lands that have succumbed to it and have become part of the floodplain and surrounding areas are constantly monitored for any improvements that can be made to alleviate the problem. As well as setting stands on construction, Zoning Ordinances and Codes regulations also designate what areas are unsafe for habitation and construction, and as such have been marked as open land and proper enforcement will make sure that they remain so. Continuous mapping and remapping of Williamson County gives the ability to redraw floodplains and update Codes and Zoning.
- Pre-established shelter areas can be found throughout Williamson County and associated jurisdictions. Many of these shelters have been and are currently being equipped with generators that, in times of black and brown outs, power will be available to the shelters for any citizen that may need them.
- Enforcement of water regulations and rules on brush and greenery, assist in decreasing water shortages and possible brush and wildland fires, during times of drought and extreme heat.

VIII. Plan Maintenance Process

A. Plan Implementation - Williamson County along with the city of Franklin, city of Brentwood, city of Fairview, city of Spring Hill, town of Nolensville and the town of Thompson Station; will, through the Williamson County Hazard Mitigation Team, annually monitor, review, and evaluate hazardous incidents that may occur within this county.

B. Plan Monitoring - Monitoring activities will involve Williamson County Emergency Management setting up a committee meeting to be held on an annual basis. Williamson County Emergency Management will prepare a brief annual report of the meeting's findings by addressing mitigation progress and shortfalls within the county.

C. Plan Evaluation - Upon revision and evaluation any amendments deemed necessary in order to increase preparedness and decrease the result of a hazardous event so that changes may be made in order to better protect, life safety, the environment, and those properties within Williamson County. The plan is to be evaluated annually and after any significant disaster causing human, infrastructure, and property losses. Following each annual informal evaluation of the plan by emergency management staff, any proposed revisions or recommendations will be brought before the Hazard Mitigation Committee to be incorporated into the plan. Potential updates to the plan will address changes to the hazard assessment, the repetitive loss list, the committee membership list, and the project priority list.

D. Plan Updates - Types of Revisions
   a. Annual Revision – Documents from jurisdictions that are within the plan that have been added to, deleted from, or had general corrections made to them since the adoption of the Plan, or since the last Annual Revision of the plan. This may also include any Zoning changes or new structures that have been or are planned to be erected.
   b. Full Document Review – A review occurring every five years that includes the entire plan and it's appendices. For the five year update, Williamson County Emergency Management will notify the jurisdictional governments and the Williamson County Hazard Mitigation Committee approximately one year prior to the plan's expiration date. The Williamson County Hazard Mitigation Committee's goal is to have at least 5 meetings within this time span; dates, public notices, and objectives for these meetings will be determined by Williamson County Emergency Management. This will help to monitor applied documents within, update information and review progress on Mitigation Strategies.

During the meetings, the plan will be reevaluated against current events, needs, and concerns. The evaluation will consist of: review of risk analyses, continued relevancy of the mitigation goals/objectives/strategies, current resources and capabilities, significant changes in demographics, as well as availability of mutual support. Participation in Mitigation Planning

training and continued modeling with HAZUS-MH and benefit-cost reviews will assist planning team members in refining the plan and modifying the plan to fit emerging needs. More specifically, plan monitoring will be accomplished through the ascertainment the status/effectiveness of approved strategies and/or mitigation actions.

Continued Public Participation

The Williamson County Mitigation Committee will strive to involve the public in future mitigation activities. This will be accomplished by continuing to post Hazard Mitigation Committee Meeting dates in the local newspaper and other available media outlets, by attempting to have a public present at each meeting with the Hazard Mitigation Committee, where public access to copies of the Williamson County Hazard Mitigation Plan in the local emergency management office, and by soliciting other interested persons to participate in the mitigation planning process. By implementing these methods, the public will have an opportunity to comment on the plan during the update drafting stage and prior to plan approval.

IX. Appendices

Appendix A
Hazard Historical Events
Table of Contents

- Harpeth River Top Historical Crests
    - FEMA NFIP Loss Statistics
    - Williamson County Floodplain Map
    - Williamson County Floodway Map
- Williamson County Tornados
- Williamson County Ice and Winter Weather Storms
- Williamson County Drought and Extreme Heat Incidences
    - Palmer Drought Severity Scale

Harpeth River Top Historical Crests

Date	Level (Feet)
1. May 2, 2010	35.32
1. February 13, 1948	35.2
2. March 13, 1975	33.7
3. January 23, 1999	30.90
4. March 21, 1980	30.64
5. January 23, 1999	30.1
6. May 7, 1984	29.49
7. February 6, 2004	29.26
8. February 4, 1990	28.97
9. March 6, 1989	28.67
10. March 28, 1994	28.18
11. February 16, 2003	27.5
12. March 3, 1997	27.1
13. March 4, 1977	25.9
14. October 17, 1976	25.5
15. March 8, 1995	24.8

- For the Harpeth River in Williamson County Flood Stage Occurs At 21 Feet.

FEMA: NATIONAL FLOOD INSURANCE PROGRAM
LOSS STATISTICS FROM
JANUARY 1, 1978 THROUGH JUNE 30, 2010

* The following is a list of County and cities' with in the county that have accrued losses under the NFIP:

CITY OF BRENTWOOD

Total Losses	Closed Losses	Open Losses	CWOP Losses
229	170	23	36

Total Payments: $ 4,452,362.78

CITY OF FAIRVIEW

Total Losses	Closed Losses	Open Losses	CWOP Losses
3	1	0	2

Total Payments: $16,703.54

CITY OF FRANKLIN

Total Losses	Closed Losses	Open Losses	CWOP Losses
254	193	30	31

Total Payments: $5,073,455.03

TOWN OF NOLENSVILLE

Total Losses	Closed Losses	Open Losses	CWOP Losses
1	1	0	0

Total Payments: $21,272.95

CITY OF SPRING HILL

Total Losses	Closed Losses	Open Losses	CWOP Losses
9	5	2	2

Total Payments: $103,988.89

WILLIAMSON COUNTY

Total Losses	Closed Losses	Open Losses	CWOP Losses
296	205	41	50

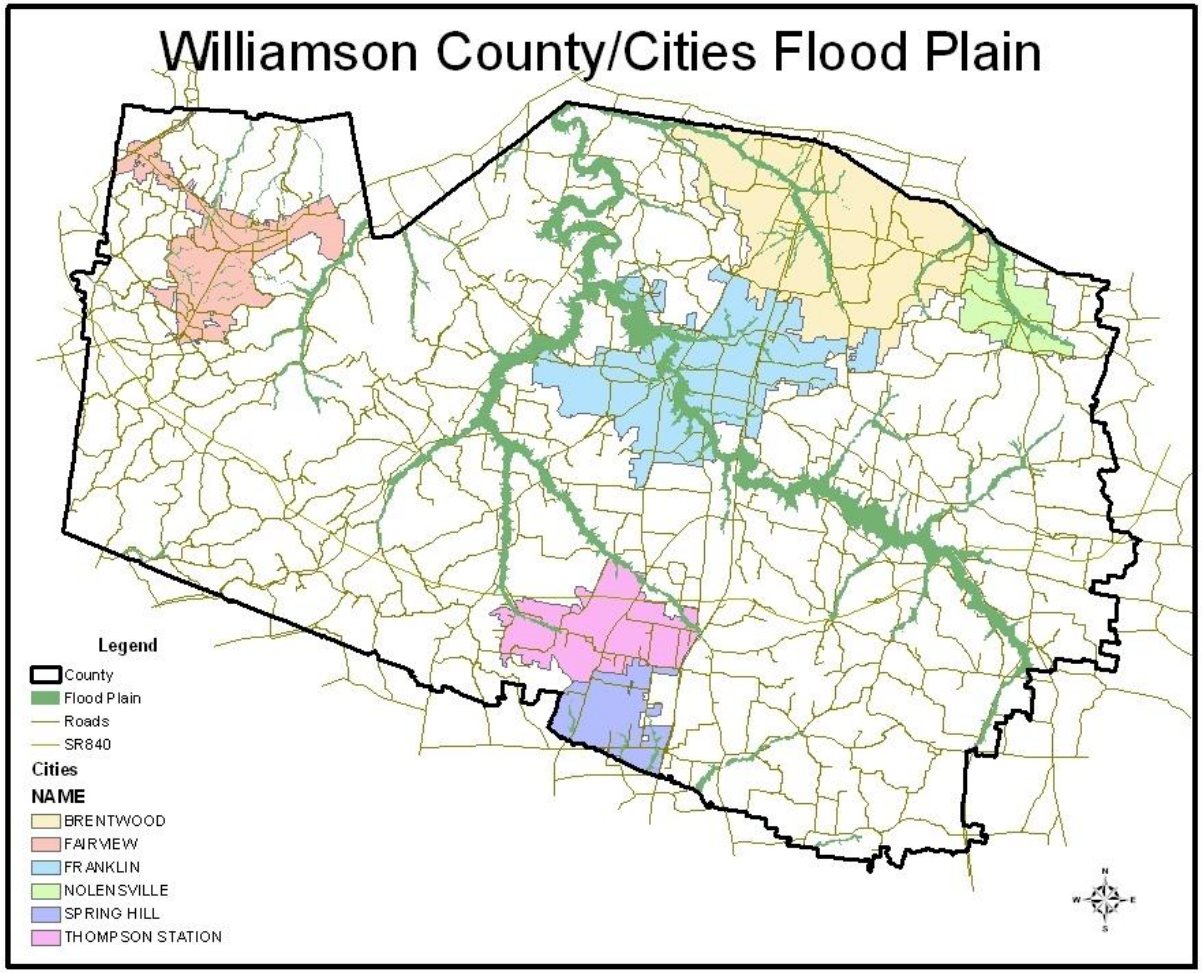
Total Payments: $4,656,750.54

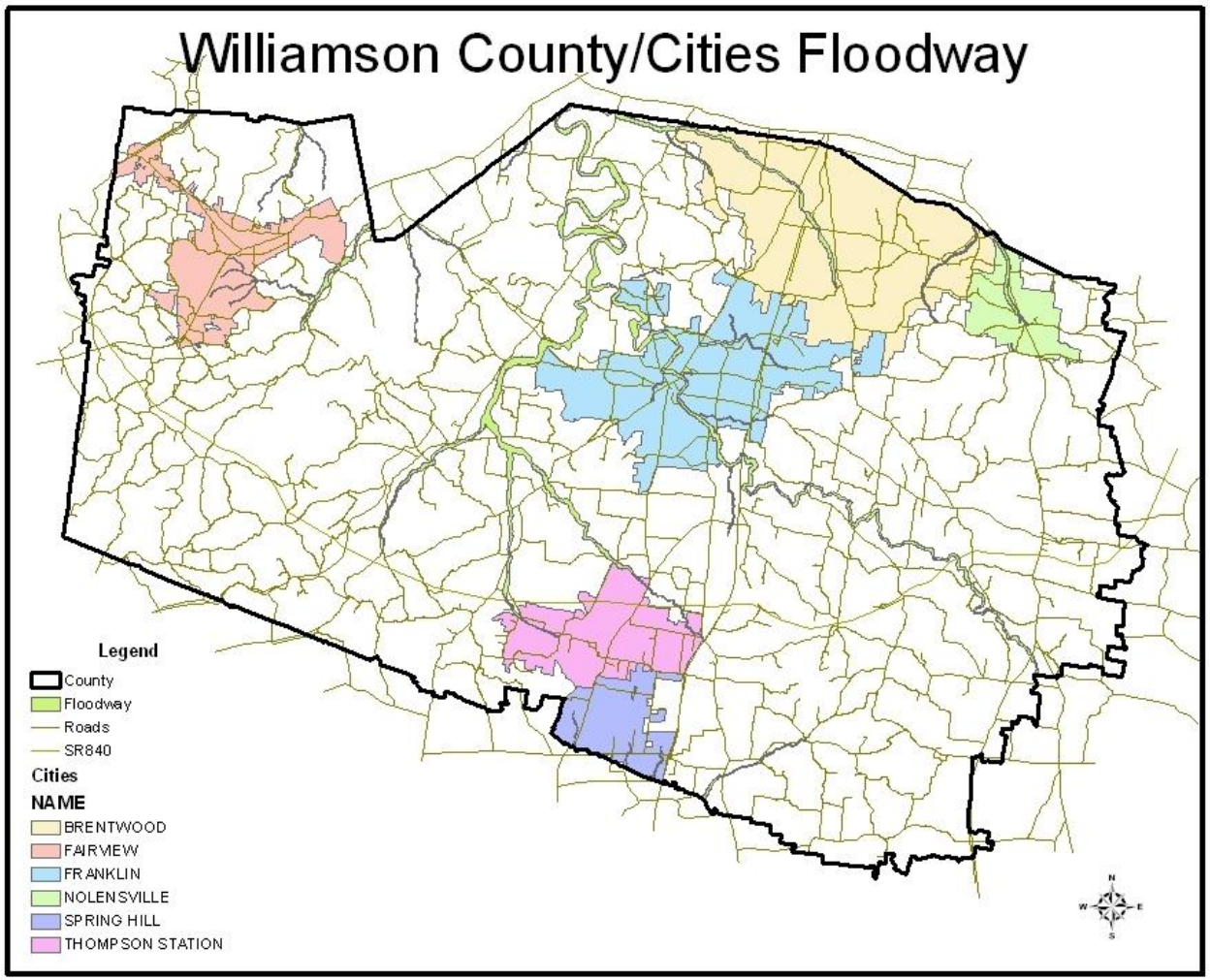
TOTAL FOR COUNTY AND MUNICIPALITIES

Total Losses	Closed Losses	Open Losses	CWOP Losses
792	575	96	121

Total Payments: $14,324,533.73

**CWOP: Closed without payment.*


Williamson County/Cities Flood Plain
Legend
County
Flood Plain
Roads
SR840
Cities
NAME
BRENTWOOD
FAIRVIEW
FRANKLIN
NOLENSVILLE
SPRING HILL
THOMPSON STATION


Williamson County/Cities Floodway
Legend
County
Floodway
Roads
SR840
Cities
NAME
BRENTWOOD
FAIRVIEW
FRANKLIN
NOLENSVILLE
SPRING HILL
THOMPSON STATION

Flood Impacts in Williamson Co.				
Begin Date	Injuries	Fatalities	Property Damage	Crop Damage
3/24/1965	0	0	98,039	0
6/14/1970	0	0	263,157	0
3/14/1973	0	0	52,631	0
5/27/1973	0	0	73,529	0
3/12/1975	0	1	64,935	0
5/3/1979	0	0	5,555,555	555,555
9/13/1979	0	0	73,529	73,529
5/19/1997	0	0	100,000	0
5/25/2000	0	0	100,000	0
5/2/2010	0	0	10,000,000	1,000

Source: SHELDUS-University of South Carolina

Williamson County Tornados

Date	Time	Dead/Inj.	Path	Rating
May 6, 1868	4:00 pm	5/15	10 mi	
Apr 18, 1877	10:00 am	10/50	40 mi	F4
Nov 20, 1900	6:00 pm	9/40	25 mi	F3
Apr 29, 1909	10:15 pm	10/40	45 mi	F3
Apr 29, 1909	11:15 pm	2/20	40 mi	F2
Apr 20, 1920	10:30 am	1/10	15 mi	F2
Mar 18, 1925	5:45 pm	1/9	20 mi	F3
Mar 21, 1932	6:00 pm	3/8	50 mi	F2
Jan 10, 1963	11:55 pm	0/4	4 mi	F3
May 26, 1968	3:40 pm	0/0	0 mi	F1
Apr 21, 1972	3:15 pm	0/3	2 mi	F1
Feb 17, 1976	11:00 pm	0/2	19 mi	F1
Aug 16, 1985	5:50 pm	0/0	1 mi	F1
Feb 17, 1986	2:40 pm	0/0	1 mi	F0
Dec 24, 1988*	6:04 am	1/7	6 mi	F4
Feb 25, 2001	1:20 am	0/0	0 mi	F0
Oct 24, 2001	7:00 pm	0/0	0 mi	F0
May 11, 2003	2:20 am	0/1	1 mi	F3
May 11, 2003	2:30 am	0/0	.5 mi	F1
Nov 15, 2005	6:32 pm	0/0	0 mi	F0
Feb 5, 2008	8:46 pm	0/0	20 mi	EF2
Feb 6, 2008	1:45 am	0/0	2 mi	EF 0

* **December 24, 1988 is the most destructive recorded tornado in Williamson County history.** The tornado moved from Rebel Meadows area of Franklin to the Brenthaven area

of Brentwood. The tornado destroyed 54 homes, 13 apartment units, 31 businesses, and 6 parked airplanes. 1 death occurred from roof collapse. The tornado traveled 6 miles with a path width of 150 yards. There was $ 50 million done in damages.

Williamson County

Ice and Winter Weather Storms

Rank	Season	Amount
1	1959-1960	38.5 in
2	1950-1951	33.5 in
3	1917-1918	30 in
4	1894-1895	27.7 in
5	1978-1979	27.5 in
6	1967-1968	27 in
7	1977-1978	25.2 in
8	1885-1886	24.2 in
9	1962-1963	23.7 in
10	1995-1996	23.7 in
11	1963-1964	22.4 in
12	1904-1905	22.3 in
13	1891-1892	21.8 in
14	1946-1947	21.7 in
15	1976-1977	21.5 in
16	1916-1917	20 in
17	1947-1948	19.8 in
18	1935-1936	19.3 in
19	1898-1899	19.3 in
20	1984-1985	18.6 in

- February 28, 1994, Presidential Declaration of Williamson County due to severe ice storm resulting in $ 889,317.00 worth of costs.

Winter Storm Impacts in Williamson Co.				
Begin Date	Injuries	Fatalities	Property Damage	Crop Damage
12/11/1962	0	0	5,263	0
1/23/1963	0	0	5,263	0
1/9/1965	0	0	8,196	0
1/29/1966	0	0	5,263	0
1/2/1974	0	0	7,462	0
12/19/1983	0	0	52,631	0
1/19/1985	0	0	52,631	0
2/9/1994	0	0	675,675	0
12/23/1998	0	0	40,540	0
1/29/2010	0	0	25,000	0

Source: SHELDUS-University of South Carolina

Williamson County

Drought and Extreme Heat

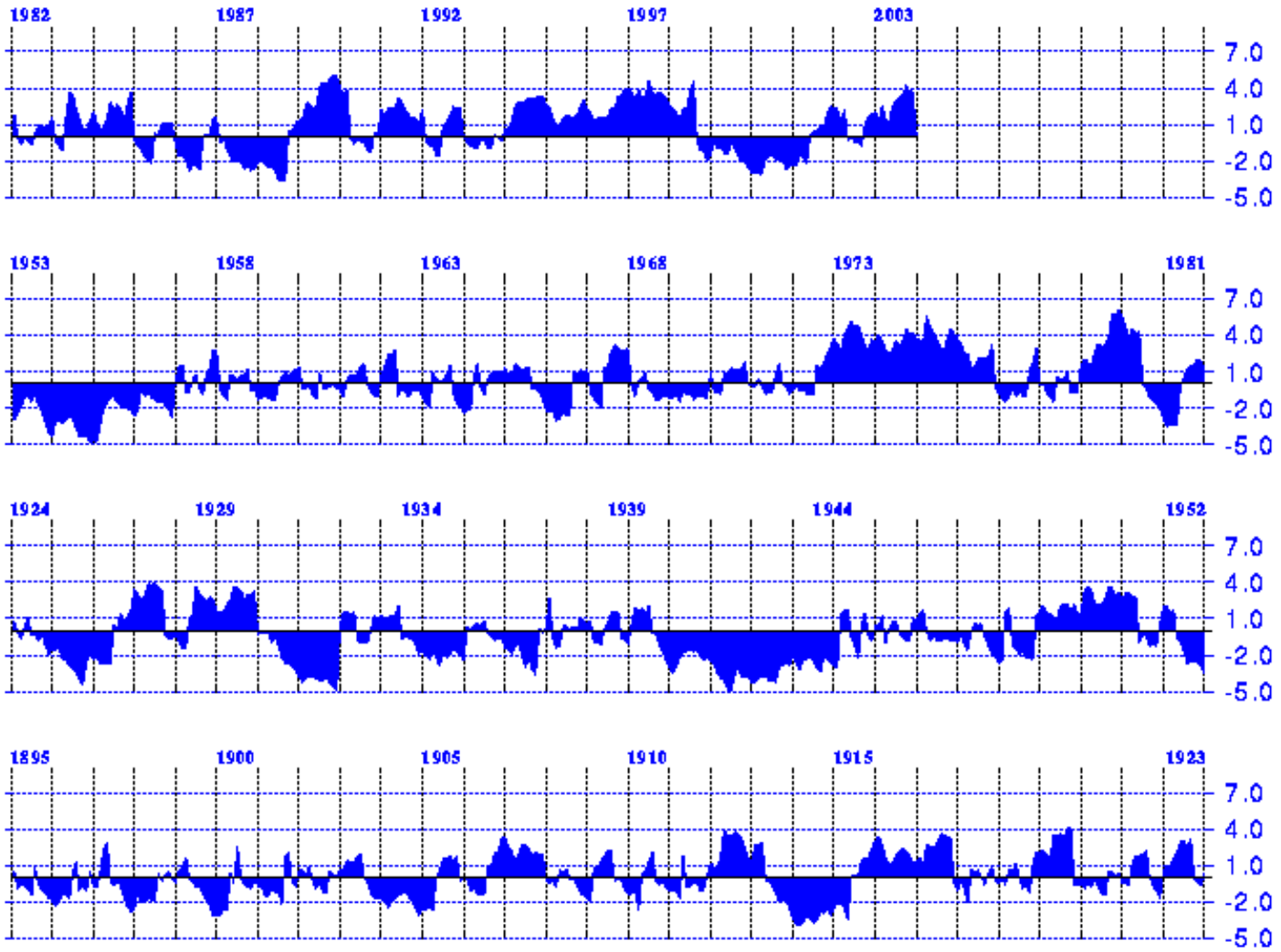
Date	Incident
1894 to 1896	Drought (State-wide)
1913 to 1914	Drought (State-wide)
1925 to 1926*	Drought (State-wide)
1930 to 1931*	Drought (State-wide)
1940 to 1942	Drought (State-wide)
June-July 1952	Severe Heat (State-wide)
1953 to 1954	Drought (State-wide)
1966 to 1967	Drought (State-wide)
1969 to 1971	Drought (State-wide)
July 1980	Severe Heat (Mid/West TN)
1980 to 1981	Drought (State-wide)
2006 to 2007	Drought (State-wide)

*1925 – Forrest Fires occur State-wide
*August 9, 1930 – Highest Temperature Recorded at 113°F

Low Water Records Harpeth River

Date	Level (Feet)
1. September 25, 1999	0.0
2. July 23, 1978	0.7
3. August 23, 1976	0.75
4. August 28, 1977	0.8

Palmer Drought Severity Index



Tennesee - Division 03: 1895-2003 (Monthly Averages)

Appendix B
Presidential Declarations

ee Emergency Management Agency

2001 Disaster Dollars

ntial Declaration Only

County	PRS 3095	PRS 1010	PRS 1022	PRS 1057	PRS 1167	PRS 1171	PRS 1197	PRS 1215
Overton	28,944	64,390					296,694.00	
Perry		76,353						
Pickett	30,604	13,023					427,724.50	1,888,345
Polk	264,807	136,600	108,958			35,477	82,284.50	18,482
Putnam	49,102	152,008	52,782				367,908.00	
Rhea	112,999						189,719.50	40,893
Roane	288,670						399,163.00	247,278
Robertson		66,667					185,900	576,350
Rutherford	39,721	573,350						
Scott	15,661	435,360					2,708,968.50	70,483
Sequatchie	56,473					22,4476	48,998.50	
Sevier	999,087		1,103,656				617,525.50	108,197
Shelby		23,427,994			218,547			224,059
Smith	3,563	11,891				52,994	181,530.00	
Stewart		348,754			51,562			
Sullivan	265,180				739,700		1,788,269.50	178,600
Sumner		1,705,286			6,408			45,215
Tipton		449,268			139,474		328,781.00	
Trousdale	2,111	76,454						
Unicoi	103,821		110,264				365,636.50	
Union	59,536	96,294						573,918
Van Buren	31,908	109,345	26,892				90,518.00	
Warren	14,992	234,537					121,690.50	
Washington	329,410			6,666			1,659,109.50	
Wayne		51,529						290,580
Weakley		66,349			320,798			
White	25,204	105,981					191,703	
Williamson		889,317						4,000
Wilson	28,905	232,217						91,980
TOTALS	$12,235,168	$60,238,772	$13,580,561	$1,242,472	$7,412,241	$5,045,711	$26,121,563	$30,590,602

EMA: 1994 Disaster Activity

Major Disaster Declarations

Date	State	Incident	Designation
01/17	California	Earthquake	FEMA-1008-DR
02/18	Mississippi	Winter Storm	FEMA-1009-DR
02/28	Tennessee	Winter Storm	FEMA-1010-DR
02/28	Arkansas	Winter Storm	FEMA-1011-DR
02/28	Louisiana	Winter Storm	FEMA-1012-DR
03/04	Alabama	Winter Storm	FEMA-1013-DR
03/11	Virginia	Winter Storm	FEMA-1014-DR
03/11	Pennsylvania	Winter Storm	FEMA-1015-DR
03/16	Maryland	Winter Storm	FEMA-1016-DR
03/16	Delaware	Winter Storm	FEMA-1017-DR
03/16	Kentucky	Winter Storm	FEMA-1018-DR
03/30	Alabama	Tornadoes/Floods	FEMA-1019-DR
03/31	Georgia	Tornadoes/Floods	FEMA-1020-DR
04/11	Virginia	Winter Storm	FEMA-1021-DR
04/14	Tennessee	Storms/Floods	FEMA-1022-DR
04/21	Missouri	Storms/Floods	FEMA-1023-DR
04/21	Oklahoma	Storms/Floods	FEMA-1024-DR
04/26	Illinois	Storms/Floods	FEMA-1025-DR
04/29	Texas	Storms/Tornadoes	FEMA-1026-DR
05/09	Nebraska	Winter Storm	FEMA-1027-DR
05/10	Michigan	Severe Freeze	FEMA-1028-DR
05/13	Maine	Storms/Floods	FEMA-1029-DR
06/17	Dist. of Columbia	Winter Storm	FEMA-1030-DR
06/21	South Dakota	Flooding	FEMA-1031-DR
07/01	North Dakota	Flooding	FEMA-1032-DR
07/07	Georgia	Trop Strm Alberto	FEMA-1033-DR
07/08	Alabama	Trop Strm Alberto	FEMA-1034-DR
07/10	Florida	Trop Strm Alberto	FEMA-1035-DR
08/02	Oregon	El Nino Effects	FEMA-1036-DR
08/02	Washington St.	El Nino Effects	FEMA-1037-DR
09/13	California	El Nino Effects	FEMA-1038-DR
09/13	Alaska	Storms/Floods	FEMA-1039-DR
10/06	Marshall Isles	Tidal Waves	FEMA-1040-DR
10/18	Texas	Storms/Floods	FEMA-1041-DR
10/19	Georgia	Storms/Floods	FEMA-1042-DR
11/28	Florida	Trop Strm Gordon	FEMA-1043-DR

Total Major Disaster Declarations: 36

Emergency Declarations

http://www.fema.gov/library/cy94.shtm

EMA: 1998 Disaster Activity

Major Disaster Declarations

Date	State	Incident	FEMA Disaste
01/06	Florida	Tornadoes	1195
01/10	New York	Severe Winter Storms	1196
01/13	Tennessee	Flooding	1197 Counties
01/13	Maine	Ice Storms	1198
01/15	New Hampshire	Ice Storms	1199
01/16	North Carolina	Flooding	1200
01/16	Vermont	Ice Storms	1201
01/29	New Mexico	Severe Winter Storms	1202
02/09	California	Flooding	1203 Counties
02/12	Florida	Severe Storms	1204 Counties
02/13	Delaware	Flooding	1205
03/03	New Jersey	Coastal Storm	1206
03/03	Kentucky	Severe Winter Storm	1207 Counties
03/09	Alabama	Flooding	1208 Counties
03/11	Georgia	Flooding	1209 Counties
03/20	Marshall Islands	Drought	1210 Counties
03/22	North Carolina	Tornadoes	1211 Counties
04/01	Minnesota	Tornadoes	1212 Counties
04/03	Micronesia	Drought	1213 Counties
04/09	Alabama	Tornadoes	1214 Counties
04/20	Tennessee	Tornadoes	1215 Counties
04/29	Kentucky	Severe Storms	1216 Counties
05/08	Indiana	Winter Storms	1217 Counties
06/01	South Dakota	Flooding, Tornadoes	1218 Counties
06/09	Pennsylvania	Tornadoes	1219 Counties
06/15	North Dakota	Flooding	1220 Counties
06/12	Oregon	Flooding	1221 Counties
06/16	New York	Severe Storms, Tornadoes	1222 Counties
06/18	Florida	Extreme Fire Hazard	1223 Counties
06/23	Massachusetts	Floods	1224 Counties
06/23	Minnesota	Tornadoes	1225 Counties
06/24	Michigan	Severe Storms	1226 Counties
06/30	Ohio	Severe Storms	1227 Counties
07/01	Vermont	Severe Storms	1228 Counties
07/01	West Virginia	Severe Storms	1229 Counties
07/02	Iowa	Severe Storms	1230 Counties
07/02	New Hampshire	Severe Storms	1231 Counties
07/02	Maine	Severe Storms	1232 Counties
07/07	New York	Severe Storms	1233 Counties
07/22	Indiana	Floods	1234 Counties
07/23	Tennessee	Severe Storms	1235 Counties
07/24	Wisconsin	Severe Storms	1236 Counties
08/05	Michigan	Severe Storms	1237 Counties
08/12	Wisconsin	Floods	1238 Counties
08/26	Texas	Tropical Storm Charley	1239 Counties

ttp://www.fema.gov/library/diz98.shtm

1993-2001Disaster Dollars

Presidential Declaration Only

County	PRS 1235	PRS 1260	PRS 1262	PRS 1275	PRS 1331	PRS 1387	PRS 1408	TOTALS
Overton							152,719	$542,747
Perry			804	520,160			614,830	$1,212,148
Pickett					3,745			$2,363,442
Polk								$646,609
Putnam	57,260							$679,060
Rhea								$19,857,441
Roane		220,899.57						$1,156,011
Robertson								$828,917
Rutherford								$613,071
Scott		65,010.50					50,724	$3,346,207
Sequatchie		89,191.08						$419,139
Sevier		562,712.85					1,051,676	$4,442,854
Shelby								$23,870,600
Smith								$3,941,415
Stewart			14,841	4,272.04	99,052			$518,481
Sullivan								$2,971,750
Sumner				124,150				$1,881,059
Tipton								$917,523
Trousdale								$78,565
Unicoi						382,704		$962,426
Union		64,672.33						$794,420
Van Buren		203,221.58					79,501	$541,386
Warren		645,041.41	160,986.84				205,306	$1,382,554
Washington						331,033		$2,326,219
Wayne		33,923.55	59,638				301,446	$737,117
Weakley					151,616			$528,763
White		310,207.32		69,160				$702,255
Williamson				254,357				$1,147,674
Wilson								$353,102
TOTALS	$3,638,561	$11,456,842	$18,917215	$5,746,946	$3,568,412	$7,217,469	$8,960,458	$215,972,993

Disaster Summary for FEMA-1275-DR, Tennessee

Declaration Date:
May 12,1999

Incident Type:
Severe storms, tornadoes, and flooding

Incident Period:
May 5, through May 19, 1999

Counties Declared and Types of Assistance as of May 20, 1999:

Cheatham, Chester, Davidson, Decatur, Dickson, Hardeman, Hardin, Henderson, Hickman, Houston, Humphreys, Lawrence, McNairy, Perry, Stewart, Sumner, White and Williamson for Individual Assistance and Public Assistance. (18)

All counties in the state are eligible for assistance under the Hazard Mitigation Grant Program.

P U B L I C N O T I C E

The Williamson County Hazard Mitigation Planning Team will meet Tuesday, 8 March 2005, at 9:30 a.m., in the office of the Williamson County Emergency Management Agency. Anyone requesting an accommodation due to a disability should contact Risk Management at 615-790-5466. This request, if possible, should be made three working days prior to the meeting.

_____

Mike Thompson
Director

B. Hazard Mitigation Committee Meeting Minutes

HAZARD MITIGATION PLANNING TEAM MEETING

October 7, 2004

COMMITTEE MEMBERS PRESENT:

John Pewitt	Jeff Goforth
David Thomas	Floyd Heflin
Mike Jenkins	Sarah Benson
Jay Johnson	Mike Thompson
Gary Luffman	Kate Brock

Mike Thompson called the meeting to order at 10:00 a.m. in the Operations Room of the Williamson County Emergency Management Agency. After those present introduced themselves, Mr. Thompson stated that the purpose of the meeting was to discuss the requirements for the preparation of the draft to FEMA. He explained that Williamson County and its municipalities will not be able to receive future project funding without the plan submission. He added that the original deadline was October 2005, but was informed in August 2004 that it has been moved up to April 2005. Mr. Thompson then recognized Kate Brock, who further discussed the process. She passed out copies of the Mitigation Plans Needs, explaining that it contains the necessary requirements. She stated that, although it usually takes 3 years to prepare and complete a plan, they will be

striving to obtain and process the information in a matter of months. She said that TEMA has only approved one plan thus far, which was submitted by the City of Clarksville. She added that Williamson County's draft is taken in part from plans submitted by Des Moines and Germantown. Ms. Brock then went over various points of the draft. The following points were discussed:

1. Plan will be multi-jurisdictional – will include all municipalities within Williamson County, therefore not requiring each to create their own individual plan; she added that there will be city/town specific areas within the plan.
2. Lists of known natural hazards in each city/town – main and secondary
3. Previous mitigation done by cities and counties will be integrated into this plan.
4. Lists of equipment purchased to aid mitigation efforts
5. Current projects that are underway
6. Future mitigation plans that have been proposed or considered
7. Land to be purchased & costs associated with
8. Drafts of plans that are currently underway by each municipality to implement their own mitigation plan
9. Establishment of working groups for each city/town

Discussion followed regarding the required public forums and options for display of information for public viewing prior to the meetings. Mr. Thompson explained that they must have two public forums, one for the draft and the other for the final plan. It was decided that the first public forum will be held on Monday, October 18, 2004 at 8:30 a.m. Committee members also discussed posting a notice on the County's website, which would give the public another avenue for discussion. Mr. Thompson again stated that prior to the final adoption of the plan by Williamson County, it will have to be approved and signed off by the Board of each municipality, individually, as well as the Williamson County Commission.

Discussion then followed regarding rules for the public forum. Committee members determined that each speaker will be required to sign in before speaking, each speaker will be given three minutes to speak and there will be a one hour time limit set for the entire meeting.

Mr. Johnson requested a time line be given to committee members outlining the entire project.

Committee members then discussed a time for regular monthly meetings of the committee, deciding upon the third Tuesday of each month at 1:30 p.m., beginning in November, unless otherwise specified. The next meeting will take place November 16, 2004.

ADJOURNMENT

There being no further business, the meeting adjourned at 11:10 a.m.

Respectfully submitted,

Mike Thompson
Williamson County EMA Director

Kate Brock
Williamson County EMA Planner

HAZARD MITIGATION PLANNING TEAM MEETING

October 18, 2004

PRESENT:	
John Pewitt	Jeff Goforth
David Thomas	Floyd Heflin
Mike Jenkins	Mark Waddey
Gary Luffman	Mike Thompson
Richard Woodruff	

Mike Thompson called the meeting to order at 8:30 a.m. in the Operations Room of the Williamson County Emergency Management Agency. Motion and second to approve the minutes of the October 7, 2004 meeting. **Motion carried, 8-0-0**. Mr. Thompson stated that the purpose of the meeting was to conduct a public hearing pertaining to the hazard mitigation plan. He again explained that Williamson County and its municipalities will not be able to receive future project funding without the plan submission. He added that the initial draft has been rewritten and that each committee member would be receiving a copy as soon as possible.

Mr. Thompson then opened the public hearing. The first people to address the committee were Dave and Hope Chaney, residents of Howell Drive. Mr. Chaney stated that their main concern was flooding in the Hillsboro Road/Berry's Chapel Road area from Lynnwood Branch. He said that they have lived in their home for 2½ years and have been flooded once and have experienced several near-misses. Mr. Thompson stated that once the mitigation plan was implemented, Williamson County will be able to apply for funding. He added that they will need to provide a history of flooding, possible fixes, costs related to the fixes, as well as possible cost benefits for repair to submit for help. Next, Mrs. Kim Baldinger, a resident of 8012 Bethany Court, addressed the committee. She stated that her family has lived on Bethany Court, which is located along Trace Creek off of Sneed Road, for the past 27 years. She said that they were flooded last year. Mr. Heflin presented a copy of her letter, which outlined her problems and concerns, for the file. Mr. Thompson stressed that any documentation will be greatly appreciated, as FEMA looks at multiple losses when establishing a history. There being no one else present to address the committee, the public hearing was closed.

Mr. Thompson announced that the next meeting will take place November 23, 2004 at 1:30 p.m..

ADJOURNMENT

There being no further business, the meeting adjourned at 9:25 a.m.

Respectfully submitted,

Mike Thompson
Williamson County EMA Director

Kate Brock
Williamson County EMA Planner

HAZARD MITIGATION PLANNING TEAM MEETING

23 November 2004

PRESENT:	
Sarah Benson	Gary Luffman
Kate Brock	John Pewitt
Jeff Goforth	Mike Thompson
Floyd Heflin	
Mike Jenkins	

Mike Thompson called the meeting to order at 1:30 p.m. in the Operations Room of the Williamson County Emergency Management Agency. Motion and second to approve the minutes of the 18 October 2004 meeting. **Motion carried, 7-0-0**. Ms. Brock gave an update from the state on plan guidelines. She explained that the plan should only include natural disasters and how they affect man, adding that it should not include man-made disasters. She further explained that these disasters will include flooding, tornados, drought and extreme heat and winter weather, adding that thunder storms and lightening should be included in the tornado section. She said that they may address erosion in the flooding section. Mr. Thompson reported that the deadlines are the same and said that some Tennessee counties now have approved plans, although he does not have a template at this time. Mr. Thompson added that mutual aid will be an understood factor, stressing that their goal is to focus on what each municipality is lacking in terms of hazard mitigation. He stated that this plan is geared to alleviate hazards before they occur. Mr. Thompson stated that the goal is to submit a bulk plan in April, which will cover all municipalities located within Williamson County, then review the plan and prioritize needs.

Ms. Brock distributed binders for each municipality, which will contain their specific needs information. She stressed that the information needs to be submitted to her by January for insertion into the master plan. She added that she has received subdivision and storm water regulations from a few municipalities and stated that any current mitigation plans would also be helpful. Mr. Thompson stated that they also have some historical incidents to include in the plan.

Discussion followed regarding the method of addressing each project. Mr. Thompson stated that they would need to establish what the problem was, determine alternatives to solve it and present a cost benefit analysis. He added that the projects do not only have to deal with matters of cost.

Mr. Thompson then gave an update of the ArcView program, stating that they were still waiting for it to be installed.

Discussion then followed regarding the scheduling of a second public forum. Mr. Thompson explained that a final public forum will have to be held on the entire plan prior to submission to the State.

Team members discussed the time and date for the next meeting, which is tentatively scheduled for 28 December 2004 at 1:30 p.m. It was agreed upon that the next meeting will take place 4 January 2005 at 9:30 a.m.

ADJOURNMENT

There being no further business, the meeting adjourned at 2:35 p.m.

Respectfully submitted,

Mike Thompson
Williamson County EMA Director

Kate Brock
Williamson County EMA Planner

HAZARD MITIGATION PLANNING TEAM MEETING

4 January 2005

PRESENT:	
Sarah Benson	Gary Luffman
Ken Brison	John Pewitt
Russ Petersen	Mike Thompson
Floyd Heflin	Kate Brock
David Thomas	

Mike Thompson called the meeting to order at 9:30 a.m. in the Operations Room of the Williamson County Emergency Management Agency. Motion and second to approve the minutes of the 23 November 2004 meeting. **Motion carried, 9-0-0**. Mr. Thompson gave an opportunity for public comment; there being no one present, the meeting carried forward. Ms. Brock distributed a copy of the plan review crosswalk & federal requirements for all committee members in attendance. She then gave an update of the draft preparation, stating that she has added information as it has been given to her. She again explained that their goal is to focus on what each municipality is lacking in terms of hazard mitigation, adding that they need information such as small project costs, previous mitigation project information, etc when formulating the cost benefit analysis. She gave several examples for services that can be reported such as any contract annually for the purchase or lease of equipment, snow removal equipment, etc or the use of manpower for such projects as the flushing of sewer systems, the digging of ditches, etc. She said that the plan will be geared to alleviate future hazards before they occur. Mr. Thompson reported that their largest need at this time is the information from each municipality containing the cost of past, present and future projects which can be used for the cost benefit analysis. He then added that ArcView has been installed and will help in the plan development. Mr. Thompson stressed that it is important Williamson County and its municipalities provide documentation that they have been doing something in the past related to mitigation. Mr. Thompson then stated that the goal is to submit a bulk plan in April, which will cover all municipalities located within Williamson County, then review the plan and prioritize needs.

Ms. Brock stressed that the information needs to be submitted to her by January for insertion into the master plan. She added that she has received additional information related to common flooding problems and is in the process inserting it into the draft.

The following team members then gave an update of jurisdictional reports.
Mr. Heflin, Williamson County representative, stated that he would try to have someone look as past resolutions where funds were appropriated to see if he could get an idea of costs paid by the County. He then stated that some points of the subdivision regulations could be considered if they were used for mitigation against disaster, adding that a study by itself, even if it wasn't implemented, could also be considered mitigation.
Mr. Luffman, City of Franklin representative, reported that he was in the process of gathering information from their Department Head meeting and will have that information ready to submit at the next mitigation team meeting. He said that he has been making a list of projects that Franklin has been doing related to mitigation and wasn't aware that so much has been done already. He gave several examples of what has been previously done, all of which can be used in their report: misters to be used in times of extreme heat, replacement of old sewer lines in the downtown area to help with flooding, researching what to do in case of a brown-out situation, the

purchase of snow blades, improving salt bins, improving roadways, adding culverts to decrease flooding, etc. Discussion followed regarding man-made versus natural disasters and how to determine the difference. Mr. Thompson explained that they must determine how a disaster began and get to the root cause before labeling what it is, and gave this example; there is a fire from a haz-mat spill, the spill was man-made, not natural.

Mrs. Benson, Thompson's Station representative, reported that she has their 2000 census information, map of proposed Schaeffer System, subdivision regulations, zoning ordinances, the square footage and capacity limits for the 3 schools in their area which will be used as a pre-designated shelter area ready for submission to Ms. Brock. She added that she was still working to obtain a copy of their flood plain map, stating she would submit that as soon as she could get it.

Mr. Brison, Fairview representative, stated that he would relay all information to Mr. Deck, Fairview City Manager, who would be attending all future meetings.

Mr. Pewitt, Spring Hill representative, reported that he had submitted their subdivision regulations and zoning ordinances and was still working to obtain more information.

Mr. Petersen, Brentwood representative, reported that he had some drainage information to submit, as well as information on snow removal equipment. He added that he would also be working to gather additional information to submit at a later time.

Team members discussed the time and date for the next meeting, which is scheduled for 25 January 2005 at 9:30 a.m. He added that they may want to consider conducting two meetings in February, in preparation for submittal of the plan to each municipality in March.

ADJOURNMENT

There being no further business, the meeting adjourned at 10:10 a.m.

Respectfully submitted,

Mike Thompson
Williamson County EMA Director

Kate Brock
Williamson County EMA Planner

HAZARD MITIGATION PLANNING TEAM MEETING

25 January 2005

PRESENT:	
Sarah Benson	Gary Luffman
Al Deck	John Pewitt
Floyd Heflin	Jeff Goforth
Mike Jenkins	Mike Thompson
David Thomas	Kate Brock

Mike Thompson called the meeting to order at 9:30 a.m. in the Operations Room of the Williamson County Emergency Management Agency. Motion and second to approve the minutes of the 4 January 2005 meeting. **Motion carried, 9-0-0**. Mr. Thompson then gave an opportunity for public comment. Meredith Kendall, a resident of 220 Meadowgreen Drive, Franklin, TN addressed team members, explaining that various residences in her neighborhood began to flood once TDOT widened the roadway between Lynwood Way and Hillsboro Road. She said that when the widening project was completed, TDOT made no efforts to correct problems that incurred during that time. She stated that numerous attempts have been made to discuss the issue with TDOT, but they have stated that they will not do any future improvements to that area. She gave supporting documentation of her claims to Ms. Brock for inclusion in the draft, as well as explaining to team members her current situation, which includes increased flood damage to both her home and property.

The following team members then gave an update of jurisdictional activity.

Mr. Luffman, City of Franklin representative, reported that he is currently gathering information, adding that he has created a plan for each city department and will meet with each department head and make any changes that are necessary. He added that the City Administrator has given each department a 3 week deadline for completing the form, so he will have information ready for submission after that time. Mr. Thompson reported that he and Ms. Brock attended the City of Franklin's Public Safety Advisory Committee meeting in order to explain to them what information was needed and the general scope of the plan.

Mr. Pewitt, Spring Hill representative, reported that their Codes department is reviewing the crosswalk while working to gather information for submission for the plan.

Mrs. Benson, Thompson's Station representative, reported that she was working to determine what funding information regarding various road projects in her municipality can be classified as mitigation.

Mr. Heflin, Williamson County representative, stated that he was currently working to determine costs related to past resolutions where funds were appropriated to see if he could get a better idea of costs paid by the County, adding, thus far, he was having limited success. He then asked for clarification as to what type of information he was to supply for the plan. Mr. Thompson stated that as long as each municipality shows that they have made an effort to alleviate potential problems in their area, the plan will be looked favorably on. He again stressed that, once the plan

is initially submitted to the state, it will automatically be brought back for review and can be improved on and added to at that time.

Mr. Goforth, Nolensville representative, reported that Rich Woodruff, Nolensville's Planner, had submitted information to Ms. Brock. Mr. Goforth said that he suggested to Mr. Woodruff that they provide a brief overview of anticipated annual costs for necessary services. He added that he was also including his proposal for the purchase of tornado sirens, which will total $6,200 for three sirens.

Mr. Deck, Fairview representative, stated that information included in their Emergency Response Plan would be sent for inclusion into the Hazard Mitigation Plan, where applicable, and added that he was working to gather additional information for submission as well.

Team members discussed the time and date for the next two meetings, the first of which is scheduled for 8 February 2005 at 9:30 a.m. The following meeting is scheduled for 25 February 2005 at 10:00 a.m. Discussion followed regarding filing deadline and meeting dates for various municipalities. Mr. Thompson stated that his office would coordinate that information in order to take the plan to each municipality for approval prior to submission to the State.

ADJOURNMENT
There being no further business, the meeting adjourned at 10:15 a.m.

Respectfully submitted,

Mike Thompson
Williamson County EMA Director

Kate Brock
Williamson County EMA Planner

HAZARD MITIGATION PLANNING TEAM MEETING

8 February 2005

Mr. Thompson called the meeting to order at 9:30 a.m. in the Operations Room of the Williamson County Emergency Management Agency. Motion and second to approve the minutes of the 25 January 2005 meeting. **Motion carried 7-0-0**. Mr. Thompson then gave an opportunity for public comment, no members of public present.

The following team members then gave an update of jurisdictional activity.

Mr. Luffman, City of Franklin representative, asked about HAZUS software involvement in the mitigation plan and how the use of it will possibly involve the City of Franklin. Ms. Brock informed Mr. Luffman that the HAZUS software program will not only cover

county areas, but cities as well. Mr. Luffman asked about the involvement of mitigation on future critical infrastructure. Mr. Thompson and Ms. Brock informed Mr. Luffman that documents such as City of Franklin's Zoning Ordinance and Codes Compliance, should cover mitigation on such future structures. Mr. Luffman also reported that he was in the process of describing needed information for the mitigation strategies section of the mitigation plan, to other involved City of Franklin departments.

Mr. Pewitt, Spring Hill representative, presented information on additions to the City of Spring Hill's Zoning Ordinance, as well as the Emergency Response Plan for the public water system.

Mr. Petrowski, City of Brentwood representative, reported that he has begun collecting requested information for the Mitigation Strategies section of the plan, as well as a list of the critical infrastructure.

Mr. Heflin, Williamson County representative, reported that he is currently working on collecting information concerning past, current, and future mitigation projects occurring within the County. Mr. Heflin questioned the availability of federal grant monies for projects occurring post plan acceptance by FEMA, and if those monies were available for land buy-outs, as well as how would the county benefit from the bought-out land once it is in county possession. Mr. Heflin also reported that there are several other neighborhoods, and/or sections of the county that have, in the past, reported problems with flooding, that have not, to date, come forward with such complaints in regards to public input to the mitigation plan. Mr. Heflin asked Ms. Brock if she felt that it would be beneficial that those persons be contacted and informed of the Plan, Ms. Brock agreed that it would be.

Mr. Jenkins, Information Technologies representative, no new information to report.

Ms. Brock, Williamson County EMA representative, reported more time than previously thought is available due to a misunderstanding regarding commission signatures needed, before the Plan is submitted to TEMA 17 April 2005. Commission signatures are not needed until final adoption of plan following approval by Tennessee Emergency Management Agency and FEMA. Ms. Brock also informed jurisdiction representatives that, in regards to critical facilities, that actual names and addresses were not needed for the plan, only a general definition of said facilities and the number of such per each jurisdiction.

Team members discussed time and date for the next two meetings, and the first of which is scheduled for 25 February 2005 at 10:00 a.m. The following meeting is scheduled for the 8 March 2005 at 9:30 a.m.

ADJOURNMENT
There being no further business, meeting adjourned at 10:30 a.m.

Respectfully submitted,

Mike Thompson
Williamson County EMA Director

Kate Brock
Williamson County EMA Planner

HAZARD MITIGATION PLANNING TEAM MEETING

25 February 2005

PRESENT:	
Sarah Benson	Todd Petrowski
Al Deck	John Pewitt
Floyd Heflin	Mike Thompson
David Thomas	Kate Brock

Mr. Thompson called the meeting to order at 10:00 a.m. in the Operations Room of the Williamson County Emergency Management Agency. Motion and second to approve the minutes of the 8 February 2005 meeting. **Motion carried, 7-0-0**. Mr. Thompson then gave an opportunity for public comment. There being no one present, the meeting continued.

The following team members then gave an update of jurisdictional activity.

Mr. Deck, Fairview representative, stated that he had submitted all pertinent information in to Ms. Brock for submission into the County Plan. He added that he was waiting for a report on retention ponds and a water study that was conducted in the mid-1990's. He also reported that he spoke with a representative of Red Cross and they are working on a list of shelters in the Fairview area.

Mr. Pewitt, Spring Hill representative, reported that he has submitted all of the information that he has gathered for the plan thus far and will continue as more becomes available.

Mr. Petrowski, Brentwood representative, reported that he should have information ready for submission by the first of next week. He said that he has a list of all emergency evacuation shelters for the city and is working on a report of all water tanks that are located within Brentwood. He stated that he is awaiting information from Metro Water Service and Nolensville before that report is complete. He added that he has compiled information related to flooding and tornados and is working on drought and winter weather.

Mr. Heflin, Williamson County representative, stated that he submitted more information that he has compiled thus far, adding that they have not inventoried retention ponds, as some are located in subdivisions and others are on private property. Discussion followed regarding the possibility of conducting a mass mailing notifying residents of the public forum included in these meetings.

Mr. Thompson stated that, while it would be hard to notify residents individually, they may consider notifying the homeowner's associations that are located throughout the county. He stressed that this would need to be a county-wide effort, not targeting any specific area.

Mr. Thomas, Williamson County Information Systems representative, had nothing to report. Mrs. Benson, Thompson's Station representative, reported that she was still working to determine what funding information regarding various road projects in her municipality can be classified as mitigation. She added that she has also contacted MTEMC to determine monies spent on tree-cutting around power lines. She stated that, thus far, she has only been given a flat rate per mile. She questioned whether that rate would be different if they were to spot cut. She said she also has a map from the Harpeth River Watershed Association which shows potential flood plain areas that have not been mapped by TEMA, since no applications for reimbursement from storm damage have been requested up to this time.

Ms. Brock stated that, due to the work done to prepare for this plan, it has been determined that there are many mitigation projects which will be looked into in the future. She added that, upon submission and approval of the plan, municipalities will be able to request funding for those projects from TEMA.

Team members discussed the time and date for the next meeting, which is scheduled for 8 March 2005 at 9:30 a.m.

ADJOURNMENT

There being no further business, the meeting adjourned at 10:25 a.m.

Respectfully submitted,

Mike Thompson
Williamson County EMA Director

Kate Brock
Williamson County EMA Planner

HAZARD MITIGATION PLANNING TEAM MEETING

8 March 2005

PRESENT:	
Jeff Goforth	Todd Petrowski
Al Deck	John Pewitt
Floyd Heflin	Mike Thompson
David Thomas	Kate Brock
Mike Jenkins	

Mr. Thompson called the meeting to order at 9:30 a.m. in the Operations Room of the Williamson County Emergency Management Agency. Motion and second to approve the minutes of the 25 February 2005 meeting. **Motion carried, 8-0-0**. Mr. Thompson then gave an opportunity for public comment. There being no one present, the meeting continued.

The following team members then gave an update of jurisdictional activity.

Mr. Luffman, Franklin representative, reported that he has finished up review of all City Departments, with the exception of Sanitation. He said he is currently working on a report of all water treatment and sewer plants, fire stations, etc that are located in their jurisdiction. He added that his is also working to compile information regarding data related to new areas that will be annexed into the City within the next two weeks.

Mr. Pewitt, Spring Hill representative, reported that he has submitted all of the information that he has gathered for the plan thus far and will continue as more becomes available.

Mr. Petrowski, Brentwood representative, reported that he too had submitted all pertinent information and is currently working to gather information related to the e-mail that Ms. Brock sent out.

Mr. Deck, Fairview representative, stated that he had submitted all pertinent information in to Ms. Brock for submission into the County Plan. He added that he brought information related to infrastructure to add to their plan.

Mr. Goforth, Nolensville representative, stated that their jurisdictional land area is comprised of 3 ½ square miles and noted that the total will double in May or June. He also made a correction to the January 25, 2005 minutes regarding the total cost estimate for tornado sirens. He stated that the minutes give a cost estimate of $6,200 for equipment and installation of 2 sirens, but the correct total should be $68,855.

Mr. Thompson then recognized Ray Campbell, a representative of the Williamson County Highway Department.

Mr. Heflin, Williamson County representative, stated that he has submitted most of the information that was requested. He turned in a map as well as a list of the roads and highways that are located within the County. He added that he has been talking with The Corps of Engineers in an effort to obtain potential funding for flooding problems along Lynnwood Branch

and Cartwright Creek. He said if funding is approved, the Corps will conduct a cost benefit screening of the area in order to define the problem and determine the potential amounts of damage that could be caused. He added that there is potential funding of $200,000, with the County funding one half of the total.

Mr. Jenkins, Information Systems representative, had nothing to report. Mr. Thompson stated that he has received a copy of the new ArcView program, but needs Arc GIS 9 in order to run it.

Ms. Brock stated that there are many sections of the plan that are near completion. She stated that she sent an e-mail out which gives an overview of the areas still lacking.

Team members discussed the time and date for the next meeting, which is scheduled for 30 March 2005 at 9:30 a.m.

ADJOURNMENT
There being no further business, the meeting adjourned at 10:25 a.m.

Respectfully submitted,

Mike Thompson
Williamson County EMA Director

Kate Brock
Williamson County EMA Planner

HAZARD MITIGATION PLANNING TEAM MEETING

30 March 2005

PRESENT:	
Jeff Goforth	Todd Petrowski
Al Deck	John Pewitt
Sarah Benson	Mike Thompson
Gary Luffman	Kate Brock
Mike Jenkins	

Mr. Thompson called the meeting to order at approximately 9:30 a.m. in the Operations Room of the Williamson County Emergency Management Agency. Motion and second to approve the minutes of the 8 March 2005 meeting. **Motion carried, 7-0-0**. Mr. Thompson then gave an opportunity for public comment. There being no one present, the meeting continued.

The following team members then gave an update of jurisdictional activity.

Mr. Pewitt, Spring Hill representative, reported that he has submitted all of the information that he has gathered for the plan thus far and will continue as more becomes available.

Mr. Petrowski, Brentwood representative, submitted information that Ms. Brock requested in the e-mail reported that he is still working to gather additional information as it becomes available.

Mr. Deck, Fairview representative, stated that he had submitted additional information in to Ms. Brock via e-mail.

Allen Little, Williamson County Highway Department representative, stated that he has been apprised of the requirements and would be working with Ms. Brock to submit the necessary information prior to the deadline.

Mr. Goforth, Nolensville representative, stated that he has submitted all of the information that he has compiled thus far and is currently working to get information related to project costs for the digging of drainage ditches and the installation of tornado sirens from the City Engineer to add to their section as well.

Mr. Jenkins, Information Systems representative, had nothing to report. Mr. Thompson stated that he has run into problems with the Hazus program, related to both the Flood and Earthquake Modules. He reported that after discussion with Tech Support and Williamson County IS personnel, representatives from TEMA were scheduled to visit the department this afternoon to see if the issues can be resolved so the program can be utilized.
Mr. Luffman, Franklin representative, reported that he submitted additional preliminary information to Ms. Brock regarding shelters and roadways/bridges and asked if they also needed to list large box culverts that are 20 feet or more in length. Mr. Thompson stated that it should be listed if it is located under a main roadway that could cause potential problems related to ingress/egress of a particular area if it were to become damaged or destroyed.

Mrs. Benson, Thompson Station representative, stated that she was currently working to obtain estimates of culvert work done on Sedberry Road and actual costs related to tree trimming along power lines done by MTEMC within Thompson Station. She added that she was also working to obtain a map that shows the blue line streams in the municipality.

Team members discussed the time and date for the next meeting, which is scheduled for 13 April 2005 at 9:30 a.m. Mr. Thompson noted that the purpose of the meeting will be to approve the draft and conduct a public hearing. He added that this will be the last meeting prior to submission of the draft.

ADJOURNMENT
There being no further business, the meeting adjourned at 10:15 a.m.

Respectfully submitted,

Mike Thompson
Williamson County EMA Director

Kate Brock
Williamson County EMA Planner

HAZARD MITIGATION PLANNING TEAM MEETING

13 April 2005

PRESENT:	
Jeff Goforth	Todd Petrowski
Sarah Benson	John Pewitt
Gary Luffman	Floyd Heflin
David Thomas	Henry Laird
Mike Jenkins	Mike Thompson
Alan Little	Kate Brock

Mr. Thompson called the meeting to order at approximately 10:00 a.m. in the Operations Room of the Williamson County Emergency Management Agency. Motion and second to approve the minutes of the 30 March 2005 meeting. **Motion carried, 11-0-0**. Mr. Thompson then gave an opportunity for public comment. There being no one present, the meeting continued.

Ms. Brock presented all team members with a copy of the draft mitigation plan. She stated that the draft has been "unofficially" reviewed by TEMA staff and is ready for submission following minor corrections and formatting changes. She added that team members have met all requirements and asked them to review the draft and notify her of any corrections that should be made in their respective sections. Mr. Thompson added that he feels confident in the draft as it now stands. He explained that he encountered a few issues with the Hazus program. He stated that Williamson County's plan surpasses others that have been submitted to date. He noted that once TEMA approves the draft, it will then be forwarded to FEMA, after which time Williamson County should receive information regarding approval within 45 days of FEMA's receipt of the plan. Mr. Thompson added that once the plan is approved, it will then be taken to all of the municipalities within Williamson County for their approval.

Mr. Luffman, Team Member, left at this time.

Mr. Thompson stated that the plan, once approved, will never be completed or finished, adding that it will always be a working document, as the team will have to conduct a periodic review and make corrections as needed. He said that they would need to determine how they will proceed with future meetings, possibly meeting quarterly for updates, then yearly for review. He stated that team members would not vote on the draft until they have had a chance to look over the sections regarding their municipality. He said that his office would notify members of the next meeting.

ADJOURNMENT
There being no further business, the meeting adjourned at 10:15 a.m.

Respectfully submitted,

Mike Thompson

Williamson County EMA Director

Kate Brock
Williamson County EMA Planner

ROGERS ANDERSON
COUNTY MAYOR

MIKE THOMPSON
DIRECTOR

WILLIAMSON COUNTY
EMERGENCY MANAGEMENT AGENCY
1320 WEST MAIN, SUITE B-30
FRANKLIN, TENNESSEE 37064-3700

HAZARD MITIGATION PLANNING TEAM MEETING
18 October 2006

PRESENT:

Kate Brock	Todd Petrowski
Lori Cartwright	Dave Thomas
Mike Jenkins	Mike Thompson
Gary Luffman	

Mr. Thompson called the meeting to order at 9:15 a.m. in the Operations Room of the Williamson County Emergency Management Agency. Motion and second to approve the minutes of the 30 March 2006 meeting. **Motion carried, 5-0-0.**

Ms. Brock reported that obtaining approval for the Hazard Mitigation Plan had been a very long process. After several attempts to obtain approval from both TEMA and FEMA, it was finally approved on 6 September. The next step is to have the county and all six cities approve the plan.

Gary Luffman, Franklin representative, and Todd Petroski, Brentwood representative, discussed that it would take months to have the plan approved by city and county boards. Since Franklin and Brentwood were the only cities represented, the other (Fairview, Spring Hill, Nolensville and Thompsons Station) need to be contacted to attend the next meeting.

Team members discussed the time and date for the next meeting, and scheduled it for 15 November 2006 at 9 a.m.

ADJORNMENT
There being no further business, the meeting adjourned at 9:38 a.m.

Respectfully submitted,

_____
Mike Thompson
Williamson County EMA Director

_____
Kate Brock
Williamson County EMA Planner

ROGERS ANDERSON
COUNTY MAYOR

MIKE THOMPSON
DIRECTOR

WILLIAMSON COUNTY
EMERGENCY MANAGEMENT AGENCY
1320 WEST MAIN, SUITE B-30
FRANKLIN, TENNESSEE 37064-3700

HAZARD MITIGATION PLANNING TEAM MEETING
15 November 2006

PRESENT:	
John Pewitt	Dave Thomas
Wade Hooper	Mike Thompson
Todd Petroski	Kate Brock
Gary Luffman	Lori Cartwright
Floyd Heflin	

Mr. Thompson called the meeting to order at 9:04 a.m. in the Operations Room of the Williamson County Emergency Management Agency. Motion and second to approve the minutes of the 18 October 2006 meeting. **Motion carried, 6-0-0.**

There being no public comments, status reports were given from each representative regarding the Hazard Mitigation Plan.

John Pewitt, Spring Hill representative, stated that the plan was presented at the Board of Mayor and Aldermen work session on 13 November and would be up for a vote on the 20th.

Wade Hooper, Fairview representative, stated that the Hazard Mitigation Plan will be reviewed on 7 December 2006. He also stated that the Water Authority of Dickson will be taking over water service from the City of Fairview, and suggested that they also be given a copy of the plan.

Todd Petroski, Brentwood representative, stated that Brentwood City Commission is scheduled for adoption on 11 December 2006.

Gary Luffman, Franklin representative, reported that the plan had been approved at the 14 November 2006 meeting.

Mr. Thompson stated that copies of the plan were distributed at the Williamson County Commission meeting on 14 November 2006. He added that the Town of Thompson's Station had also been scheduled to review it on 14 November.

Team members discussed a time and date for the next meeting, which will be 17 January at 9 a.m. All approvals of the Hazard Mitigation Plan should be obtained by this date.

ADJORNMENT
There being not further business, the meeting was adjourned at 9:30 a.m.

Respectfully submitted,

_____
Mike Thompson
Williamson County EMA Director

_____
Kate Brock
Williamson County EMA Planner

PHONE: 615-790-5752 EMAIL: EMA@WILLIAMSON-TN.ORG FAX: 615-790-5490

ROGERS ANDERSON
COUNTY MAYOR

MIKE THOMPSON
DIRECTOR

WILLIAMSON COUNTY
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1320 WEST MAIN, SUITE B-30
FRANKLIN, TENNESSEE 37064-3700

HAZARD MITIGATION PLANNING TEAM MEETING

17 January 2007

PRESENT:	
Kate Brock	Gary Luffman
Lori Cartwright	Todd Petrowski
Floyd Heflin	John Pewitt
Wade Hooper	Mike Thompson

Mr. Thompson called the meeting to order at 9:03 a.m. in the Operations Room of the Williamson County Emergency Management Agency. Motion and second to approve the minutes of the 15 November 2006 meeting. **Motion carried, 6-0-0.**

Mr. Luffman inquired about the HAZUS software program's ability to create different flooding scenarios. Mrs. Brock stated that this program is not user friendly. Mr. Thompson added that the information in the program is not entirely accurate.

There were no public comments.

Mr. Thompson stated that all resolutions have been approved. Ms. Brock suggested that this committee meet quarterly. She stated that adding any additional information to the plan would be easier, if it was done more frequently. Therefore, the final plan would be finished in a shorter time period. Mr. Thompson added that quarterly meetings would also be helpful in creating a timeline for grant submittals.

Mr. Luffman announced that he would like to name, Tom Marsh, with the City of Franklin, to replace him on the committee. Mr. Thompson asked that the City Administrator send a letter making that request.

Team members discussed a time and date for the next meeting, which will be 18 April at 9a.m .

ADJORNMENT
There being no further business, the meeting was adjourned at 9:45 a.m.

Respectfully submitted,

_____
Mike Thompson
Williamson County EMA Director

_____
Kate Brock
Williamson County EMA Planner

PHONE: 615-790-5752 EMAIL: EMA@WILLIAMSON-TN.ORG FAX: 615-790-5490

ROGERS ANDERSON
COUNTY MAYOR

MIKE THOMPSON
DIRECTOR

WILLIAMSON COUNTY
EMERGENCY MANAGEMENT AGENCY
1320 WEST MAIN, SUITE B-30
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HAZARD MITIGATION PLANNING TEAM MEETING
18 April 2007

PRESENT:

John Pewitt	Mike Jenkins
Greg Boll	Mike Thompson
Floyd Heflin	Kate Brock
Dave Thomas	Lori Cartwright

Mr. Thompson called the meeting to order at 9:10 a.m. in the Operations Room of the Williamson County Emergency Management Agency. Motion and second to approve the minutes of the 17 January 2007 meeting. **Motion carried, 5-0-0.**

Mr. Thompson announced that the Hazard Mitigation Plan were approved by TEMA and FEMA. However, there was one item of concern regarding the Town of Nolensville. It was noted that they must develop a flood mitigation strategy/flood damage prevention ordinance. This must be done by 29 September 2007, or their approval will be revoked.

The next step will be to find projects to apply for. Mr. Pewitt expressed concern regarding jurisdiction for projects to be approved in Spring Hill. Mr. Thompson stated that approval would be granted from either Williamson or Maury County, depending on where the project is located.

A copy of the Ethics Policy was given to all that attended. This policy was approved by the County Commission, and does apply to this committee. Any member with a conflict of interest must complete the required paperwork. Miss Brock commented on the Homeland Security National Incident Management class. She stated that the purpose of this class is to organize and be aware of the chain of command. She recommends that every jurisdiction should participate.

The next meeting of the Hazard Mitigation Committee was set for July 18th at 9:00 a.m.

ADJORNMENT
There being no further business, the meeting was adjourned at 9:30 a.m.

Respectfully submitted,

_____
Mike Thompson
Williamson County EMA Director

_____
Kate Brock
Williamson County EMA Planner

PHONE: 615-790-5752 EMAIL: EMA@WILLIAMSON-TN.ORG FAX: 615-790-5490

ROGERS ANDERSON
COUNTY MAYOR

MIKE THOMPSON
DIRECTOR

WILLIAMSON COUNTY
EMERGENCY MANAGEMENT AGENCY
1320 WEST MAIN, SUITE B-30
FRANKLIN, TENNESSEE 37064-3700

HAZARD MITIGATION PLANNING TEAM MEETING

16 January 2008

PRESENT:	
John Pewitt	Dave Thomas
Todd Petroski	Mike Thompson
Floyd Heflin	Kate Brock
Sarah Benson	Lori Cartwright

Mr. Thompson called the meeting to order at 9:10 a.m. in the Operations Room of the Williamson County Emergency Management Agency. Motion and second to approve the minutes of the 17 October 2007 meeting. **Motion carried, 6-0-0**.

Mr. Thompson announced that the 2008 Pre Disaster Mitigation grants will be due Jan 31. Mr. Pewitt stated that he was unable to find anything to request, that would fit into the grant categories. Mr. Petroski asked if retrofitting structure and flood plain items would fit into a category, however, flood studies and maps do not apply.

Mr. Thompson explained that a declaration is the reimbursement of cost incurred and that 10% to 15% would go into the Mitigation Program. Mr. Heflin stated that it would cost $200,000 or more to do a flood analysis of the Lynnwood/ Cartwright Creek area. Mr. Thompson expressed his interest in using the grant money for flood gauges. Mr. Helflin volunteered to call Smith, Seckman and Reid Engineering to obtain a letter to submit with the grant request for flood gauges. Mr. Pewitt expressed his interest in presenting this request to Maury County also.

The next meeting of the Hazard Mitigation Committee was se for April 16th at 9:00 a.m.

ADJOURNMENT
There being no further business, the meeting adjourned at 9:45 a.m.

Respectfully submitted,

_____
Mike Thompson
Williamson County EMA Director

_____
Kate Brock
Williamson County EMA Planner

PHONE: 615-790-5752 EMAIL: EMA@WILLIAMSON-TN.ORG FAX: 615-790-5490

ROGERS ANDERSON
COUNTY MAYOR

MIKE THOMPSON
DIRECTOR

WILLIAMSON COUNTY
EMERGENCY MANAGEMENT AGENCY
1320 WEST MAIN, SUITE B-30
FRANKLIN, TENNESSEE 37064-3700

HAZARD MITIGATION PLANNING TEAM MEETING
15 October 2008

PRESENT:

Wade Hooper	David Thomas
John Pewitt	Mike Thompson
Todd Petrowski	Kate Brock
Floyd Heflin	Lori Cartwright

Mr. Thompson called the meeting to order at 9:05 a.m. in the Operations Room of the Williamson County Emergency Management Agency. A motion and second was made to approve the 16 July 08 minutes. Motion carried.

Mr. Thompson opened the public hearing. There being no one to speak the public hearing was closed.

Mr. Cook explained that the county had filed for reimbursement from FEMA for the February tornadoes. He explained that FEMA is refusing reimbursement for the total amount for the Solid Waste Department. A letter has been sent to FEMA from the attorney's office, but there has been no response from them. Only $38,000.00 of over $200,000.00 has been approved. In the opinion of the attorney, FEMA did not follow their own policy.

Ms. Brock suggested that a Debris Management Plan be in place in case of a large incident. No other county in Tennessee has a Debris Management Plan. She explained that if there was a plan in place and we contracted with a private company 100% reimbursement would be available.

Mr. Thompson asked that a person from the Solid Waste Department be added to the Planning Team. There were no objections.

Mr. Cook explained the Conflict of Interest Policy. He stated that County employee/officials may, in certain circumstances, receive gifts from non-profit organizations. But the recipient must fill out a disclosure form and file it with the County Clerk's Office for anything else. Elected officials may receive gifts up to $100.00 in value per year.

Mr. Pewitt, with the City of Spring Hill reported that approval for sirens passed its second reading.

The next meeting was scheduled for 21 January 2009.

There being no further business, the meeting was adjourned at 9:40 a.m.

Respectfully submitted,

_____
Mike Thompson
Williamson County EMA Director

_____
Kate Brock
Williamson County EMA Planner

PHONE: 615-790-5752 EMAIL: EMA@WILLIAMSON-TN.ORG FAX: 615-790-5490

ROGERS ANDERSON
COUNTY MAYOR

MIKE THOMPSON
DIRECTOR

WILLIAMSON COUNTY
EMERGENCY MANAGEMENT AGENCY
1320 WEST MAIN, SUITE B-30
FRANKLIN, TENNESSEE 37064-3700

HAZARD MITIGATION PLANNING TEAM MEETING

28 January 2009

PRESENT:
Mike Thompson
Kate Brock
Lori Cartwright
Rodney Escobar
Gary Luffman
David Thomas
Terry Tanner
Doug Warden
John Pewitt
Floyd Heflin

Mr. Thompson called the meeting to order at 9:07 a.m. in the Operations Room of the Williamson County Emergency Management Agency. Mr. Pewitt made a correction to the 21 January minutes regarding sirens for the City of Spring Hill. The item was tabled, rather than approved, as stated in the minutes. There was a motion and second to approve the minutes with this correction. Motion carried.

Mr. Luffman announced that he is now the Planning Director for the City of Franklin. Mr. Tom Marsh is the Codes Director and the new Risk Manager is Rodney Escobar. Mr. Thompson added that Eric Stuckey is the new City of Franklin Administrator.

Mr. Pewitt stated that Jim Smith is now the interim City Administrator for Spring Hill.

Mr. Thompson introduced Terry Tanner. She is the Public Assistance Officer with the Tennessee Emergency Management Agency. Ms. Tanner explained the pilot program for debris management. Currently, agencies are only reimbursed for regular time. This program would allow agencies to be reimbursed for over time. She distributed information for creating a debris management plan, and explained several guidelines including:

1. A contract does not have to be in place with debris clean up companies.
2. A list of contractors is all that is necessary, to be included in the plan.

Mr. Thompson mentioned the Cost Analysis Training that Kelly Zadakus, with TEMA, had emailed him about. He will forward this information to committee members. Mr. Pewitt asked about installing a warning siren at Homestead Middle School. Mr. Thompson explained that the budget for next fiscal year has zero funds for capital, but that all capital from last year was not spent. That being the case, it is possible that funds are available to purchase a siren for that location. Mr. Pewitt will forward a layout of the school property to Mr. Thompson.

There was nothing new to report from Spring Hill, City of Franklin, or Williamson County.

The next meeting was scheduled for 15 April 2009.

There being no further business, the meeting was adjourned at 9:45 a.m.

Respectfully submitted,

_____
Mike Thompson
Williamson County EMA Director

_____
Kate Brock
Williamson County EMA Planner

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ROGERS ANDERSON
COUNTY MAYOR

MIKE THOMPSON
DIRECTOR

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1320 WEST MAIN, SUITE B-30
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HAZARD MITIGATION PLANNING TEAM MEETING

15 April 2009

PRESENT:
William Andrews
Lori Cartwright
Rodney Escobar
Wade Hooper
Mike Jenkins
Todd Petrowski
John Pewitt
Mike Thompson
Nancy Zion

Mr. Thompson called the meeting to order at 9:05 am. in the Operations Room of the Williamson County Emergency Management Agency.

There was no report on debris management planning due to Ms. Brock being out sick.

Nancy Zion explained Solid Waste's roll in disasters including that the all the debris from a disaster has to be sorted and dealt with accordingly. Mr. Thompson added following the 2003 tornados debris was collected at staging points and then sent to the landfill, last year, everything went to the landfill because of the proximity. There were no charges for resident's tipping fees and about 100 cubic yards of brush was collected. One load from a convenience center is 3 cubic yards.

Mr. Pewitt reported that the City of Spring Hill will follow what the county does in regards to debris management.

Mr. Thompson reported that except for grants there will be zero capital in the 2009-10 budget.

The cities of Franklin, Fairview, and Spring Hill had nothing to report.

Mr. Andrews reported Resource Conservation grant final paperwork was being completed to send to the County Mayor's office.

Mr. Thompson reminded members that FEMA Cost Benefit Analysis training 21-22 April.

There being no further business, the meeting adjourned at 9:25 am.

Respectfully submitted,

_____
Mike Thompson
Williamson County EMA Director

_____
Kate Brock
Williamson County EMA Planner

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ROGERS ANDERSON
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HAZARD MITIGATION PLANNING TEAM MEETING
15 July 2009

PRESENT:
Kate Brock
Shelby Brusich
John Pewitt
Greg Boll
Nancy Zion
Floyd Heflin
David Thomas

Ms. Brock called the meeting to order at 9:07 a.m. in the Operations Room of the Williamson County Emergency Management Agency. Mr. Pewitt made the motion to accept the 15 April 2009 minutes and Mrs. Zion second to approve. Motion carried.

Ms. Brock began the meeting stating the need to make additions to the Debris Management plan draft to include possible alternate groups that may be able to assist the landfill so that it is not over burdened with debris for instances similar to the severe weather from February 2009. This would also include the addition of possible pre-determined debris staging sites.

Mr. Pewitt mentioned that a debris management agreement between Maury County and Williamson County in Spring Hill be made to assist the waste management plan.

Possible solar back up for sirens at the baseball fields was discussed as well as repairing or replacing the flood gates. There was also discussion of how to improve the roads in certain areas of the county that flood. The necessity and status of the gates was question if the roads were improved. Flashing signs for high water were suggested. It was determined that a complete list of problem areas needed to be conducted.

Mr. Heflin appeared interested in possibly applying for a mitigation grant for channel widening, regional detention, or buy outs. Buy outs seemed to be the most likely option due to the lesser impact they have on the environment.

The next meeting was scheduled for 21 October 2009.

There being no further business, the meeting was adjourned at 9:38 a.m.

Respectfully submitted,

_____
Mike Thompson
Williamson County EMA Director

_____
Kate Brock
Williamson County EMA Planner

ROGERS ANDERSON
COUNTY MAYOR

MIKE THOMPSON
DIRECTOR

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HAZARD MITIGATION PLANNING TEAM MEETING

20 January 2010

PRESENT:

Kate Brock
Rodney Escobar
Floyd Heflin
John Pewitt
Wade Hooper
Mike Thompson
Shelby Brusich

Mr. Thompson called the meeting to order at 9:10 a.m. in the Operations Room of the Williamson County Emergency Management Agency. Mr. Pewitt made the motion to accept the 1 January 2010 minutes and Ms. Brock seconded. Motion carried.

Ms. Brock reminded the group that the mitigation plan is due for updating this year. She stated that any repetitive losses since the approval of the previous plan need to be included. She added that NFIP maps have changed since September 2006. Team members were requested to provide updates for any postponed or delayed projects, mitigation actions and any unique risks for their respective jurisdictions. These tasks must be completed by 30 June since the update is due 30 September 2010.

Mr. Thompson told team members that no planning grant has been received therefore no funds are available. He suggested the plan be distributed electronically due to lack of funds for printing. It was decided that meetings occur every month instead of quarterly; at least until plan update is completed.

Mr. Pewitt asked if any progress had been made on the debris management plan, specifically coordinating between Maury and Williamson Counties. Ms. Brock said it could possibly be developed simultaneously with the mitigation plan update.

Mr. Escobar reported that an RFP will be approved soon and a table top exercise will be conducted incorporating all sixteen city departments in disaster relief efforts.

Mr. Heflin discussed issues with the flood gauge at Del Rio Pike. The road is still in a flood plain, yet no funding is available for replacement. Mr. Thompson suggested the cities and the county work together on flood gauges with the potential of obtaining a mitigation grant for funding.

Mr. Thompson provided information on a FEMA training class offered in Memphis for the Rapid Visual Screening of Buildings for Potential Seismic Hazards.

There being no further business, the meeting adjourned at 9:55 a.m. with the next meeting scheduled for 17 February 2010.

Respectfully submitted,

Mike Thompson
Williamson County EMA Director

Kate Brock
Williamson County EMA Planner

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HAZARD MITIGATION PLANNING TEAM MEETING

22 April 2010

PRESENT:

William Andrews
Kate Brock
Donn Lovvorn
John Pewitt
Dave Thomas
Mike Thompson

Mr. Thompson called the meeting to order at 9:03 a.m. in the Operations Room of the Williamson County Emergency Management Agency. Mr. Thomas moved to accept the 20 January 2010 minutes with a correction to the meeting date, Mr. Andrews seconded. Motion carried.

Donn Lovvorn, Fairview Planning & Codes Director, was recognized as their new representative.

Ms. Brock reported plan revisions will be due in 2011, not 2010, because of an extension on the initial plan approval.

Mr. Thompson stated that the 2008 tornado disaster was closed out 6 April.

Debris Management Plan development was further discussed including who should be involved, what it should cover, pre-arranged contracts and MOUs.

Mr. Pewitt reported Spring Hill has received a new jet vacuum truck for sewer and storm water drains

Mr. Lovvorn stated Fairview is bidding a salt truck and snow plow with purchasing expected in July, and are developing a priority road list for snow and ice operations. Chipper service with will start 1 April 2010 through the season. They are also working on storm water grants and storm water/flood zone regulations.

Mr. Andrews said 2008 tornado debris clean-up got resource conservation grant, which started 22 Febuary and finished 10 April 2010. They are three other areas that may possible be cleaned with remaining funds. The work has been pleasing but they are still trying to keep limbs and debris out of waterways.

Mr. Thomas Dave Thomas gave an update on Lidar, including that TEMA said mitigation funds cannot be used for mapping, but this is actually photography.

Mr. Pewitt reported Allendale and Spring Station schools will be opening this fall and they would like warning sirens. Mike Thompson is working with Williamson County Schools on having warning sirens installed when new school facilities are built as part of the construction budget. The warning sirens that Spring Hill was looking at are no longer an option for the city and they would not be connected with the current warning sirens. Williamson EMA is pursuing contract for sirens and repairs since there has been over $10,000 in FY 2009-2010, with only $3,000 initially budgeted.

There being no further business, the meeting adjourned at 9:50 a.m. with the next meeting scheduled for 21 July 2010.

Respectfully submitted,

_____
Mike Thompson
Williamson County EMA Director

_____
Kate Brock
Williamson County EMA Planner

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HAZARD MITIGATION PLANNING TEAM MEETING

21 July 2010

PRESENT:

Greg Boll	Todd Petrowski
Kate Brock	Rich Richardson
Troy Buckley	David Thomas
Floyd Heflin	Mike Thompson
Brent Morse	

Mr. Thompson called the meeting to order at 0900 in the Operations Room of the Williamson County Emergency Management Agency. Ms. Brock moved to accept the 22 April 2010 minutes, Mr. Boll seconded. Motion carried.

Troy Buckley, was recognized as the Nolensville representative. Brent Morse, TEMA Area Coordinator, was also introduced.

Public Comments were opened and there were none.

Mr. Heflin reported on updating the flood warning equipment on Del Rio.

Plan Update: Ms. Brock distributed a revised crosswalk for the Multi-Hazard Mitigation Plan update. Mr. Morse indicated a planning grant may be available for the update. Mr. Heflin and Mr. Thompson discussed doing the update in-house of looking at a consultant. Mr. Heflin agreed to contact a consultant he has used and Mr. Morse said he would provide some other companies. Ms. Brock expressed concern about the time consumption for the grant process and selecting a consultant. She added that the revision needed to be complete by 1 July 2011 in order to get approvals from all the cities and the county.

Debris Management Plan: Nothing new to report due to work load from the May disaster.

May 2010 Flood: There was general discussion on the May flooding and severe weather and potential mitigation projects.

- Mr. Thompson said he would check with TEMA to see if language in the current plan will cover buyouts and other projects.
- Each jurisdiction gave a brief report on damages, buyouts and other potential mitigation measures.
- Mr. Thomas reported aerial photos were taken but it was 3 weeks after the event.
- Mr. Thompson reported a FEMA Public Assistance specialist would be at EMA on 21 July for consultation if needed. He added that the Disaster Recovery Center would transition to an SBA Disaster Loan Outreach Center in a couple of weeks. 2,600 Williamson Countians have registered with FEMA so far.
- EMA has accounted for 1,400 damaged structures. FEMA will not share there info so there is no way to cross check.

Flood Gauges: Mr. Thompson discussed river gauges, which should be an eligible project. It was discussed trying to expand on Franklin's system county-wide, but no Franklin representative was present for information. Mr. Petrowski said Brentwood would definitely be interested in participating in a county-wide system. Mr. Thompson said the Harpeth River Coalition was interested in placing mile markers on the river and he had spoken with them about doing stake gauges along with that. He added that he met

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with the National Weather Service and they could supply stake gauges at no cost. Mr. Richardson reminded the group we need to check on TDEC approval. Mr. Boll said the Highway Department could probably help with installation.

Ms. Brock asked the group to send her updated codes, zoning and storm water regulations.

There being no further business, the meeting adjourned at 9:50 a.m. with the next meeting scheduled for 21 July 2010.

Respectfully submitted,

_____
Mike Thompson
Williamson County EMA Director

_____
Kate Brock
Williamson County EMA Planner

ROGERS ANDERSON
COUNTY MAYOR

MIKE THOMPSON
DIRECTOR

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HAZARD MITIGATION PLANNING TEAM MEETING

20 October 2010

PRESENT:

Greg Boll
Kate Brock
Floyd Heflin
Donn Lovvorn
Brent Morse
John Pewitt
Dave Thomas

Ms. Brock called the meeting to order at 0904 in the Operations Room of the Williamson County Emergency Management Agency. Mr. Pewitt moved to accept the 21 July 2010 minutes, Mr. Thomas seconded. Motion carried.

Public Comments: Public Comments were opened and there were none.

Plan Update: Ms. Brock asked that members review current plan and provide updated and/or new statuses. Have met with two companies about contracting for update and may apply for Planning Grant.

General Discussion/Projects:

- Mr. Heflin reported the county has seven potential buyout properties and Brentwood has four. City of Franklin has also had a public meeting with interest in about twelve. Pre-certification for Community Rating System will be done be the end of the month for flood insurance, this should help get reduced rates on flood insurance. At Class 9 (5%) now but it may improve. Class 8 is the best possible with current Codes.
- Brent Morse with TEMA stated the plan expires April 2012, but FEMA needs a copy by September 2011 for six month review period, State needs it one month before that.
- Mr. Boll stated Stansell Electric has installed flood gauges, but they are not operational as of yet. He will check on the status.
- Mr. Heflin stated not many that had 50% or more in damage from the May 2010 flood requested building permits. They will know more at the public meeting on 9 November 2010.

There being no further business, the meeting adjourned at 9:25 a.m. with the next meeting scheduled for 17 November 2010.

Respectfully submitted,

_____
Mike Thompson
Williamson County EMA Director

_____
Kate Brock
Williamson County EMA Planner

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HAZARD MITIGATION PLANNING TEAM MEETING

11 November 2010

PRESENT:

Mike Thompson
Kate Brock
John Pewitt
Todd Spangler
Todd Petrowski
Mike Jenkins
Nancy Zion
William Andrews
Lori John

Mr. Thompson called the meeting to order at 0904 in the Operations Room of the Williamson County Emergency Management Agency. Mr. Pewitt moved to accept the 16 September 2010 minutes, Ms. Brock seconded. Motion carried.

Public Comments: Public Comments were opened and there were none.

Plan Update: Ms. Brock – eight projects approved?? Ms. Brock stated that grants or funding given for mitigation issues fall under natural hazard. Ms. Brock said that she is adding floods and 2008 tornados into the list. New crosswalks. Ms. Brock asked members to look into last flood issue and associated debris management. Ms. Brock said that she had looked at several debris management standing plans and asked if anyone had any examples of plans they can send to EMA.Mr. Spangler stated that FEMA would rather have an approved vendor for debris management. He suggested annual approval for these vendors. Ms. Zion stated that she would love to have pre-approved vendors. Mr. Spangler said that each city would need their own contracts with these vendors. Mr. Thompson agreed and said that efforts could be coordinated. Mr. Spangler asked if FEMA would look at an overall contract differently. Mr. Thompson said that these plans are about ten to one hundred pages long and other counties plans need to be looked at. Mr. Spangler suggested the smaller the plan the better. Mr. Thompson said that work on the debris plan should be finished in July. Ms. Zion asked for the status of the mitigation plan. Ms. Brock said that the plan should be finished by May. Ms. Brock stated that crosswalks must be done to get FEMA approval. Ms. Zion asked how big the mitigation plan is. Ms. Brock brought her a copy of the plan. Ms. Zion asked to go to the next FEMA meeting.

General Discussion/Projects:

- Mr. Thompson asked about the flood gauges. Mr. Andrews said that they are installed, but still not operating properly.
- Mr. Andrews reported that seven properties were identified by Williamson County Engineering as substantially damaged and three asked to participate in the buyout. Mr. Andrews said that funds for the buyout will be requested at the January Commission meeting. Mr. Petrowski said that Brentwood has identified four properties as substantially damaged and he thinks three will participate in the buyout. Mr. Petrowski said one of the Brentwood property owners may choose to elevate their house instead. Mr. Petrowski stated that Brentwood is requiring each property owner to contribute $30,000 towards their buyout. He said that if the property owner has ICC insurance coverage they can get up to $30,000 from insurance. He said that Brentwood is asking property owners to sign over the value of their insurance and if the benefit is not $30,000, then Brentwood will deduct the difference from their buyout money. Mr. Andrews asked Mr. Petrowski what kind of appraisals Brentwood is using for the buyout properties. Mr. Petrowski said that the

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property owners in Brentwood had obtained current pre-flood appraisals and he was able to use these. Mr. Andrews stated that the county will have to get appraisals on county buyout properties.

- Mr. Andrews said that ideally TEMA applications should be in by the first part of February. Mr. Petrowski said that Brentwood will try to have theirs in by December 15th. Mr. Andrews said that the City of Franklin and Williamson County are just a little behind Brentwood and that they have a December 10 deadline.
- Mr. Thompson asked Ms. Zion to describe some projects that were denied by FEMA. Ms. Zion said that she had documentation from the state that the two Convience center buildings that were destroyed in the last flood would have to be raised. Ms. Zion stated that FEMA refused to pay $10,000 to raise the buildings, but would have paid $500,000 to relocate the center. She also stated that raising the buildings may have been approved by FEMA if approval from TEMA had been obtained prior to reconstruction. Ms. Zion also state that this time she put everything into Class one and charged Tipping fees. Ms. Zion said that FEMA asked her for a break down of expenses. Mr. Thompson said that if you have a flat rate to have documentation on how it was arrived at.
- Mr. Spangler stated that FEMA paid for Brentwood to fix ditches on an easement in Brentwood, because Brentwood had documentation of prior maintenance on the ditches. He suggested using a work order to document this kind of maintenance.
- Mr. Pewitt asked about the census. Mr. Thompson said the data should be in in the next few weeks.
- Ms. Zion suggested free courses available on the FEMA web site. She stated that it is important to learn and understand the FEMA terminology. Mr. Thompson suggested the FEMA courses on public assistance and debris management.
- Mr. Thompson suggested a work session of one hour on debris management for the next meeting.

There being no further business, the meeting adjourned at 9:45 a.m. with the next meeting scheduled for 15 December 2010.

Respectfully submitted,

_____
Mike Thompson
Williamson County EMA Director

_____
Kate Brock
Williamson County EMA Planner

ROGERS ANDERSON
COUNTY MAYOR

MIKE THOMPSON
DIRECTOR

WILLIAMSON COUNTY
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HAZARD MITIGATION PLANNING TEAM MEETING

19 January 2011

PRESENT:

Mike Thompson	Floyd Heflin
Kate Brock	Joe Horne
John Pewitt	Dave Thomas
Todd Spangler	David Parker
Todd Petrowski	Eric Gardner
Sue Ferguson	Nancy Zion
Brantlley Thames	Rodney Escobar
Porter Williams	James La Rosa
Tom Herbert	Lori John
Tom Marsh	

Mr. Thompson called the meeting to order at 0906 in the Operations Room of the Williamson County Emergency Management Agency. Mr. Pewitt moved to accept the 17 November 2010 minutes, Mr. Thomas seconded. Motion carried.

Public Comments: Public Comments were opened and there were none.

US Army Corps of Engineers Funding Opportunity: Mr. Thompson announced that he would be turning the meeting over to Mr. Heflin. Mr. Heflin introduced Ms. Ferguson with the US Army Corps of Engineers, Nashville District and gave her the floor for a presentation. Ms. Ferguson introduced her colleagues, Mr. Brantlely Thames (Hydraulic Engineer, USAC), Mr. Porter Williams (Planner, USAC) and Mr. Tom Herbert (Planner, USAC). Ms. Ferguson gave a Power Point presentation titled "Post Flood Investigations Initial Briefing". **Slide two** was titled "Post Flood Investigations Supplemental Appropriations Act of 2010" and listed six post flood investigations, 1. Post Flood Documentation Report, 2. Update of Flood Profiles,3. Flood Warning & Emergency Evacuation Plans, 4. Emergency Action Plans,5.Cumberland River Recon Study and 6.Harpeth River Recon Study. **Slide three** was titled "Post Flood Documentation Report", and listed nine areas to document, 1. Collect high water marks, 2. Gather and evaluate detailed damage data, 3. Develop rainfall summary/curves, 4. Construct flood profiles on the Cumberland and tribs, 5. Revise reservoir profiles, 6. Gage/stage discharge summary for Cumberland and tribs, 7.GIS inundation layers, 8. Develop flood damage modeling and 9.Facility interviews. **Slide four** listed the Cumberland and Harpeth River Reconnaissance Reports, 1. Define Problems and Opportunities, 2. Evaluate Measures to Reduce Flood Risk, 3. One Alternative Must Be Economically Justified, 5. Identify Potential Non-federal Sponsor That is Willing to Cost Share, 6. Develop Scope of Work for a Feasibility Study, 7.100% Federally Funded, and 8.Completed within 12-18 months. **Slide five** was titled "Update Flood Profiles" listed six areas of concern, 1. Rainfall model (HEC-HMS) developed and calibrated for range of historical events, 2. Hydraulic Model Developed and calibrate for a range of events including May 2010, 3. Cumberland and Harpeth already selected for updating, 4. Metro Nashville has already funded all or part of 6 streams under another program, 5. Harpeth and Cumberland River outside Metro and portions of the Duck River are included in this funding and 6. Level of detail and number of tributaries not yet determined. **Slide six** titled "Flood Warning And Emergency Evacuation Plan (FWEEP) had six elements, 1. Ties Rainfall Amounts or Forecasted River Elevations to Inundated Areas, 2. Includes Timing and Depth Information,3.Allows Advance Preparation,4. Can be simple reports or GIS layers,5.Static action levels or tools to simulate watershed response to rainfall and 6. Can be

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tailored to individual community needs. **Slide seven** titled "Emergency Management Plans" had four areas of concern, 1. Brings Mapping, Modeling and FWEEP Tools together,2. Clear and Concise Response Plan,3.May Include Community Notifications and 4.Non-emergency Communication Goals and Objectives. **Slide eight** discussed Nashville Flood Preparedness and Draft Inundation Products. **Slide nine** was a chart of "Cumberland River Profiles May 2010 Flood Event Model Simulation". **Slide ten** illustrated the May 2010 Flood Inundation for Downtown Nashville and Pennington Bend/Opryland with flood elevations from The Nashville Gage. **Slide eleven** was a chart titled "Cumberland River Stages Referenced from the Nashville Gage (Datum 368.1) Based on May 2010 Profiles, Depicts corresponding stages at other locations for referenced stages at the Nashville Gage, including Harpeth Valley UD, D/S Metro Cen, U/S Metro Cen, Titans Stadium, Nashville Gage, Omohundro, D/S Oprymills, Briley@pennington, U/S Lock Two Road,K.R. Harrington, OHP Tallwater. **Slide twelve** was titled "Nashville Flood Preparedness Draft Inundation Products" and included stream gauge locations and Five Flood Alert Categories, 1. No Action,2.Action,3.Flood Stage,4.Moderate Stage and 5. Major Stage. **Slide thirteen** was titled "Flood Warning, Mobilization and Evacuation" and contained a May 01.2010 Flood Event Simutation. **Slide fourteen** was titled "Nashville Flood Preparedness Draft Inundation Products" and listed the amounts of rainfall from Levels 1 through five on Mill and Richland Creek Tributaries. **Slide fifteen** was titled "Watershed Simulator" and discussed how The Simulator could be used in combination with NWS forcast and USGS gage data to make informed decisions. **Slide sixteen** depicted two day Total Observed Precipitation in inches from the May 2010 flood of Nashville and surrounding areas. Slide **seventeen** depicted The Harpeth River Watershed and listed three areas of work,1. Hydrology Being Updated,2. Watershed being flown by USGS and Metro,3.Main stem Being Updated From Davidson County Line Downstream. **Slide eighteen** was of the Duck River. **Slide nineteen** listed Stream Selection Criteria for studies, 1. Population at Risk,2.Loss of Life,3.Damages as a percent of population and income,4. Major disruption to traffic corridors,5.Flood insurance participation,6. Ability to use and maintain products,7. Financial ability,8.Does the stream impact adjacent communities? and 9. Can one product be used in multiple places?. **Slide twenty** listed "General Data Needs" for the project,1. Any existing hydrologic/hydraulic modeling,2.May 2010 Flood Information,e.g. GIS layers, damage information, HW Marks, etc.,3. GIS Information, Base Data-transportation layers, damage information, parcel information, structure information, first floor elevations, etc., Topographic Data-elevation contours, Elevation Grids/TINs, etc., and the contact information for USACE GIS POC: Bobby Sells - bobby.s.sells@usace.army.mil – 615-736-5632 and USACH H&H POC: Brantley Thames-brantley.a.thames@usace.army.mil-615-736-7745

General Discussion/Projects:

- Ms. Ferguson asked everyone to come up with a list of needs.
- Mr. Petrowski stated that Brentwood needs modeling of The Little Harpeth. He said that there is an area of Brentwood toward the Davidson County line that used to be included in the FEMA designated Flood Plain, that flooded during the May flood. He said that this area had extensive flood damage to homes.
- Mr. Gardner stated that The City of Franklin has modeled all of their streams using SWIM. Most of these models are between four and eight years old. He also said that some updates have been done. Ms. Ferguson asked about data sharing. Mr. Gardner stated that The City of Franklin have their own rain gauges, because it is cheaper that using the USGS.
- Mr. La Rosa (Service Hydrologist, NWS) said that while cost sharing with USGS can be expensive, USGS will do all the maintenance of the gauges as well as the flow measurements and compile all the data. He also stated that automated rain gauges cost $4000 and these can double as a weather station. Mr. La Rosa said that a hybrid system that has both, monitoring and automated components may be what is needed.
- Mr. Thompson suggested that all efforts be coordinated with the Nashville office of The National Weather Service.
- Ms. Ferguson asked for a list of existing models that could be shared and a list of areas that need to be modeled.

- Mr. Heflin asked that every jurisdiction respond with existing studies they can share, additional rain gauges needed as well as any needed studies.
- Mr. Heflin asked if there are anyone needs modeling or monitoring of the Duck River. Mr. Pewitt stated that the Duck River does affect Springhill. Mr. Pewitt also stated that the water intake might be a great place for a gauge, but he doesn't know where to start.

There being no further business, the meeting adjourned at 10:00 a.m. with the next meeting scheduled for 16 February 2011.

Respectfully submitted,

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Mike Thompson
Williamson County EMA Director

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Kate Brock
Williamson County EMA Planner

ROGERS ANDERSON
COUNTY MAYOR

BILL JORGENSEN
INTERIM DIRECTOR

WILLIAMSON COUNTY
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HAZARD MITIGATION PLANNING TEAM MEETING

16 March 2011

PRESENT:

Bill Jorgensen
Kate Brock
John Pewitt
Greg Boll
Todd Petrowski
Nancy Zion
Floyd Heflin
Dave Thomas
Troy Buckley
Don Swartz
Todd Spangler
Lori John

Mr. Jorgensen called the meeting to order at 9:00 a.m. in the Operations Room of the Williamson County Emergency Management Agency. Mr. Pewitt moved to accept the 19 January 2011 minutes, Mr. Buckley seconded. Motion carried.

Public Comments: Public Comments were opened and there were none.

Mitigation Plan Update: Mr. Jorgensen said that he had looked at the mitigation plan and grants that needed to be turned in and then he turned the floor over to Ms. Brock. Ms. Brock stated that the focus of the mitigation plans are on natural hazards only, not man made hazards. Ms. Brock told everyone that they would be responsible to update their own mitigation plans. Ms. Brock said there need to be two project sections per jurisdiction. Ms. Brock also stated that there need to be two items per section, two past, two present and two futures. Mr. Boll said that the Williamson County Zoning Ordinance has changed and offered to provide a copy. Mr. Jorgensen asked if wording could be put into the various plans that read "Funding Pending". Ms. Brock stated that the plan is valid for five years. Ms. Brock also suggested that everyone look at past plans to see how they are broken down. Ms. Brock asked if everyone still had a copy of the crosswalks. Mr. Pewitt asked for another copy. Ms. Brock stated that there is not a lot left to do on the NFIP plan. Mr. Jorgensen asked Ms. Brock when she needs the updated plans back from everyone. Ms. Brock said that the plans need to be back between the middle of June to the end of June. Ms. Brock asked Mr. Swartz if Nolensville is NFIP compliant. Mr. Swartz said that Nolensville is NFIP compliant now. Ms. Brock stated that having established mitigation plans in the county and other jurisdictions will open the door to more grant funding.

General Discussion/Projects:

- Mr. Jorgensen said that he is the Interim Director of the Emergency Management Agency. Then Mr. Jorgensen announced that the EMA Director Position would be posted in the next two weeks.
- Mr. Pewitt asked about the status of the Debris Mitigation Plan. Ms. Brock stated that she would like to have a plan. Mr. Jorgensen asked if there was a Debris Mitigation Plan committee. Ms. Brock stated that the members had not been appointed yet. Ms. Brock asked that everyone

PHONE: 615-790-5752 EMAIL: EMA@WILLIAMSON-TN.ORG FAX: 615-790-5490

considering serving on this committee look at other Debris Mitigation plans, such as the one for Florida.

- Mr. Jorgensen asked about scheduling a meeting for the Debris Management committee. Mr. Pewitt suggested that the Debris Management committee meeting be added to the next Hazmit meeting on April 20, 2011. Mr. Jorgensen stated that some sample debris movement plans would be sent out.

- Mr. Pewitt stated that the aldermen in Springhill wanted to know about a contract for early warning sirens. Mr. Jorgensen said that there are plans to place mechanical sirens in Springhill that will spin and cover a 5800 foot area. Mr. Jorgensen also said that Allendale has a mechanical siren and that Heritage school is being considered for a mechanical siren. Mr. Jorgensen said that this should cover Springhill.

- Mr. Pewitt asked for a warning siren coverage map of Springhill. Mr. Jorgensen stated that the residents of Springhill should be advised that the warning sirens alarm for things other than weather warnings.

There being no further business, the meeting adjourned at 9:26 a.m. with the next meeting scheduled for 20 April 2011.

Respectfully submitted,

_____
Bill Jorgensen
Williamson County EMA Interim Director

_____
Kate Brock
Williamson County EMA Planner

Appendix D
Public Input

A. Hillsboro Acres Residents
    1. Howell Drive
        a. 1145 Howell Dr.
        Franklin, TN 37069
        Homeowner: Chalfant, Kim
            - Lot #13
            - NFIP member 16 Aug 1993
            - Community Panel # 470204 0045 D, Zone AE of the 100-year floodplain
            - Complaints of reoccurring flooding to named lot with monetary damages.
            - On file with reoccurring losses through Williamson County and FEMA NFIP.
            - Last known documentation of "Proof of Loss" filed with NFIP: 5 May 2003.
            - Letter Received: 10 Nov 2004: "Mike, You may not remember me but we met a few times years ago while I was working at the Review Appeal. I hope all is well with you. I'm writing you with concern for my property on Howell Dr. in Hillsboro Acres. When I bought the home 12 years ago, I was told that the water from the creek behind the house had never flooded high enough to get inside the house. The following are some stories of the human side of living in a flood zone, not just the numbers (see attached

dollar amounts realized). A month to the day after moving in, there was muddy, vile smelling water inside my home and my car. I remember two neighbors came knocking on my door asking if they could help and said 'Welcome to the neighborhood!' their homes were flooding as well but they knew that I was unprepared and helped me move the heavy items. After the water began to recede, my father tried to drive down the street to help me and bring my five year old daughter home. He was afraid to carry her through the water because the current was so strong all around the house. She told him that her mommy and her hose would be ok if God said He would never flood the earth again! Our dog was on top of her doghouse floating on the water and the neighbor rescued our kitten as it swam by his front door. The metal shed and all its contents were gone the next day along with our 12 ft pool. We did the clean-up ourselves to save the deductible and not have to go on record that the house flooded, knowing that would greatly hurt the resale value of the home. My husband got very involved with you can see in the papers attached. I don't have a copy of the article written in the newspaper and he had the local TV News station out to the house as well. Now I'm a single mother of 2 and every time it rains hard, I'm sand bagging the back door, moving my car up the street to higher ground and securing all our outdoor belongings usually with thunder and lightening crashing around me. I had a 200 ft, chain link fence that was a barricade for all the floating debris. Many times it was knocked down by downed trees. I had just spent $ 400.00 repairing and having it dug 6 inches into the ground for more support when we had another devastating flood. It was so badly damages, I paid to have the whole thing taken down which also hurts the value of my home. In May of 2003, a tornado threatened our side or town and the kids and I were up at 01:00 am and in the bathroom. By 01:30 am it had passed over, it wasn't raining so we all went to bed. At 02:00 am I woke up to what sounded like wind only much steadier. I my half awake state I realized it was water! My home was once again a boat on a river. There was 6 inches of standing water in my remodeled garage (and that was after it had started receding) and I had lost everything. Quite a few

neighbors started calling around 02:30 am to see if I was awake and needed help but it was too late. We had all slept through it. I found two boxes of family photos and spent the rest of the morning separating wet photos and laying them across a dry carpet managing to salvage most of them. My car was flooded with only liability coverage and we had to live with my parents for weeks because the home smelled incredibly bad. The grief, the cost of repair and replacement, the sleepless nights, missed work hours and lost possessions, it all takes a tremendous toll on me. I can't afford to move and still live in the same lifestyle we know now in Williamson County, so I'm stuck here. So Mike, I said all that to say this – can't something be done about the flooding and soon? Sincerely, Kim (Chalfant) Shaver".

b. 1133 Howell Dr.
Franklin, TN 37069
Homeowner(s): Benzon, Eddie and Shirley
    - Lot #10
    - Letter Date 20 Oct 2004: " Dear Mr. Thompson (WCEMA Director),
    I would like to address a problem we are having at our home. We have lived here on Howell Dr. for the past 7 years. In that time we have had our home flooded four (4) times. We have had close to $20,000.00 in insurance claims. Our neighbors have also had the same troubles. It used to be the water but now it comes right down Howell Dr. My wife is on a ventilator and totally paralyzed. We are both in out '70s and on Social Security. We cannot afford all those repairs and the danger of water in our home. I think its time that something was done to help us. There are at least 12 other homes in the same shape. Your help would be very much appreciated.
    Eddie & Shirley Benzon
    1133 Howell Dr.
    Franklin, Tenn 37069
    615-599-4131".

c. 1105 Howell Dr.
Franklin, TN 37069

Homeowner(s): Benzon, Greg and Jeannie

- Lot # 3
- Letter Date 19 Nov 2004: "Mr. Thompson, My name is Greg Benzon and my family and I live at 1105 Howell Dr. here in Franklin. I understand that there is a possibility of changing the flow of one of the two creeks in our neighborhood. We have been flooded in the past. Our last flood caused over $10,000.00 in damages. The water comes mainly from Legend's Ridge area. Anything that you could do to solve this problem would be so very much appreciated. Thank you Very Much!

  Sincerely,
  Greg Benzon".
  615-794-3847

d. 1149 Howell Dr.
   Franklin, TN 37069
   Homeowner(s): Chaney, Dave

   - Lot # 14
   - E-mail Date: 10 Jan 2005: "Mike, To give you another example of how rampant the flooding problem is in Hillsboro Acres, we flooded again on Friday night, (7 Jan 2005). I believe the meteorologists reported 1-2" in a 24-hour period, which was enough to surround our home again with sewage filled storm water. Fortunately it rained slow and steady enough and we were able to prepare and keep it out of our home (except the crawl space). I tried to get photos for you but, as you know, such disasters seem to happen only at night, and the shots came out too dark. Please let me know if I can help further, and I look forward to progress on the Hazard Mitigation Plan.

     Dave Chaney
     1149 Howell Dr.
     Franklin, TN 37069
     615-351-5010".

e. 1109 Howell Drive
   Franklin, TN 37069
   Homeowner(s): Boswell, Beth

- Lot # 4
- E-Mail Received: 4 Feb 2005: "Dear Mr. Thompson, I am a resident of Williamson County in Hillsboro Acres subdivision off Hillsboro Road. I have lived in my house for 16 years. My house is the second house on the right from Hillsboro Road on Howell. The Lynwood Branch Creek is in my backyard. In the sixteen years that I have been living there, flooding has occurred at least five times that I can remember. The water has never gotten in my house, but it has flooded inside my toolshed in the backyard, and it has washed away some of my landscaping. It has also entered the garage about five feet. Last year, we had heavy rain, and my next-door neighbor's home was flooded. I could see their car I the driveway, and the water rose to the tops of the tires. Their shed in the back yard was washed down to the lower protion of their yard, and they had to replace it. It completely took out their fence. I have never had to file an insurance claim for flooding. I have never voiced my concern about the flooding except to my neighbors. I am a singe mom, and the water frightens me when it begins to rise. I am fairly helpless when the creek comes over the banks. I would love to know that someone was researching the possibility of correcting this situation in some way. Please do what you can in order to alleviate the threat of flooding in our neighborhood.

  Thank You,
  Beth Boswell
  Hillsboro Acres Resident
  Williamson County Teacher
  615-190-6448".

2. Chapel Court
    a. 1021 Chapel Court
       Franklin, TN 37069
       Homeowner(s): Short, Alex
        - Lot # 26
        - E-mail Received: 8 Feb 2005, "Mr. Thompson, I understand Williamson County is preparing a Hazard Mitigation Plan to address flooding in the county, among other natural disasters. I live in the Hillsboro Acres subdivision and my home at 1021

Chapel Court back up to the Lynnwood Branch Creek. Several times each year this creek rises outside its banks. I am fortunate in that my home sits higher than some of my neighboring homes; however, the water still gets uncomfortably close. The house next door has had water in the crawl space and they have filed insurance claims for flooding. That house has been vacant for quite a while (6 months or so) and has changed hands several times in the 7 years I've been here. I am writing to request that you consider this area of the county in the plan you are working on. If there is something that can be done to reduce the risk of flooding in this area, that would be greatly appreciated. Please feel free to contact me if you have any questions.

Sincerely,
Alex Short
1021 Chapel Court
Franklin, TN 37069
ashort@streamtechnologies.com
615-498-5800".

3. Berrys Chapel Court
    a. 1935 Berrys Chapel Court
    Franklin, TN 37069
    Homeowner(s): Waters, Michael and Trudy
        - Lot # 15
        - E-mail Received: 9 Feb 2005, " Mr. Williamson, I write at the suggestion of Dave and Hope Chaney regarding the development of a Hazard Mitigation Plan to address flooding and other natural disasters in our area. Please allow me to share some specific information about my family's experience with flooding. My wife and I (along with our two sons) live at 1935 Berrys Chapel Court (formerly Berrys Chapel Road). Our home, which we purchased in April of 1996, sits at the corner of Berrys Chapel Court and Howell Drive. We are next door neighbors to the Chaneys. When we purchased our home, we were not required to purchase flood insurance as we were told we were the only house in the Hillsboro Acres subdivision which was NOT in the 100-year flood plain. Obviously, we were delighted to know that 1) we weren't in the flood plain, and therefore, 2) we should not have to worry about the possibility of flooding, and 3) we did not

have to purchase flood insurance. Our first experience with flooding in the neighborhood came just two months after we moved in. On Memorial Day, 1996, we came home from an afternoon event (it had been storming all day long) to see (what is now) the Chaney's yard completely flooded with water flowing around their house like a river and water in their garage. Fortunately for us, the water never entered our yard (it stopped at the line between our properties which sits on a slight incline going up on our side). For several years, that became the normal experience we witnessed after lots of rain over a several day period, or a flash flood situation with massive amounts of rain in a short period. Several homes behind us bearing the brunt of the damage while we escaped. That all changed in May of 2003. We had experienced several days of violent spring weather and the creek was fairly fully of water. I awoke one evening in the middle of the night and looked out the back window to see if the water was up (from the creek behind the Chaney's house). I was quite surprised to the water all across the back of my yard, circling my shed (which sits on a concrete slab). It had invaded about 25 feet of my yard and was still moving toward my house. Within another 15 minutes, the water was lapping at my back door. Thankfully, I had an extra supply of sand bags on hand (sand box for the boys!) and was able to get those around the entryway. Amazingly, the water did not rise any higher. However my garbage can and a number of toys were carried out of our yard and deposited in the yards of several neighbors. In addition, the water rose to a height of about 18 inches in my shed and submerged my lawn mower, weedeater and numerous other lawn, garden, and sports equipment. Most items were salvaged at the cost of about $100 dollars and lots of time on my part. There was no need for me to file an insurance claim. Since that time, the water has not some up that far in the yard again. It does enter our yard on occasion (again, something that did not happen until recently), but it has not some close to our home. Needless to say, I have restless nights when the weather forecast calls for lots of rain. I usually end up without much sleep as I constantly try to monitor the creek. My wife

and I are convinced that the change in the flooding situation (eater now entering into our year with heavy rains) are due to development activity that took place across the road in Legends Ridge subdivision. The former developer cleared a number of hillsides in the back upper sections of that development several years ago as part of his plans to sell more home lots and build a golf course. Hillsides were cleared of grass, brush and small trees (an act for which he was reprimanded by the county if memory serves me correctly). We believe that the holding ponds in Legends Ridge do not adequately address the problem, if indeed they were designed to handle the additional runoff created by the developers actions. This is probably more information than you want or need, but I decided to send it all. Please feel free to contact us if you have any questions about our experience with flooding. We appreciate any help you can render.

Sincerely,
Michael Waters
1935 Berrys Chapel Court
Franklin, TN 37069
794-0193".

B. Meadowgreen Subdivision
    1. Meadowgreen Drive
        a. 212 Meadowgreen Drive
        Franklin, TN 37069
        Homeowners: Brown, Dudley and Kin
            - Lot # 31
            - Letter Date: 16 March 2005: "To Whom it May Concern: RE: Losses Due to Flood Damage, I am writing in regard to the flooding problem that we have along Lynnwood Creek. It is getting increasingly worse and as homeowners, we have all become more and more concerned about the problem and the damage that it has done to our homes in the past. We definitely seed to fid a solution that will control the flooding. The banks of the creek are deteriorating so the creek gets closer and closer to our homes when it rains. I am enclosing copies of insurance claims for the damage

that was done to our home in May of 2003. I hope that we can get some help as soon as possible.

Sincerely,
Kim and Dudley Brown
212 Meadowgreen Drive
Franklin, TN 37069".

SERVPRO®
OF WILLIAMSON CO. OF MAURY/GILES CO. • 1209 Lakeview Drive • Franklin, TN 37067
FRANKLIN: (615) 790-9634 • COLUMBIA: (931) 388-4248 • BRENTWOOD: (615) 370-4597
Professional Cleaning & Disaster Restoration Services

July 15, 2003

Dudley & Kimberly Brown
212 Meadowgreen Drive
Franklin TN 37069

Dear Mr. & Mrs. Brown:

Enclosed you will a find a invoice in the amount of $ 3174.98 the balance due for services performed at your home during your water/mold damage.

This invoice has been forwarded on to your insurance company for payment. Be sure to forward any payment due Servpro of Williamson County within 5 days of receipt. Please note that any amount not paid by your insurance will be billed to you, per our signed authorization with you.

If you have any questions please be sure to give the office a call at 615-790-9634.

Sincerely,

Jennifer L. Echols

Jennifer Echols
Accounts Receivable

Proposal

Versatile Home Solutions
% Brian K. Hunter
2600 Hillsboro Rd. J-1
Nashville, Tn. 37212

485-7119

Proposal Submitted To: Dudley & Kim Brown	Job Name	Job #
Address 212 Meadowgreen Dr.	Job Location	
Franklin, Tn. 37064	Date 11-12-03	Date of Plans
Phone # 591-5748	Fax #	Architect

~~We hereby submit specifications and estimates for:~~

Estimate For Job

1. Corner wall by steps - repair rotten sill in wall (corner)
2. Seal Block foundation in room
3. Cut out, Replace 12" of walls (Bottom) entire room and Finish
4. Re-Hang baseboards in room
5. Re-paint ceilings - walls & trim work

total labor cost - $834.25

6. Install insulation (~~R-30~~ R-19) under House 27x46 / Labor cost $.~~65~~ SQFT. $807.50

* Estimate for Labor only. materials extra

~~We propose hereby to furnish material and labor — complete in accordance with the above specifications for the sum of:~~

$ _____ Dollars

with payments to be made as follows: Thank you

Any alteration or deviation from above specifications involving extra costs will be executed only upon written order, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents, or delays beyond our control.

Respectfully submitted [signature]

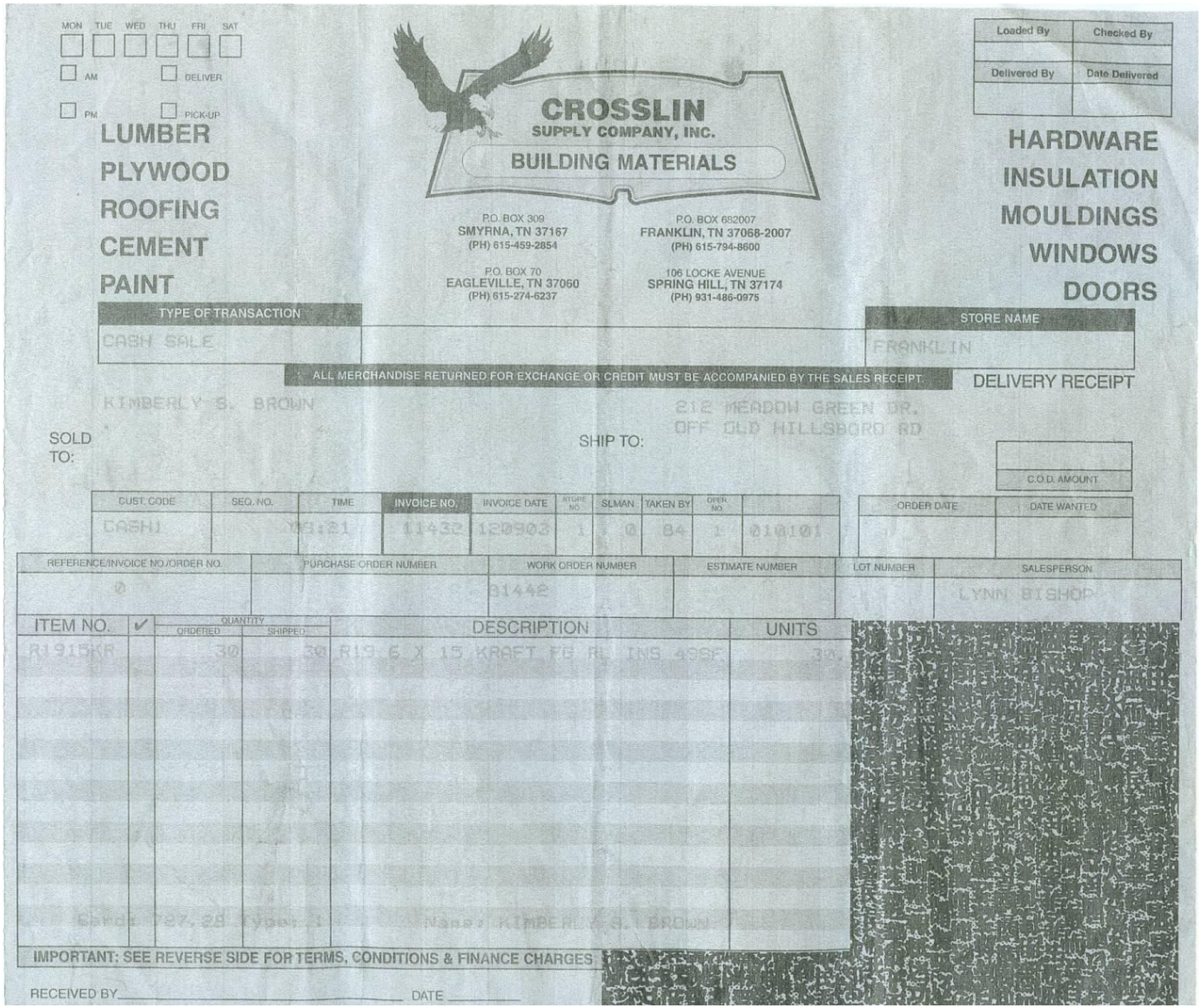
Note — this proposal may be withdrawn by us if not accepted within _____ days.

Acceptance of Proposal

The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payments will be made as outlined above.

Signature _____

Date of Acceptance _____ Signature _____



MON TUE WED THU FRI SAT

AM DELIVER

PM PICK-UP

LUMBER
PLYWOOD
ROOFING
CEMENT
PAINT

CROSSLIN
SUPPLY COMPANY, INC.
BUILDING MATERIALS

P.O. BOX 309
SMYRNA, TN 37167
(PH) 615-459-2854

P.O. BOX 682007
FRANKLIN, TN 37068-2007
(PH) 615-794-8600

P.O. BOX 70
EAGLEVILLE, TN 37060
(PH) 615-274-6237

106 LOCKE AVENUE
SPRING HILL, TN 37174
(PH) 931-486-0975

Loaded By	Checked By
Delivered By	**Date Delivered**

HARDWARE
INSULATION
MOULDINGS
WINDOWS
DOORS

TYPE OF TRANSACTION	STORE NAME
CASH SALE	FRANKLIN

ALL MERCHANDISE RETURNED FOR EXCHANGE OR CREDIT MUST BE ACCOMPANIED BY THE SALES RECEIPT.

DELIVERY RECEIPT

SOLD TO: KIMBERLY S. BROWN

SHIP TO: 212 MEADOW GREEN DR.
OFF OLD HILLSBORO RD

C.O.D. AMOUNT

CUST. CODE	SEQ. NO.	TIME	INVOICE NO.	INVOICE DATE	STORE NO.	SLMAN	TAKEN BY	ORDER NO.		ORDER DATE	DATE WANTED
CASHJ		01:21	11432	120903	1	0	84	1	010101		

REFERENCE/INVOICE NO./ORDER NO.	PURCHASE ORDER NUMBER	WORK ORDER NUMBER	ESTIMATE NUMBER	LOT NUMBER	SALESPERSON
0		81442			LYNN BISHOP

ITEM NO.	✓	QUANTITY ORDERED	QUANTITY SHIPPED	DESCRIPTION	UNITS
R1915KR		30	30	R19 6 X 15 KRAFT FG RL INS 40SF	30.

Cards 127,28 Type: 1 Name: KIMBERLY S. BROWN

IMPORTANT: SEE REVERSE SIDE FOR TERMS, CONDITIONS & FINANCE CHARGES

RECEIVED BY _____ DATE _____

b. 216 Meadowgreen Drive
Franklin, TN 37069
Homeowner(s): Moore, Rosemary

- Lot # 32
- Letter Date: 21 January 2005: "To whom it may concern: RE: Losses due to flood damage. Please find enclosed copy of statement from State Farm with an estimated cost of inside damage to my house. Please understand that I had flood insurance only on the house and a high deductible of $5000. I did not ask her to go under my house and assess the damage because I felt it would probably not surpass my deductible. I did not have any coverage on my personal contents. I had 17" of water in my lower level and it damaged my washer and dryer, base board electrical heaters, an antique radio, sewing machine cabinet, contents of two filing cabinets, antique desk, 2 chests, table and two chairs, 2 occasional chairs, two dressers, and several pictures, cedar chest and contents. A lot of this was merchandise that I had purchased as an investment to resale. In my storage building, all contents were water damaged. It destroyed two lawn mowers. On the outside I had damage to my yard which I had just recently landscaped. On my screened in porch, I had damage to a wooden table and chairs, and all contents that was stored in a work bench storage area. In addition to the above, my 1996 Cadillac Eldorado had water damage and I began to have problems with it, and State Farm totaled the care and paid me $14,000. On three different occasions in 2 ½ years, my house has been completely surrounded by water. It looked like I was in the middle of a lake. I do not have any illusions that it is going to get better. It is only going to get worse. Right now, most of the trees that were growing along the banks have been destroyed. If something isn't done and right away, we are going to have a real disaster. I am 63 years old and will have to sell this house when I retire at 65 because I cannot afford the payment. Unless something is done to correct this situation, at this point my house is unsellable. I would appreciate your looking into this problem and coming up with some kind of solution to this dilemma. I do not feel it is something that

can be a long term solution. Something needs to be done now. Thank you very much. Rosemary Moore".

c. 220 Meadowgreen Drive
Franklin, TN 37069
Homeowner(s): Kendall, Meredith and Rob

- Lot # 33
- Letter Received: 11 Feb 2005, "To Whom It May Concern, We purchased this property in 2000 prior to that we lived her for 2 years renting. The water never came out of the banks even when downtown Franklin had flooded and the river reached flood stage. We felt that the improvements that were made, fixed the problem. Those improvements were Legends Ridge reservoir and Lynwood Downs, also they fixed Cotton Lane, with all these changes we felt somewhat secure to leave when it started to rain. Now… it is a different story. Since Hillsboro Rd has been widened to the equivalent of 7 lanes and Lynwood Way has been opened we can almost be guaranteed a sleepless night or a change of plans when it rains. Our backyard is eroding with every rain and the fear that overcomes when you see the current raging in your backyard is more than I care to handle. But I can't sell my home because it is unsellable in its current state of flooding. We have only had one claim and it was the worst nightmare of my life. We lost heirlooms, brand new items and a brand new renovation. The insurance claim may look large, but my credit cards are maxed because the insurance company only paid the depreciated value… even on drywall, paint and new flooring that was not even 6 months old. We could not get anyone to help us for the price that was given to us, so we had to do the work ourselves. This flooding issue has got to be resolved and quickly, these homes should have been bought out ages ago before property values when skyrocketing, but they weren't and I don't feel that I need to have this added fear in my life just so the conveniences of roads and growth can continue in Williamson County. I know that no one wants to take the blame, and that I am just a homeowner but I did not ask for these roads to be built and should not have to live with the States or the Counties consequences. I

would ask that something be done quickly as the situation is continuing to get worse. I am at least younger and can try to stop the water from coming into my home, but the neighbors on either side of me are older and can not stop the water from entering into their homes.

Meredith A. Kendall".

INSURED	: ROBERT KENDALL	DATE OF REPORT	: 05/31/2003
LOCATION	: 220 MEADOWGREEN DR	DATE OF LOSS	: 05/04/2003
	: FRANKLIN, TN 37069	POLICY NUMBER	: 99 01383195 2003
COMPANY	: RGA, INC.	CLAIM NUMBER	: BM10003
	: 31211 220th	OUR FILE NUMBER	: BM10003
	: McGregor, MN 55760	ADJUSTER NAME	: ROBERT MOSER

INVENTORY TOTALS

INVENTORY SUMMARY ITEMS	RCV	DEP	ACV
Inventory Item Totals	**$26,663.64**	**$11,047.36**	**$15,616.28**
Gross Contents Loss	$26,663.64	$11,047.36	$15,616.28
Less Salvage	($221.30)		($221.30)
Less Deductible/Participation	($500.00)		($500.00)
INVENTORY FINAL TOTALS	**$25,942.34**	**$11,047.36**	**$14,894.98**

*** *This is an estimate of recorded damages and is subject to review and final approval by the insurance carrier.* ***

SIMSOL

FEDERAL EMERGENCY MANAGEMENT AGENCY

THE NFIP REQUIRES THAT A PRELIMINARY REPORT BE RECEIVED WITHIN 15 DAYS OF ASSIGNMENT, AND AN INTERIM OR FINAL REPORT NOT LATER THAN EVERY 30 DAYS THEREAFTER.

NATIONAL FLOOD INSURANCE PROGRAM FINAL REPORT

INSURED: ROBERT KENDALL — POLICY NUMBER: 99 01383195 2003

PROPERTY ADDRESS: 220 MEADOWGREEN DR, FRANKLIN, TN 37069 — DATE OF LOSS: 05/04/2003

ADJUSTING COMPANY: RGA, INC. — ADJ. FILE NO.: BM10003

PREMISES HISTORY

Date risk was originally constructed: 06/01/1969 — Insured at premises: 02/01/1999

Date of Alteration	Brief Description of Alteration	Market Value	Cost of Alteration	Type of Alteration	*Substantial Improvement
NONE				[ ] Repair [ ] Recon [ ] Improve	[ ] Yes [ ] N
				[ ] Repair [ ] Recon [ ] Improve	[ ] Yes [ ] N
				[ ] Repair [ ] Recon [ ] Improve	[ ] Yes [ ] N

*Defined as any repair, reconstruction, or improvement, the cost of which equals or exceeds 50% of the market value of the structure before the damage occurred or the reconstruction or improvement was begun.

Prior losses (approximate dates and amounts of loss):

NONE — Repairs completed? [ ] Yes [ ] No — Insured? [ ] Yes [ ] No — [ ] Insured but no claim made

Repairs completed? [ ] Yes [ ] No — Insured? [ ] Yes [ ] No — [ ] Insured but no claim made

Repairs completed? [ ] Yes [ ] No — Insured? [ ] Yes [ ] No — [ ] Insured but no claim made

(Continue under Narrative if additional space is needed for alterations or prior losses.)

INTERESTS

Mortgagee(s): AMERICA WHOLESALERS LENDER & AMSOUTH BANK

Loss Payee(s):

Other Insurance: COTTON STATES INSURANCE (Company) — HO (Type) — THO3661029-00 (Policy Number) — 130000 / 98000 (Coverage Bldg/Cts) — [ ] Yes [X] (Covers flo

CLAIM SUMMARY

Duration building will not be habitable: [1] 0-2 days [2] 3-7 days [3] 2-4 weeks [4] 1-2 months [5] more than 2 months

Claim Recapitulation	Building		Contents		Totals
	Main*/Assn	Appurtenant/Unit	Main*/Assn	Appurtenant/Unit	
Property Value (RCV)	$124,628.02	$0.00	$98,000.00	$0.00	$222,628.02
Property Value (ACV)	$72,284.25	$0.00	$73,500.00	$0.00	$145,784.25
Gross Loss (RCV)	$13,233.75	$0.00	$26,663.64	$0.00	$39,897.39
Covered Damage (ACV)	$11,101.71	$0.00	$15,616.28	$0.00	$26,717.99
Removal / Protection	$0.00	$0.00	$0.00	$0.00	$0.00
Total Loss (ACV)	$11,101.71	$0.00	$15,616.28	$0.00	$26,717.99
Less Salvage	$0.00	$0.00	$221.30	$0.00	$221.30
Less Deductible	$500.00	$0.00	$500.00	$0.00	$1,000.00
Excess Over Limit	$0.00	$0.00	$0.00	$0.00	$0.00
Claim Payable (ACV)	$10,601.71	$0.00	$14,894.98	$0.00	$25,496.69
Damage from Other Cause	$0.00	$0.00	$0.00	$0.00	$0.00

Identify Cause:

Main building RCV: $124,628.02 — Insured qualifies for R/C coverage? [X] Yes [ ] No [ ] Not Applicable

*Includes mobile home. — If yes, R/C claim: $1,832.89 — Total Building Claim: $12,434.60

EXCLUDED DAMAGES

	Approximate value of property excluded:			Approximate damage to property excluded:		
Excluded building damages:	[X] Less Than 1,000 [2] 1,000 - 2,000	[3] 2,000 - 5,000 [4] 5,000 - 10,000	[5] 10,000 - 20,000 [6] More than 20,000	[X] Less Than 1,000 [2] 1,000 - 2,000	[3] 2,000 - 5,000 [4] 5,000 - 10,000	[5] 10,000 - 20,000 [6] More than 20,000
Excluded contents damages:	[X] Less Than 1,000 [2] 1,000 - 2,000	[3] 2,000 - 5,000 [4] 5,000 - 10,000	[5] 10,000 - 20,000 [6] More than 20,000	[X] Less Than 1,000 [2] 1,000 - 2,000	[3] 2,000 - 5,000 [4] 5,000 - 10,000	[5] 10,000 - 20,000 [6] More than 20,000

ENCLOSURES

[X] Building Worksheets (13) [X] Photographs (26) [X] Proof of Loss [ ] Other

[X] Contents Worksheets (12) [X] Narratives (2 pp) [X] R/C Proof [ ] Other

CERTIFICATION

The above statements are true and correct to the best of my knowledge. I understand that any false statements may be punishable by fine or imprisonment under 18 U.S. Code Sec. 1001.

County of Williamson — Insured Meredith A Kendall

State of Tennessee — Insured

Signed this day of 6/4/03 — Witness Deborah S. Humphreys

08/04/2003 — Date of Report

Robert Moser — ROBERT MOSER — AMERICAN NATIONAL P & C

030-20-103 — Adjuster's SSN

Robert Moser

POLICY NUMBER 99 01383195 2003

04/26/2003 TO 04/26/2004
POLICY TERM

$150,000.00
AMT OF BLDG COV AT TIME OF LOSS

$38,000.00
AMT OF CNTS COV AT TIME OF LOSS

FEDERAL EMERGENCY MANAGEMENT AGENCY
NATIONAL FLOOD INSURANCE PROGRAM

PROOF OF LOSS

(See Attached Privacy Act Statement and Paperwork Burden Disclosure Notice)

BM10003
OUR FILE NUMBER

AMERICAN NATIONAL INSURANCE
AGENCY

109 HOLIDAY CT STE 107
AGENCY AT
FRANKLIN, TN

TO THE **AMERICAN NATIONAL P & C** OF **FLOOD PROCESSING CENTER, P.O. BOX 2057, KALISPELL, MT**

At the time of loss, by the above indicated policy of insurance, you insured the interest of
ROBERT KENDALL & MEREDITH KENDALL
220 MEADOWGREEN DR, FRANKLIN, TN 37069
against loss by Flood to the property described according to the terms and conditions of said policy and of all forms, endorsements, transfers and assignments attached thereto .

TIME AND ORIGIN

A Flood loss occurred about 2:00:00 AM on the 4 day of 5, 2003, the cause of the said loss was :
Flood

OCCUPANCY

The premises described, or containing the property described, was occupied at the time of the loss as follows, and for no other purpose whatever :
Residential

INTEREST

No other person or persons had any interest therin or incumbrance thereon, except :
AMERICA WHOLESALERS LENDER & AMSOUTH BANK

1. FULL AMOUNT OF INSURANCE applicable to the property for which claim is presented is	$188,000.00
2. ACTUAL CASH VALUE of building structure	$72,284.25
3. ADD ACTUAL CASH VALUE OF CONTENTS or personal property insured	$0.00
4. ACTUAL CASH VALUE OF ALL PROPERTY	$72,284.25
5. FULL COST OF REPAIR OR REPLACEMENT	$39,897.39
6. LESS APPLICABLE DEPRECIATION	$13,179.40
7. ACTUAL CASH VALUE LOSS is	$26,717.99
8. LESS DEDUCTIBLES	$1,221.30
9. NET AMOUNT CLAIMED under above numbered policy is (Pending Your Flood Carrier's Final Approval)	**$25,496.69**

The said loss did not originate by any act, design or procurement on the part of your insured, nothing has been done by or with the privity or consent of your insured to violate the conditions of the policy, or render it void; no articles are mentioned herein or in annexed schedules but such as were destroyed or damaged at the time of said loss, no property saved has in any manner been concealed, and no attempt to deceive the said insurer as to the extent of said loss, has in any manner been made. Any other information that may be required will be furnished and considered a part of this proof.

I understand that this insurance (policy) is issued Pursuant to the National Flood Insurance Act of 1968, or Any Act Amendatory thereof, and Applicable Federal Regulations in Title 44 of the Code of Federal Regulations, Subchapter B, and that knowingly and willfully making any false answers or misrepresentations of fact may be punishable by fine or imprisonment under applicable Unites States Codes.

Subrogation - To the extent of the payment made or advanced under this policy, the insured hereby assigns, transfers and sets over to the insurer all rights, claims or interest that he has against any person, firm or corporation liable for the loss or damage to the property for which payment is made or advanced. He also hereby authorizes the insurer to sue any such third party in his name.

The insured hereby warrants that no release has been given or will be given or settlement or compromise made or agreed upon with any third party who may be liable in damages to the insured with respect to the claim being made herein.

The furnishing of this blank or the preparation of proofs by a representative of the above insurer is not a waiver of any of its rights.

State of X Tennessee
County of X Williamson

X Meredith A Kendall
X [illegible]
Insured

Subscribed and sworn to before me this X 24th day of June, 2003

Adjuster : ROBERT MOSER
Robert Moser

Notary Public / Adjuster

— Return —

FEDERAL EMERGENCY MANAGEMENT AGENCY
NATIONAL FLOOD INSURANCE PROGRAM

Statement as to full cost of repair or replacement under the replacement cost coverage , subject to the terms and conditions of this policy *

(See Attached Privacy Act Statement and Paperwork Burden Disclosure Notice)

Agency at: 109 HOLIDAY CT STE 107
FRANKLIN, TN

Policy No : 99 01383195 2003
Agency : AMERICAN NATIONAL

Insured: ROBERT KENDALL & MEREDITH KENDALL

Location: 220 MEADOWGREEN DR
FRANKLIN, TN 37069

Type of Property Involved in Residential

Date of Loss: 05/04/2003

1 . **Full Amount of Insurance** applicable to the property for which claim is presented was	$150,000.
2 . **Full Replacement Cost** of the said property at the time of the loss was	$124,628.
3 . **The Full Cost of Repair or Replacement** is	$13,233.
4 . Applicable Depreciation is	$2,132.
5 . Actual Cash Value loss is (Line 3 minus Line 4)	$11,101.
6 . Less deductibles and / or participation by the insured	$500.
7 . **Actual Cash Value Claim** is. (Line 5 minus Line 6)	$10,601.
8 . **Supplemental Claim,** to be filed in accordance with the terms and conditions of the Replacement Cost Coverage within 180 days from the date of loss shown above, will not exceed (This figure will be that portion of the amounts shown on Lines 4 and 6 which is recoverable)	$1,832.

* The Standard Flood Insurance Policy is subject to the National Flood Insurance Act of 1968 and any Acts Amendatory thereof, and Regulations issued by the Federal Insurance Administration pursuant to such statute(s).

K Meredith A Kendall — Insur

ADJ. FILE NO: BM10003

Robert Moser — Adjust
ROBERT MOSER

Deborah K Longbrake
Comm expires May 27, 2007

— Return —

d. 224 Meadowgreen Drive
Franklin, TN 37069
Homeowner(s): Camp, Anita

- Lot # 34
- Letter Received: 9 Feb 2005, "To Whom it May Concern, My name is Ammie Kenny and I am writing in regard to the flooding problem on Meadowgreen Drive. My family has lived at 224 Meadowgreen Drive for most of my life. Most recently, I moved back to my family home with my two children after my divorce. I rent a basement apartment from my parents. Flooding has been a problem in our neighborhood for as long as I can remember. I can remember flood water coming in to the bottom floor of the house when I was a child. In 1994 we had a large flood that resulted in the loss of all of the belongings we had downstairs, serious damage to one of our cars, as well as, structural damage to our home. In 2003, we had another large flood, my family lost all of our furniture, clothing, toys, books, all that we had. There were three feet of water inside our home. We have photos and insurance papers to document the extensive damage. As recently as a few months ago we had a few inches of water all over the lower floor. Any amount of flood water brings with it a large amount of mud and a horrible smell that is incredibly difficult to get rid of. It seems that with all of the area development this problem is getting worse. Flooding used to be an isolated event, now we have to worry any time there is a heavy rain. We have spent numerous sleepless nights with buckets and sand bags hoping the water doesn't come inside. I, my parents, and my children would appreciate any help offered to us in this matter.

  Thank You,
  Ammie Kenny".

NATIONAL FLOOD INSURANCE PROGRAM

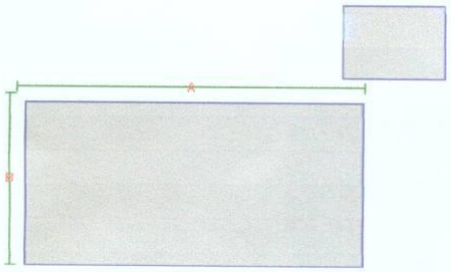
WORKSHEET - BUILDING

Date of Report: May 17, 2003

Insured and Location	Policy No.
CAMP, ANITA 224 MEADOWGREEN DR, FRANKLIN, TN 37064	080600313

Adjusting Firm and Address	(ADJUSTER)	Adjuster's File No.	Date of Loss
ALLSTATE INS. CO. FLOOD P.O. BOX 94053, PALATINE, IL 60094-9871	PAUL PEARSON	6390982442	5/5/2003

Measure Dimensions and Draw Diagram of Ground Floor Area.
Attach Snapshot.



910 855 484

Type of Building	Age
single family dwelling	39 yrs

Building Dimensions	Total Sq. Ft.	No. Rooms
A- 43' B- 25' 10"	1,111	7

Type of Foundation	Finished Basement	No. Stories
Concrete Slab	Yes ☐ No ☑	2

Interior Wall Construction	Exterior Wall Construction	No. Baths
	Wood stud	2

Estimated Repl. Cost	$85,995.00
Less Depreciation	$17,199.00
Actual Cash Value	$68,796.00

	Full Cost Repair	Depreciation	Flood Loss
Estimate Totals	**$19,257.68**	**$1,508.20**	**$17,749.48**
Less Amount Not Subject To Overhead & Profit	($1,381.74)	$0.00	($1,381.74)
Amount Subject To Overhead & Profit	$17,875.94	$1,508.20	$16,367.74
Contractor's Overhead (8%)	$1,430.08	$120.66	$1,309.42
Sub-Total	$19,306.02	$1,628.86	$17,677.16
Contractor's Profit (0%)	$0.00	$0.00	$0.00
Sub-Total	$19,306.02	$1,628.86	$17,677.16
Amount Not Subject To Overhead & Profit	$1,381.74	$0.00	$1,381.74
Total With Overhead & Profit	$20,687.76	$1,628.86	$19,058.90
Less Non-Recoverable Depreciation	($1,628.86)	($1,628.86)	
Sub-Total	$19,058.90	$0.00	$19,058.90
Less Deductible Applied	($1,000.00)		($1,000.00)
Less Excess	($7,058.90)	$0.00	($7,058.90)
Building Claim	**$11,000.00**	**$0.00**	**$11,000.00**

Summary: Claim # 6390982442

	Repl. Cost	Depr.	ACV
Estimate Totals	**$36,130.68**	**$6,402.20**	**$29,728.48**
Less Amount Not Subject To Overhead & Profit	($18,254.74)	($4,894.00)	($13,360.74)
Amount Subject To Overhead & Profit	$17,875.94	$1,508.20	$16,367.74
Contractor's Overhead (8%)	$1,430.08	$120.66	$1,309.42
Sub-Total	$19,306.02	$1,628.86	$17,677.16
Contractor's Profit (0%)	$0.00	$0.00	$0.00
Sub-Total	$19,306.02	$1,628.86	$17,677.16
Amount Not Subject To Overhead & Profit	$18,254.74	$4,894.00	$13,360.74
Total With Overhead & Profit	$37,560.76	$6,522.86	$31,037.90
Less Non-Recoverable Depreciation	($6,522.86)	($6,522.86)	
Sub-Total	$31,037.90	$0.00	$31,037.90
Less Deductible Applied	($2,000.00)		($2,000.00)
Less Excess	($7,537.90)	$0.00	($7,537.90)
Net Claim	**$21,500.00**	**$0.00**	**$21,500.00**
Less Prior Payments	($2,500.00)		($2,500.00)
Net Claim Payable	**$19,000.00**	**$0.00**	**$19,000.00**

A copy of this document does not constitute a settlement of this claim. The above figures are subject to insurance company approval.

Accepted by_____

910 855484

2. Derby Lane
    a. 209 Derby Lane
       Franklin, TN 37069
       Homeowner(s): Kerr, Frances and Herbert
        - Lot # 10
        - Letter Received: 8 Feb 2005, " Williamson Management Emergency Assoc. 1320 West Main St. Suite B-30 Franklin, Tn 37064. To Whom It May Concern: I have lived in my house at 209 Derby Drive for forty years and have watched the flooding problems along Lynwood Branch Creek get worse and worse. I have had 3-4" of water in my garage four times. In the May, 2003 the flood water got under my house and into the duct work and I had to have to duct work cleaned. In addition to this, I have had many sleepless nights when it was raining worrying about the water coming into my house. This situation that is deteriorating very fast and we need to get some help as soon as possible. There have been multiple homes damaged, cars destroyed, yards ruined. The sad part is that it is a situation that is out of the homeowners control. We ask for your help in doing whatever is possible to alleviate this problem.

          Sincerely,
          Frances Kerr
          209 Derby Lane
          Franklin, Tn. 37069
          Telephone: 615-794-5368".*

Merry Maids Service Agreement

Entry: _____ Service Type: _____ Cleaning Day: _____ Appt. Time: 6:30

Time: AM/PM _____ Advertisemnet Type: _____ Appt. Date: 5-13-03

Name: Frances Curry Address: 209 Derby Lane

Directions: 794-5368 Meadows Green Sub past Berry Chapel. Lon Stable follow to Meadow Green

Service Fee:

Weekly	_____	Sales Tax	_____	Total	_____	First Time $ 150	Sales Tax _____	Total _____
Biweekly	_____	Sales Tax	_____	Total	_____			Total _____
_____	_____	Sales Tax	_____	Total	_____			Total _____
Special	_____	Sales Tax	_____	Total	_____			
Window Fee	_____	Sales Tax	_____	Total	_____			

Custom Cleaning Instructions

		Window
___	Living Room	clean, dust & vacuum
___	Dining Room	clean, dust & vacuum
___	Kitchen	clean applicances, counters, cabinets, table & chairs sweep & wash floor
___	Study	clean, dust & vacuum
___	Family Room	clean, dust & vacuum
___	Rec. Room	clean, dust & vacuum
___	M. Bath	clean, sanitize & deodorize all fixtures, sweep & wash floor
___	M. Bedroom	clean, dust & vacuum
___	Bedrooms	clean, dust & vacuum
___	Bedrooms	clean, dust & vacuum
___	Bedrooms	clean, dust & vacuum
___	Utility Room	clean, dust & vacuum, clean appliances, sweep & wash floor
___	Halls/Stairs	clean, dust & vacuum
___	Bathrooms	clean, sanitize & deodorize all fixtures, sweep & wash floor
___	Foyer	clean, dust & vacuum/wash floor, clean entry door
___	_____	
___	_____	

Special Instructions Garage floor only - Sweep & Mop.

Special Equipment _____

Date to Start: 5-15-03

Customer Authorization: Frances Curry

By: Pat Carmack Date: 5-13-03

merry maids®
One less thing to worry about.

6949 Charlotte Pike, Ste. #108 - Nashville, TN 37209 - (615) 356-4342
Home Office: Memphis, Tennessee 38120 • Local Offices Coast To Coast

b. 211 Derby lane
Franklin, TN 37069
Homeowner(s): Shike, Dan and Michelle

- Lot # 9
- E-mail Received: 8 Feb 2005, " Dear Mr. Thompson, We're writing regarding flooding problems along Lynnwood Branch. We have lived at 211 Derby Lane in Meadowgreen Acres for about 7 years, and we've experienced flooding almost every year since we moved in. Our cars have been flooded twice, and we've had water in our garage three times. May 5, 2003 was the worst flood for us. Both our cars flooded, and one of them was carried by the water through a fence. That car was totaled by the insurance company. The flood waters also entered not just the garage on that occasion, but the house as well. We suffered damage to the flooring in two rooms that fortunately our flood insurance covered. We had no flood insurance coverage on contents, only the house structure itself, so we did not receive any insurance settlement for any belongings damaged in the flood. While most of the floods have not caused significant damage to our property, they are still of great concern to us. We weren't too worried about the creek flooding until our cars got flooded the first time. Now every time it rains, we wonder if we need to move our cars out of the car port. We weren't too concerned about getting water in the house until the flood in May '03. Now we're scared every time the creek rises, wondering if we need to move everything up off the floor. The psychological effects of the flooding are significant. Anything you can do to help alleviate some of the flooding problems in our area would be greatly appreciated. Thank you, Dan & Michelle Shike".

C. Bethany Hills
1. Bethany Court
a. 8012 Bethany Court
Nashville, TN 37221
Homeowner(s): Baldinger, Paul and Kim

- Lot #4
- EMA Letter Received from Williamson County Engineering and Codes Department Date: 12 Jan

2005: “Thank you for allowing us to speak to you tonight. My husband and I, among others, have been asked to speak to you as a representative of the Bethany Hills subdivision located on the opposite side of Trace Creek Park. Specifically, the development would lie about 500 feet across the creek and upstream from my property. Six years ago, we appeared before you and presented these same concerns, including flooding, traffic and safety issues, vocally, by letter, and with pictures. Many of us are older homeowners who have watched the footprint of Trace Creek change with every new development upstream; becoming wider, deeper and more menacing to homeowners downstream. Some of us have had to purchase flood insurance. When my home was purchased in 1977, we were told that it was on a 500-year flood plain. In the intervening 26 years, new subdivisions have been developed in the area, and their runoff has impacted the creek. On February 6, 2002, a revised preliminary Flood Insurance Study of the creek was filed by FEMA. It was finalized in January, 2003. it lists our home and others adjoining the creek as being on a 100-year flood plain. At some point during those 26 years, the flood plain changed. We do not know when the actual change occurred – it could have occurred as late as the latest study (January, 2003). Time constraints have not permitted researching this topic prior to this meeting but the question will be researched and answered by the Corps of Engineers at our request. It is logical to assume and we maintain that one of the major causes of the change was development which altered the hydrology of the surrounding countryside and by doing so, changed the flow of the creek. My home flooded in may, 2003. The entire lower level, including the den, master bedroom and bath, were under 5.5 inches of water. It was September before we could move back in. we had flood insurance which covered ¼ of the costs incurred in repairing and replacing what we lost. It covered none of what we’ve spent trying to protect our home from further damage, including pouring a flood wall around the west side of the house and putting it under roof so that rainwater won’t collect in the basin. An independent engineering elevation

certificate lists the lower level of our home as being 1.1 feet BELOW flood level which is 574.6. Now the issue of Trace Creek Development has once again been raised. Homeowners on the Bethany Hills Subdivision are concerned about two issues: 1) flooding and 2) the possibility of opening up the dead end at Bethany Court to traffic from the new subdivision. Our representative, Jack Walton, graciously came to a neighborhood meeting and was able to outline the resubmitted plat as it is currently shown. Residents are concerned that the plat might be revised once construction begins, (perhaps during phase II) allowing for one or more lots to allow for a roadway to connect to Bethany Court… Several homeowners have independently written letters to the Planning Commission supporting these views; and they are incorporated into this presentation by reference. In addition, I am furnishing you tonight as addendums copies of letters previously submitted regarding this issue. We are also making available to you tonight some pictures taken during flood conditions along the creek. The most recent were taken Feb 6, 2004, when the water came within 6 inches of my home's floodwall. While no one wants to impede progress or deny Williamson County necessary revenue in the form of property taxes to fulfill its obligations to county-wide residents, there is something fundamentally unfair about approving a new project when there is a reasonable belief that it will cause harm to existing homeowners. It seems prudent to wait to approve any further action in this matter until engineering studies are in hand which will afford a clearer picture of the impact of this development on the flood plain and on the properties of existing homeowners along Trace Creek".

2. Bethany Boulevard
    a. 6063 Bethany Blvd
       Nashville, TN 37221
       Homeowner(s): Linn, Harry P. and Alice
        - Lot # 9
        - Letter Date: 1 Feb 05: "Thank you for your interest in the properties bordering Trace Creek in the Bethany Hills Subdivision. We have resided at this

address since March of 1972. We have not experienced any flooding on our lot which is # 9. But, we have watched with concern as some of our neighbor's yards and homes were flooded. Each year with the additional developments, the water rushes faster and higher causing the creek to filled to capacity within a short period of time of a heavy rain. The water surface has drastically increased as homes were built of Temple Rd and the hills bordering Sneed. Rd. Now with the onset of the new Drees Subdivision and the new road and bridge at Temple and Highway 100, we face a true unknown as to how this will affect Trace Creek. It is our understanding that 50 new houses are planned in the new subdivision and an estimated 15 or 20 will back up to the creek and 100 year flood plain. In the years past, some of the properties down stream flooded until the creek spilled out of its banks at the intersection of Temple and Hwy 100 and relieved the flooding upstream. It appears that with the new bridge the water flow has been contained and the homes on Trace Creek that flood will not receive any relief from the over flow and additional homes that have not been prone to flooding are now in danger of flooding. We are grateful that FEMA and Williamson County want to prevent flooding on Trace Creek, but we are also a little concerned that we are in more danger of flooding than we were a year ago. For the past 34 years our family has loved backing up to this creek, enjoyed the docks that raised their families in the spring, the occasional deer or wild turkey, and the squirrels. Our grandchildren now play in the creek and think this is a special place and so do we, and any thing that you can do to keep us from flooding, we certainly will appreciate it".

b. 6012 Bethany Boulevard
Nashville, TN 37221
Homeowner(s): Anderson, Fred and Pat
    - Lot # 2
    - Letter Received: 2 Feb 2005: "Dear Ms. Brock: We have lived in our house since October 1972. Trace Creek began to cause problems with each new development. Trace Creek could not handle all the

water from easement ditches and heavy rainfalls. By 1986, we had to reinforce the bank and build it up. There continues to be erosion. The force of the flow of the water has changed drastically and has become more threatening and dangerous. The house next door to us was flooded and so was the Baldinger home. We do not know how many time. If anything can be done to save our homes, our residents would be grateful. If you need more information, please contact us.

Fred & Pat Anderson
615-646-8804".

Appendix E

County/City/Town Populous and Demographics
Williamson County

Table DP-1. Profile of General Demographic Characteristics: 2000
Geographic area: Williamson County, Tennessee
[For information on confidentiality protection, nonsampling error, and definitions, see text]

Subject	Number	Percent
Total population	126,638	100.0
SEX AND AGE		
Male	62,358	49.2
Female	64,280	50.8
Under 5 years	9,169	7.2
5 to 9 years	10,665	8.4
10 to 14 years	11,201	8.8
15 to 19 years	9,105	7.2
20 to 24 years	5,067	4.0
25 to 34 years	15,505	12.2
35 to 44 years	24,535	19.4
45 to 54 years	21,243	16.8
55 to 59 years	6,164	4.9
60 to 64 years	4,173	3.3
65 to 74 years	5,691	4.5
75 to 84 years	3,111	2.5
85 years and over	1,009	0.8
Median age (years)	36.2	(X)
18 years and over	89,288	70.5
Male	43,184	34.1
Female	46,104	36.4
21 years and over	85,483	67.5
62 years and over	12,137	9.6
65 years and over	9,811	7.7
Male	4,213	3.3
Female	5,598	4.4
RACE		
One race	125,594	99.2
White	115,941	91.6
Black or African American	6,564	5.2
American Indian and Alaska Native	248	0.2
Asian	1,583	1.3
Asian Indian	420	0.3
Chinese	316	0.2
Filipino	104	0.1
Japanese	259	0.2
Korean	326	0.3
Vietnamese	40	-
Other Asian [1]	118	0.1
Native Hawaiian and Other Pacific Islander	32	-
Native Hawaiian	10	-
Guamanian or Chamorro	10	-
Samoan	3	-
Other Pacific Islander [2]	9	-
Some other race	1,226	1.0
Two or more races	1,044	0.8
Race alone or in combination with one or more other races: [3]		
White	116,894	92.3
Black or African American	6,832	5.4
American Indian and Alaska Native	564	0.4
Asian	1,852	1.5
Native Hawaiian and Other Pacific Islander	56	-
Some other race	1,568	1.2

Subject	Number	Percent
HISPANIC OR LATINO AND RACE		
Total population	126,638	100.0
Hispanic or Latino (of any race)	3,197	2.5
Mexican	2,094	1.7
Puerto Rican	210	0.2
Cuban	107	0.1
Other Hispanic or Latino	786	0.6
Not Hispanic or Latino	123,441	97.5
White alone	114,177	90.2
RELATIONSHIP		
Total population	126,638	100.0
In households	125,647	99.2
Householder	44,725	35.3
Spouse	31,211	24.6
Child	42,609	33.6
Own child under 18 years	35,481	28.0
Other relatives	4,073	3.2
Under 18 years	1,503	1.2
Nonrelatives	3,029	2.4
Unmarried partner	1,131	0.9
In group quarters	991	0.8
Institutionalized population	598	0.5
Noninstitutionalized population	393	0.3
HOUSEHOLD BY TYPE		
Total households	44,725	100.0
Family households (families)	35,758	80.0
With own children under 18 years	19,237	43.0
Married-couple family	31,211	69.8
With own children under 18 years	16,629	37.2
Female householder, no husband present	3,493	7.8
With own children under 18 years	2,074	4.6
Nonfamily households	8,967	20.0
Householder living alone	7,430	16.6
Householder 65 years and over	2,003	4.5
Households with individuals under 18 years	20,191	45.1
Households with individuals 65 years and over	6,773	15.1
Average household size	2.81	(X)
Average family size	3.18	(X)
HOUSING OCCUPANCY		
Total housing units	47,005	100.0
Occupied housing units	44,725	95.1
Vacant housing units	2,280	4.9
For seasonal, recreational, or occasional use	155	0.3
Homeowner vacancy rate (percent)	2.3	(X)
Rental vacancy rate (percent)	5.7	(X)
HOUSING TENURE		
Occupied housing units	44,725	100.0
Owner-occupied housing units	36,443	81.5
Renter-occupied housing units	8,282	18.5
Average household size of owner-occupied units	2.93	(X)
Average household size of renter-occupied units	2.30	(X)

- Represents zero or rounds to zero. (X) Not applicable.
[1] Other Asian alone, or two or more Asian categories.
[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.
[3] In combination with one or more of the other races listed. The six numbers may add to more than the total population and the six percentages may add to more than 100 percent because individuals may report more than one race.

Source: U.S. Census Bureau, Census 2000.

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U.S. Census Bureau

Table DP-2. Profile of Selected Social Characteristics: 2000
Geographic area: Williamson County, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent
SCHOOL ENROLLMENT		
Population 3 years and over enrolled in school	35,558	100.0
Nursery school, preschool	3,281	9.2
Kindergarten	1,936	5.4
Elementary school (grades 1-8)	17,901	50.3
High school (grades 9-12)	8,322	23.4
College or graduate school	4,118	11.6
EDUCATIONAL ATTAINMENT		
Population 25 years and over	81,620	100.0
Less than 9th grade	3,194	3.9
9th to 12th grade, no diploma	4,922	6.0
High school graduate (includes equivalency)	16,179	19.8
Some college, no degree	17,046	20.9
Associate degree	4,076	5.0
Bachelor's degree	24,582	30.1
Graduate or professional degree	11,621	14.2
Percent high school graduate or higher	90.1	(X)
Percent bachelor's degree or higher	44.4	(X)
MARITAL STATUS		
Population 15 years and over	95,501	100.0
Never married	18,245	19.1
Now married, except separated	65,267	68.3
Separated	923	1.0
Widowed	3,830	4.0
Female	3,142	3.3
Divorced	7,236	7.6
Female	4,416	4.6
GRANDPARENTS AS CAREGIVERS		
Grandparent living in household with one or more own grandchildren under 18 years	1,685	100.0
Grandparent responsible for grandchildren	601	35.7
VETERAN STATUS		
Civilian population 18 years and over	89,243	100.0
Civilian veterans	9,268	10.4
DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION		
Population 5 to 20 years	31,491	100.0
With a disability	1,769	5.6
Population 21 to 64 years	75,632	100.0
With a disability	7,803	10.3
Percent employed	67.1	(X)
No disability	67,829	89.7
Percent employed	80.6	(X)
Population 65 years and over	9,492	100.0
With a disability	3,723	39.2
RESIDENCE IN 1995		
Population 5 years and over	117,355	100.0
Same house in 1995	56,613	48.2
Different house in the U.S. in 1995	58,991	50.3
Same county	17,542	14.9
Different county	41,449	35.3
Same state	19,598	16.7
Different state	21,851	18.6
Elsewhere in 1995	1,751	1.5

Subject	Number	Percent
NATIVITY AND PLACE OF BIRTH		
Total population	126,638	100.0
Native	121,694	96.1
Born in United States	120,682	95.3
State of residence	59,702	47.1
Different state	60,980	48.2
Born outside United States	1,012	0.8
Foreign born	4,944	3.9
Entered 1990 to March 2000	2,612	2.1
Naturalized citizen	1,804	1.4
Not a citizen	3,140	2.5
REGION OF BIRTH OF FOREIGN BORN		
Total (excluding born at sea)	4,944	100.0
Europe	968	19.6
Asia	1,659	33.6
Africa	148	3.0
Oceania	73	1.5
Latin America	1,682	34.0
Northern America	414	8.4
LANGUAGE SPOKEN AT HOME		
Population 5 years and over	117,355	100.0
English only	111,012	94.6
Language other than English	6,343	5.4
Speak English less than "very well"	2,624	2.2
Spanish	2,941	2.5
Speak English less than "very well"	1,462	1.2
Other Indo-European languages	2,134	1.8
Speak English less than "very well"	715	0.6
Asian and Pacific Island languages	1,080	0.9
Speak English less than "very well"	420	0.4
ANCESTRY (single or multiple)		
Total population	126,638	100.0
Total ancestries reported	*124,296*	*98.2*
Arab	504	0.4
Czech[1]	500	0.4
Danish	363	0.3
Dutch	2,108	1.7
English	19,940	15.7
French (except Basque)[1]	4,226	3.3
French Canadian[1]	540	0.4
German	17,824	14.1
Greek	459	0.4
Hungarian	425	0.3
Irish[1]	16,584	13.1
Italian	4,426	3.5
Lithuanian	181	0.1
Norwegian	1,297	1.0
Polish	2,813	2.2
Portuguese	117	0.1
Russian	406	0.3
Scotch-Irish	4,943	3.9
Scottish	4,454	3.5
Slovak	164	0.1
Subsaharan African	773	0.6
Swedish	1,389	1.1
Swiss	466	0.4
Ukrainian	207	0.2
United States or American	16,321	12.9
Welsh	1,272	1.0
West Indian (excluding Hispanic groups)	99	0.1
Other ancestries	21,495	17.0

-Represents zero or rounds to zero. (X) Not applicable.
[1]The data represent a combination of two ancestries shown separately in Summary File 3. Czech includes Czechoslovakian. French includes Alsatian. French Canadian includes Acadian/Cajun. Irish includes Celtic.

Source: U.S. Bureau of the Census, Census 2000.

Table DP-3. Profile of Selected Economic Characteristics: 2000

Geographic area: Williamson County, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent
EMPLOYMENT STATUS		
Population 16 years and over	93,553	100.0
In labor force	67,362	72.0
Civilian labor force	67,325	72.0
Employed	65,562	70.1
Unemployed	1,763	1.9
Percent of civilian labor force	2.6	(X)
Armed Forces	37	-
Not in labor force	26,191	28.0
Females 16 years and over	48,215	100.0
In labor force	29,821	61.9
Civilian labor force	29,821	61.9
Employed	28,897	59.9
Own children under 6 years	10,856	100.0
All parents in family in labor force	5,457	50.3
COMMUTING TO WORK		
Workers 16 years and over	64,650	100.0
Car, truck, or van - - drove alone	54,026	83.6
Car, truck, or van - - carpooled	6,038	9.3
Public transportation (including taxicab)	126	0.2
Walked	431	0.7
Other means	553	0.9
Worked at home	3,476	5.4
Mean travel time to work (minutes)[1]	26.3	(X)
Employed civilian population 16 years and over	65,562	100.0
OCCUPATION		
Management, professional, and related occupations	30,178	46.0
Service occupations	6,340	9.7
Sales and office occupations	18,299	27.9
Farming, fishing, and forestry occupations	204	0.3
Construction, extraction, and maintenance occupations	4,470	6.8
Production, transportation, and material moving occupations	6,071	9.3
INDUSTRY		
Agriculture, forestry, fishing and hunting, and mining	627	1.0
Construction	4,209	6.4
Manufacturing	7,873	12.0
Wholesale trade	2,829	4.3
Retail trade	7,664	11.7
Transportation and warehousing, and utilities	2,055	3.1
Information	3,555	5.4
Finance, insurance, real estate, and rental and leasing	7,336	11.2
Professional, scientific, management, administrative, and waste management services	7,246	11.1
Educational, health and social services	12,024	18.3
Arts, entertainment, recreation, accommodation and food services	4,786	7.3
Other services (except public administration)	3,405	5.2
Public administration	1,953	3.0
CLASS OF WORKER		
Private wage and salary workers	53,015	80.9
Government workers	6,351	9.7
Self-employed workers in own not incorporated business	5,953	9.1
Unpaid family workers	243	0.4

Subject	Number	Percent
INCOME IN 1999		
Households	44,824	100.0
Less than $10,000	1,785	4.0
$10,000 to $14,999	1,341	3.0
$15,000 to $24,999	2,661	5.9
$25,000 to $34,999	3,877	8.6
$35,000 to $49,999	5,988	13.4
$50,000 to $74,999	8,718	19.4
$75,000 to $99,999	6,937	15.5
$100,000 to $149,999	7,493	16.7
$150,000 to $199,999	2,777	6.2
$200,000 or more	3,247	7.2
Median household income (dollars)	69,104	(X)
With earnings	40,547	90.5
Mean earnings (dollars)[1]	87,819	(X)
With Social Security income	7,458	16.6
Mean Social Security income (dollars)[1]	12,321	(X)
With Supplemental Security Income	707	1.6
Mean Supplemental Security Income (dollars)[1]	6,581	(X)
With public assistance income	493	1.1
Mean public assistance income (dollars)[1]	1,923	(X)
With retirement income	5,192	11.6
Mean retirement income (dollars)[1]	22,638	(X)
Families	36,012	100.0
Less than $10,000	781	2.2
$10,000 to $14,999	665	1.8
$15,000 to $24,999	1,562	4.3
$25,000 to $34,999	2,400	6.7
$35,000 to $49,999	4,382	12.2
$50,000 to $74,999	7,215	20.0
$75,000 to $99,999	6,340	17.6
$100,000 to $149,999	6,933	19.3
$150,000 to $199,999	2,665	7.4
$200,000 or more	3,069	8.5
Median family income (dollars)	78,315	(X)
Per capita income (dollars)[1]	32,496	(X)
Median earnings (dollars):		
Male full-time, year-round workers	56,647	(X)
Female full-time, year-round workers	32,243	(X)

Subject	Number below poverty level	Percent below poverty level
POVERTY STATUS IN 1999		
Families	1,271	3.5
With related children under 18 years	915	4.5
With related children under 5 years	384	5.3
Families with female householder, no husband present	520	15.4
With related children under 18 years	450	19.4
With related children under 5 years	179	31.1
Individuals	5,933	4.7
18 years and over	3,873	4.4
65 years and over	843	8.9
Related children under 18 years	2,006	5.4
Related children 5 to 17 years	1,469	5.3
Unrelated individuals 15 years and over	1,567	13.4

-Represents zero or rounds to zero. (X) Not applicable.

[1]If the denominator of a mean value or per capita value is less than 30, then that value is calculated using a rounded aggregate in the numerator. See text.

Source: U.S. Bureau of the Census, Census 2000.

Table DP-4. Profile of Selected Housing Characteristics: 2000
Geographic area: Williamson County, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent
Total housing units	47,005	100.0
UNITS IN STRUCTURE		
1-unit, detached	36,999	78.7
1-unit, attached	1,902	4.0
2 units	644	1.4
3 or 4 units	767	1.6
5 to 9 units	1,852	3.9
10 to 19 units	1,622	3.5
20 or more units	1,308	2.8
Mobile home	1,911	4.1
Boat, RV, van, etc	-	-
YEAR STRUCTURE BUILT		
1999 to March 2000	3,131	6.7
1995 to 1998	10,467	22.3
1990 to 1994	6,410	13.6
1980 to 1989	10,044	21.4
1970 to 1979	8,956	19.1
1960 to 1969	3,578	7.6
1940 to 1959	2,472	5.3
1939 or earlier	1,947	4.1
ROOMS		
1 room	130	0.3
2 rooms	568	1.2
3 rooms	1,828	3.9
4 rooms	4,479	9.5
5 rooms	6,058	12.9
6 rooms	6,578	14.0
7 rooms	7,785	16.6
8 rooms	6,733	14.3
9 or more rooms	12,846	27.3
Median (rooms)	7.0	(X)
Occupied housing units	44,725	100.0
YEAR HOUSEHOLDER MOVED INTO UNIT		
1999 to March 2000	9,636	21.5
1995 to 1998	15,537	34.7
1990 to 1994	7,929	17.7
1980 to 1989	6,322	14.1
1970 to 1979	3,300	7.4
1969 or earlier	2,001	4.5
VEHICLES AVAILABLE		
None	1,154	2.6
1	9,541	21.3
2	22,135	49.5
3 or more	11,895	26.6
HOUSE HEATING FUEL		
Utility gas	24,890	55.7
Bottled, tank, or LP gas	2,792	6.2
Electricity	16,312	36.5
Fuel oil, kerosene, etc	108	0.2
Coal or coke	4	-
Wood	584	1.3
Solar energy	10	-
Other fuel	18	-
No fuel used	7	-
SELECTED CHARACTERISTICS		
Lacking complete plumbing facilities	170	0.4
Lacking complete kitchen facilities	246	0.6
No telephone service	352	0.8

Subject	Number	Percent
OCCUPANTS PER ROOM		
Occupied housing units	44,725	100.0
1.00 or less	44,088	98.6
1.01 to 1.50	418	0.9
1.51 or more	219	0.5
Specified owner-occupied units	30,801	100.0
VALUE		
Less than $50,000	254	0.8
$50,000 to $99,999	2,149	7.0
$100,000 to $149,999	4,954	16.1
$150,000 to $199,999	7,139	23.2
$200,000 to $299,999	9,161	29.7
$300,000 to $499,999	5,378	17.5
$500,000 to $999,999	1,522	4.9
$1,000,000 or more	244	0.8
Median (dollars)	208,400	(X)
MORTGAGE STATUS AND SELECTED MONTHLY OWNER COSTS		
With a mortgage	25,588	83.1
Less than $300	75	0.2
$300 to $499	470	1.5
$500 to $699	971	3.2
$700 to $999	3,172	10.3
$1,000 to $1,499	8,397	27.3
$1,500 to $1,999	6,445	20.9
$2,000 or more	6,058	19.7
Median (dollars)	1,482	(X)
Not mortgaged	5,213	16.9
Median (dollars)	354	(X)
SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME IN 1999		
Less than 15.0 percent	9,679	31.4
15.0 to 19.9 percent	6,261	20.3
20.0 to 24.9 percent	4,970	16.1
25.0 to 29.9 percent	3,369	10.9
30.0 to 34.9 percent	1,857	6.0
35.0 percent or more	4,508	14.6
Not computed	157	0.5
Specified renter-occupied units	7,841	100.0
GROSS RENT		
Less than $200	188	2.4
$200 to $299	213	2.7
$300 to $499	685	8.7
$500 to $749	2,645	33.7
$750 to $999	2,151	27.4
$1,000 to $1,499	1,103	14.1
$1,500 or more	286	3.6
No cash rent	570	7.3
Median (dollars)	744	(X)
GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME IN 1999		
Less than 15.0 percent	1,402	17.9
15.0 to 19.9 percent	1,273	16.2
20.0 to 24.9 percent	1,142	14.6
25.0 to 29.9 percent	869	11.1
30.0 to 34.9 percent	662	8.4
35.0 percent or more	1,868	23.8
Not computed	625	8.0

-Represents zero or rounds to zero. (X) Not applicable.

Source: U.S. Bureau of the Census, Census 2000.

City of Brentwood

Table DP-1. Profile of General Demographic Characteristics: 2000
Geographic area: Brentwood city, Tennessee

[For information on confidentiality protection, nonsampling error, and definitions, see text]

Subject	Number	Percent
Total population	23,445	100.0
SEX AND AGE		
Male	11,550	49.3
Female	11,895	50.7
Under 5 years	1,339	5.7
5 to 9 years	2,069	8.8
10 to 14 years	2,517	10.7
15 to 19 years	1,966	8.4
20 to 24 years	508	2.2
25 to 34 years	1,216	5.2
35 to 44 years	4,315	18.4
45 to 54 years	4,967	21.2
55 to 59 years	1,620	6.9
60 to 64 years	1,002	4.3
65 to 74 years	1,176	5.0
75 to 84 years	576	2.5
85 years and over	174	0.7
Median age (years)	40.8	(X)
18 years and over	16,050	68.5
Male	7,741	33.0
Female	8,309	35.4
21 years and over	15,433	65.8
62 years and over	2,490	10.6
65 years and over	1,926	8.2
Male	896	3.8
Female	1,030	4.4
RACE		
One race	23,295	99.4
White	22,187	94.6
Black or African American	442	1.9
American Indian and Alaska Native	37	0.2
Asian	585	2.5
Asian Indian	205	0.9
Chinese	107	0.5
Filipino	20	0.1
Japanese	118	0.5
Korean	83	0.4
Vietnamese	11	-
Other Asian [1]	41	0.2
Native Hawaiian and Other Pacific Islander	-	-
Native Hawaiian	-	-
Guamanian or Chamorro	-	-
Samoan	-	-
Other Pacific Islander [2]	-	-
Some other race	44	0.2
Two or more races	150	0.6
Race alone or in combination with one or more other races: [3]		
White	22,323	95.2
Black or African American	486	2.1
American Indian and Alaska Native	64	0.3
Asian	635	2.7
Native Hawaiian and Other Pacific Islander	2	-
Some other race	90	0.4

Subject	Number	Percent
HISPANIC OR LATINO AND RACE		
Total population	23,445	100.0
Hispanic or Latino (of any race)	259	1.1
Mexican	90	0.4
Puerto Rican	24	0.1
Cuban	22	0.1
Other Hispanic or Latino	123	0.5
Not Hispanic or Latino	23,186	98.9
White alone	21,976	93.7
RELATIONSHIP		
Total population	23,445	100.0
In households	23,199	99.0
Householder	7,693	32.8
Spouse	6,326	27.0
Child	8,442	36.0
Own child under 18 years	7,172	30.6
Other relatives	485	2.1
Under 18 years	136	0.6
Nonrelatives	253	1.1
Unmarried partner	78	0.3
In group quarters	246	1.0
Institutionalized population	72	0.3
Noninstitutionalized population	174	0.7
HOUSEHOLD BY TYPE		
Total households	7,693	100.0
Family households (families)	6,812	88.5
With own children under 18 years	3,707	48.2
Married-couple family	6,326	82.2
With own children under 18 years	3,410	44.3
Female householder, no husband present	379	4.9
With own children under 18 years	233	3.0
Nonfamily households	881	11.5
Householder living alone	766	10.0
Householder 65 years and over	246	3.2
Households with individuals under 18 years	3,799	49.4
Households with individuals 65 years and over	1,223	15.9
Average household size	3.02	(X)
Average family size	3.24	(X)
HOUSING OCCUPANCY		
Total housing units	7,889	100.0
Occupied housing units	7,693	97.5
Vacant housing units	196	2.5
For seasonal, recreational, or occasional use	14	0.2
Homeowner vacancy rate (percent)	1.3	(X)
Rental vacancy rate (percent)	3.8	(X)
HOUSING TENURE		
Occupied housing units	7,693	100.0
Owner-occupied housing units	7,338	95.4
Renter-occupied housing units	355	4.6
Average household size of owner-occupied units	3.02	(X)
Average household size of renter-occupied units	2.83	(X)

- Represents zero or rounds to zero. (X) Not applicable.
[1] Other Asian alone, or two or more Asian categories.
[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.
[3] In combination with one or more of the other races listed. The six numbers may add to more than the total population and the six percentages may add to more than 100 percent because individuals may report more than one race.

Source: U.S. Census Bureau, Census 2000.

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U.S. Census Bureau

Table DP-2. Profile of Selected Social Characteristics: 2000
Geographic area: Brentwood city, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent
SCHOOL ENROLLMENT		
Population 3 years and over enrolled in school	7,609	100.0
Nursery school, preschool	734	9.6
Kindergarten	342	4.5
Elementary school (grades 1-8)	3,723	48.9
High school (grades 9-12)	2,061	27.1
College or graduate school	749	9.8
EDUCATIONAL ATTAINMENT		
Population 25 years and over	15,177	100.0
Less than 9th grade	170	1.1
9th to 12th grade, no diploma	230	1.5
High school graduate (includes equivalency)	1,494	9.8
Some college, no degree	2,758	18.2
Associate degree	709	4.7
Bachelor's degree	5,875	38.7
Graduate or professional degree	3,941	26.0
Percent high school graduate or higher	97.4	(X)
Percent bachelor's degree or higher	64.7	(X)
MARITAL STATUS		
Population 15 years and over	17,822	100.0
Never married	3,116	17.5
Now married, except separated	13,240	74.3
Separated	124	0.7
Widowed	590	3.3
Female	513	2.9
Divorced	752	4.2
Female	495	2.8
GRANDPARENTS AS CAREGIVERS		
Grandparent living in household with one or more own grandchildren under 18 years	250	100.0
Grandparent responsible for grandchildren	73	29.2
VETERAN STATUS		
Civilian population 18 years and over	16,189	100.0
Civilian veterans	1,964	12.1
DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION		
Population 5 to 20 years	6,715	100.0
With a disability	290	4.3
Population 21 to 64 years	13,732	100.0
With a disability	691	5.0
Percent employed	68.6	(X)
No disability	13,041	95.0
Percent employed	75.0	(X)
Population 65 years and over	1,806	100.0
With a disability	564	31.2
RESIDENCE IN 1995		
Population 5 years and over	22,341	100.0
Same house in 1995	12,076	54.1
Different house in the U.S. in 1995	9,926	44.4
Same county	2,697	12.1
Different county	7,229	32.4
Same state	3,399	15.2
Different state	3,830	17.1
Elsewhere in 1995	339	1.5

Subject	Number	Percent
NATIVITY AND PLACE OF BIRTH		
Total population	23,825	100.0
Native	22,754	95.5
Born in United States	22,568	94.7
State of residence	9,372	39.3
Different state	13,196	55.4
Born outside United States	186	0.8
Foreign born	1,071	4.5
Entered 1990 to March 2000	410	1.7
Naturalized citizen	520	2.2
Not a citizen	551	2.3
REGION OF BIRTH OF FOREIGN BORN		
Total (excluding born at sea)	1,071	100.0
Europe	216	20.2
Asia	647	60.4
Africa	71	6.6
Oceania	15	1.4
Latin America	50	4.7
Northern America	72	6.7
LANGUAGE SPOKEN AT HOME		
Population 5 years and over	22,341	100.0
English only	20,912	93.6
Language other than English	1,429	6.4
Speak English less than "very well"	457	2.0
Spanish	287	1.3
Speak English less than "very well"	92	0.4
Other Indo-European languages	607	2.7
Speak English less than "very well"	139	0.6
Asian and Pacific Island languages	487	2.2
Speak English less than "very well"	218	1.0
ANCESTRY (single or multiple)		
Total population	23,825	100.0
Total ancestries reported	*24,312*	*102.0*
Arab	137	0.6
Czech[1]	117	0.5
Danish	83	0.3
Dutch	262	1.1
English	5,085	21.3
French (except Basque)[1]	965	4.1
French Canadian[1]	116	0.5
German	3,988	16.7
Greek	29	0.1
Hungarian	83	0.3
Irish[1]	2,768	11.6
Italian	692	2.9
Lithuanian	17	0.1
Norwegian	280	1.2
Polish	683	2.9
Portuguese	64	0.3
Russian	114	0.5
Scotch-Irish	1,293	5.4
Scottish	1,004	4.2
Slovak	34	0.1
Subsaharan African	98	0.4
Swedish	217	0.9
Swiss	152	0.6
Ukrainian	12	0.1
United States or American	2,613	11.0
Welsh	270	1.1
West Indian (excluding Hispanic groups)	-	-
Other ancestries	3,136	13.2

-Represents zero or rounds to zero. (X) Not applicable.
[1]The data represent a combination of two ancestries shown separately in Summary File 3. Czech includes Czechoslovakian. French includes Alsatian. French Canadian includes Acadian/Cajun. Irish includes Celtic.

Source: U.S. Bureau of the Census, Census 2000.

Table DP-3. Profile of Selected Economic Characteristics: 2000

Geographic area: Brentwood city, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent
EMPLOYMENT STATUS		
Population 16 years and over	17,287	100.0
In labor force	11,556	66.8
Civilian labor force	11,531	66.7
Employed	11,313	65.4
Unemployed	218	1.3
Percent of civilian labor force	1.9	(X)
Armed Forces	25	0.1
Not in labor force	5,731	33.2
Females 16 years and over	8,907	100.0
In labor force	4,741	53.2
Civilian labor force	4,741	53.2
Employed	4,632	52.0
Own children under 6 years	1,779	100.0
All parents in family in labor force	688	38.7
COMMUTING TO WORK		
Workers 16 years and over	11,217	100.0
Car, truck, or van - - drove alone	9,583	85.4
Car, truck, or van - - carpooled	661	5.9
Public transportation (including taxicab)	43	0.4
Walked	80	0.7
Other means	95	0.8
Worked at home	755	6.7
Mean travel time to work (minutes)[1]	24.1	(X)
Employed civilian population 16 years and over	11,313	100.0
OCCUPATION		
Management, professional, and related occupations	6,966	61.6
Service occupations	714	6.3
Sales and office occupations	2,980	26.3
Farming, fishing, and forestry occupations	18	0.2
Construction, extraction, and maintenance occupations	247	2.2
Production, transportation, and material moving occupations	388	3.4
INDUSTRY		
Agriculture, forestry, fishing and hunting, and mining	50	0.4
Construction	460	4.1
Manufacturing	1,121	9.9
Wholesale trade	495	4.4
Retail trade	1,090	9.6
Transportation and warehousing, and utilities	321	2.8
Information	688	6.1
Finance, insurance, real estate, and rental and leasing	1,578	13.9
Professional, scientific, management, administrative, and waste management services	1,400	12.4
Educational, health and social services	2,622	23.2
Arts, entertainment, recreation, accommodation and food services	847	7.5
Other services (except public administration)	395	3.5
Public administration	246	2.2
CLASS OF WORKER		
Private wage and salary workers	9,202	81.3
Government workers	958	8.5
Self-employed workers in own not incorporated business	1,083	9.6
Unpaid family workers	70	0.6

Subject	Number	Percent
INCOME IN 1999		
Households	7,766	100.0
Less than $10,000	135	1.7
$10,000 to $14,999	150	1.9
$15,000 to $24,999	136	1.8
$25,000 to $34,999	296	3.8
$35,000 to $49,999	617	7.9
$50,000 to $74,999	894	11.5
$75,000 to $99,999	1,065	13.7
$100,000 to $149,999	1,807	23.3
$150,000 to $199,999	1,141	14.7
$200,000 or more	1,525	19.6
Median household income (dollars)	111,819	(X)
With earnings	7,039	90.6
Mean earnings (dollars)[1]	138,154	(X)
With Social Security income	1,280	16.5
Mean Social Security income (dollars)[1]	13,750	(X)
With Supplemental Security Income	66	0.8
Mean Supplemental Security Income (dollars)[1]	11,139	(X)
With public assistance income	43	0.6
Mean public assistance income (dollars)[1]	3,138	(X)
With retirement income	1,066	13.7
Mean retirement income (dollars)[1]	23,587	(X)
Families	6,877	100.0
Less than $10,000	94	1.4
$10,000 to $14,999	24	0.3
$15,000 to $24,999	72	1.0
$25,000 to $34,999	195	2.8
$35,000 to $49,999	476	6.9
$50,000 to $74,999	764	11.1
$75,000 to $99,999	1,004	14.6
$100,000 to $149,999	1,725	25.1
$150,000 to $199,999	1,080	15.7
$200,000 or more	1,443	21.0
Median family income (dollars)	118,450	(X)
Per capita income (dollars)[1]	47,378	(X)
Median earnings (dollars):		
Male full-time, year-round workers	97,962	(X)
Female full-time, year-round workers	41,324	(X)

Subject	Number below poverty level	Percent below poverty level
POVERTY STATUS IN 1999		
Families	105	1.5
With related children under 18 years	77	1.9
With related children under 5 years	10	0.9
Families with female householder, no husband present	62	15.7
With related children under 18 years	62	21.2
With related children under 5 years	10	20.4
Individuals	468	2.0
18 years and over	265	1.6
65 years and over	82	4.5
Related children under 18 years	189	2.5
Related children 5 to 17 years	165	2.7
Unrelated individuals 15 years and over	124	10.0

-Represents zero or rounds to zero. (X) Not applicable.

[1]If the denominator of a mean value or per capita value is less than 30, then that value is calculated using a rounded aggregate in the numerator. See text.

Source: U.S. Bureau of the Census, Census 2000.

Table DP-4. Profile of Selected Housing Characteristics: 2000
Geographic area: Brentwood city, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent
Total housing units	7,934	100.0
UNITS IN STRUCTURE		
1-unit, detached	7,240	91.3
1-unit, attached	549	6.9
2 units	31	0.4
3 or 4 units	105	1.3
5 to 9 units	-	-
10 to 19 units	-	-
20 or more units	-	-
Mobile home	9	0.1
Boat, RV, van, etc	-	-
YEAR STRUCTURE BUILT		
1999 to March 2000	266	3.4
1995 to 1998	1,180	14.9
1990 to 1994	1,131	14.3
1980 to 1989	2,155	27.2
1970 to 1979	2,113	26.6
1960 to 1969	880	11.1
1940 to 1959	111	1.4
1939 or earlier	98	1.2
ROOMS		
1 room	8	0.1
2 rooms	-	-
3 rooms	24	0.3
4 rooms	163	2.1
5 rooms	201	2.5
6 rooms	500	6.3
7 rooms	1,025	12.9
8 rooms	1,521	19.2
9 or more rooms	4,492	56.6
Median (rooms)	8.5	(X)
Occupied housing units	7,711	100.0
YEAR HOUSEHOLDER MOVED INTO UNIT		
1999 to March 2000	1,034	13.4
1995 to 1998	2,559	33.2
1990 to 1994	1,753	22.7
1980 to 1989	1,380	17.9
1970 to 1979	727	9.4
1969 or earlier	258	3.3
VEHICLES AVAILABLE		
None	56	0.7
1	832	10.8
2	3,946	51.2
3 or more	2,877	37.3
HOUSE HEATING FUEL		
Utility gas	6,501	84.3
Bottled, tank, or LP gas	122	1.6
Electricity	1,088	14.1
Fuel oil, kerosene, etc	-	-
Coal or coke	-	-
Wood	-	-
Solar energy	-	-
Other fuel	-	-
No fuel used	-	-
SELECTED CHARACTERISTICS		
Lacking complete plumbing facilities	8	0.1
Lacking complete kitchen facilities	8	0.1
No telephone service	15	0.2

Subject	Number	Percent
OCCUPANTS PER ROOM		
Occupied housing units	7,711	100.0
1.00 or less	7,694	99.8
1.01 to 1.50	9	0.1
1.51 or more	8	0.1
Specified owner-occupied units	6,952	100.0
VALUE		
Less than $50,000	9	0.1
$50,000 to $99,999	16	0.2
$100,000 to $149,999	317	4.6
$150,000 to $199,999	759	10.9
$200,000 to $299,999	2,154	31.0
$300,000 to $499,999	2,543	36.6
$500,000 to $999,999	997	14.3
$1,000,000 or more	157	2.3
Median (dollars)	313,200	(X)
MORTGAGE STATUS AND SELECTED MONTHLY OWNER COSTS		
With a mortgage	5,650	81.3
Less than $300	-	-
$300 to $499	32	0.5
$500 to $699	101	1.5
$700 to $999	325	4.7
$1,000 to $1,499	1,018	14.6
$1,500 to $1,999	1,348	19.4
$2,000 or more	2,826	40.7
Median (dollars)	1,750	(X)
Not mortgaged	1,302	18.7
Median (dollars)	454	(X)
SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME IN 1999		
Less than 15.0 percent	2,705	38.9
15.0 to 19.9 percent	1,179	17.0
20.0 to 24.9 percent	840	12.1
25.0 to 29.9 percent	720	10.4
30.0 to 34.9 percent	441	6.3
35.0 percent or more	1,037	14.9
Not computed	30	0.4
Specified renter-occupied units	290	100.0
GROSS RENT		
Less than $200	-	-
$200 to $299	-	-
$300 to $499	-	-
$500 to $749	7	2.4
$750 to $999	28	9.7
$1,000 to $1,499	128	44.1
$1,500 or more	63	21.7
No cash rent	64	22.1
Median (dollars)	1,308	(X)
GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME IN 1999		
Less than 15.0 percent	86	29.7
15.0 to 19.9 percent	44	15.2
20.0 to 24.9 percent	15	5.2
25.0 to 29.9 percent	27	9.3
30.0 to 34.9 percent	17	5.9
35.0 percent or more	37	12.8
Not computed	64	22.1

-Represents zero or rounds to zero. (X) Not applicable.

Source: U.S. Bureau of the Census, Census 2000.

City of Fairview

Table DP-1. Profile of General Demographic Characteristics: 2000
Geographic area: Fairview city, Tennessee
[For information on confidentiality protection, nonsampling error, and definitions, see text]

Subject	Number	Percent
Total population	5,800	100.0
SEX AND AGE		
Male	2,800	48.3
Female	3,000	51.7
Under 5 years	484	8.3
5 to 9 years	520	9.0
10 to 14 years	487	8.4
15 to 19 years	416	7.2
20 to 24 years	345	5.9
25 to 34 years	942	16.2
35 to 44 years	1,035	17.8
45 to 54 years	757	13.1
55 to 59 years	223	3.8
60 to 64 years	165	2.8
65 to 74 years	249	4.3
75 to 84 years	135	2.3
85 years and over	42	0.7
Median age (years)	31.8	(X)
18 years and over	4,045	69.7
Male	1,910	32.9
Female	2,135	36.8
21 years and over	3,827	66.0
62 years and over	508	8.8
65 years and over	426	7.3
Male	169	2.9
Female	257	4.4
RACE		
One race	5,723	98.7
White	5,630	97.1
Black or African American	38	0.7
American Indian and Alaska Native	22	0.4
Asian	14	0.2
Asian Indian	1	-
Chinese	1	-
Filipino	7	0.1
Japanese	2	-
Korean	1	-
Vietnamese	-	-
Other Asian [1]	2	-
Native Hawaiian and Other Pacific Islander	-	-
Native Hawaiian	-	-
Guamanian or Chamorro	-	-
Samoan	-	-
Other Pacific Islander [2]	-	-
Some other race	19	0.3
Two or more races	77	1.3
Race alone or in combination with one or more other races: [3]		
White	5,706	98.4
Black or African American	62	1.1
American Indian and Alaska Native	54	0.9
Asian	38	0.7
Native Hawaiian and Other Pacific Islander	7	0.1
Some other race	35	0.6

Subject	Number	Percent
HISPANIC OR LATINO AND RACE		
Total population	5,800	100.0
Hispanic or Latino (of any race)	86	1.5
Mexican	45	0.8
Puerto Rican	9	0.2
Cuban	4	0.1
Other Hispanic or Latino	28	0.5
Not Hispanic or Latino	5,714	98.5
White alone	5,581	96.2
RELATIONSHIP		
Total population	5,800	100.0
In households	5,800	100.0
Householder	2,105	36.3
Spouse	1,285	22.2
Child	1,939	33.4
Own child under 18 years	1,613	27.8
Other relatives	253	4.4
Under 18 years	112	1.9
Nonrelatives	218	3.8
Unmarried partner	100	1.7
In group quarters	-	-
Institutionalized population	-	-
Noninstitutionalized population	-	-
HOUSEHOLD BY TYPE		
Total households	2,105	100.0
Family households (families)	1,606	76.3
With own children under 18 years	919	43.7
Married-couple family	1,285	61.0
With own children under 18 years	694	33.0
Female householder, no husband present	251	11.9
With own children under 18 years	177	8.4
Nonfamily households	499	23.7
Householder living alone	396	18.8
Householder 65 years and over	131	6.2
Households with individuals under 18 years	988	46.9
Households with individuals 65 years and over	333	15.8
Average household size	2.76	(X)
Average family size	3.17	(X)
HOUSING OCCUPANCY		
Total housing units	2,245	100.0
Occupied housing units	2,105	93.8
Vacant housing units	140	6.2
For seasonal, recreational, or occasional use	5	0.2
Homeowner vacancy rate (percent)	3.6	(X)
Rental vacancy rate (percent)	6.3	(X)
HOUSING TENURE		
Occupied housing units	2,105	100.0
Owner-occupied housing units	1,613	76.6
Renter-occupied housing units	492	23.4
Average household size of owner-occupied units	2.85	(X)
Average household size of renter-occupied units	2.43	(X)

- Represents zero or rounds to zero. (X) Not applicable.
[1] Other Asian alone, or two or more Asian categories.
[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.
[3] In combination with one or more of the other races listed. The six numbers may add to more than the total population and the six percentages may add to more than 100 percent because individuals may report more than one race.

Source: U.S. Census Bureau, Census 2000.

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U.S. Census Bureau

Table DP-2. Profile of Selected Social Characteristics: 2000
Geographic area: Fairview city, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent
SCHOOL ENROLLMENT		
Population 3 years and over enrolled in school	1,562	100.0
Nursery school, preschool	97	6.2
Kindergarten	165	10.6
Elementary school (grades 1-8)	792	50.7
High school (grades 9-12)	374	23.9
College or graduate school	134	8.6
EDUCATIONAL ATTAINMENT		
Population 25 years and over	3,609	100.0
Less than 9th grade	223	6.2
9th to 12th grade, no diploma	520	14.4
High school graduate (includes equivalency)	1,392	38.6
Some college, no degree	721	20.0
Associate degree	153	4.2
Bachelor's degree	470	13.0
Graduate or professional degree	130	3.6
Percent high school graduate or higher	79.4	(X)
Percent bachelor's degree or higher	16.6	(X)
MARITAL STATUS		
Population 15 years and over	4,393	100.0
Never married	846	19.3
Now married, except separated	2,675	60.9
Separated	74	1.7
Widowed	250	5.7
Female	194	4.4
Divorced	548	12.5
Female	333	7.6
GRANDPARENTS AS CAREGIVERS		
Grandparent living in household with one or more own grandchildren under 18 years	157	100.0
Grandparent responsible for grandchildren	83	52.9
VETERAN STATUS		
Civilian population 18 years and over	4,110	100.0
Civilian veterans	491	11.9
DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION		
Population 5 to 20 years	1,530	100.0
With a disability	47	3.1
Population 21 to 64 years	3,464	100.0
With a disability	560	16.2
Percent employed	65.9	(X)
No disability	2,904	83.8
Percent employed	81.7	(X)
Population 65 years and over	454	100.0
With a disability	248	54.6
RESIDENCE IN 1995		
Population 5 years and over	5,448	100.0
Same house in 1995	2,803	51.5
Different house in the U.S. in 1995	2,645	48.5
Same county	955	17.5
Different county	1,690	31.0
Same state	1,136	20.9
Different state	554	10.2
Elsewhere in 1995	-	-

Subject	Number	Percent
NATIVITY AND PLACE OF BIRTH		
Total population	5,980	100.0
Native	5,937	99.3
Born in United States	5,906	98.8
State of residence	4,060	67.9
Different state	1,846	30.9
Born outside United States	31	0.5
Foreign born	43	0.7
Entered 1990 to March 2000	20	0.3
Naturalized citizen	7	0.1
Not a citizen	36	0.6
REGION OF BIRTH OF FOREIGN BORN		
Total (excluding born at sea)	43	100.0
Europe	7	16.3
Asia	-	-
Africa	-	-
Oceania	-	-
Latin America	27	62.8
Northern America	9	20.9
LANGUAGE SPOKEN AT HOME		
Population 5 years and over	5,448	100.0
English only	5,272	96.8
Language other than English	176	3.2
Speak English less than "very well"	36	0.7
Spanish	136	2.5
Speak English less than "very well"	36	0.7
Other Indo-European languages	32	0.6
Speak English less than "very well"	-	-
Asian and Pacific Island languages	8	0.1
Speak English less than "very well"	-	-
ANCESTRY (single or multiple)		
Total population	5,980	100.0
Total ancestries reported	*5,079*	*84.9*
Arab	-	-
Czech[1]	-	-
Danish	-	-
Dutch	167	2.8
English	499	8.3
French (except Basque)[1]	49	0.8
French Canadian[1]	8	0.1
German	634	10.6
Greek	23	0.4
Hungarian	-	-
Irish[1]	864	14.4
Italian	66	1.1
Lithuanian	-	-
Norwegian	21	0.4
Polish	100	1.7
Portuguese	-	-
Russian	-	-
Scotch-Irish	116	1.9
Scottish	87	1.5
Slovak	20	0.3
Subsaharan African	-	-
Swedish	8	0.1
Swiss	8	0.1
Ukrainian	-	-
United States or American	1,799	30.1
Welsh	-	-
West Indian (excluding Hispanic groups)	-	-
Other ancestries	610	10.2

-Represents zero or rounds to zero. (X) Not applicable.
[1]The data represent a combination of two ancestries shown separately in Summary File 3. Czech includes Czechoslovakian. French includes Alsatian. French Canadian includes Acadian/Cajun. Irish includes Celtic.

Source: U.S. Bureau of the Census, Census 2000.

Table DP-3. Profile of Selected Economic Characteristics: 2000

Geographic area: Fairview city, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent
EMPLOYMENT STATUS		
Population 16 years and over	4,290	100.0
In labor force	3,061	71.4
Civilian labor force	3,061	71.4
Employed	3,004	70.0
Unemployed	57	1.3
Percent of civilian labor force	1.9	(X)
Armed Forces	-	-
Not in labor force	1,229	28.6
Females 16 years and over	2,314	100.0
In labor force	1,500	64.8
Civilian labor force	1,500	64.8
Employed	1,453	62.8
Own children under 6 years	578	100.0
All parents in family in labor force	372	64.4
COMMUTING TO WORK		
Workers 16 years and over	2,928	100.0
Car, truck, or van - - drove alone	2,371	81.0
Car, truck, or van - - carpooled	467	15.9
Public transportation (including taxicab)	9	0.3
Walked	25	0.9
Other means	26	0.9
Worked at home	30	1.0
Mean travel time to work (minutes)[1]	35.1	(X)
Employed civilian population 16 years and over	3,004	100.0
OCCUPATION		
Management, professional, and related occupations	790	26.3
Service occupations	405	13.5
Sales and office occupations	846	28.2
Farming, fishing, and forestry occupations	11	0.4
Construction, extraction, and maintenance occupations	425	14.1
Production, transportation, and material moving occupations	527	17.5
INDUSTRY		
Agriculture, forestry, fishing and hunting, and mining	36	1.2
Construction	324	10.8
Manufacturing	328	10.9
Wholesale trade	193	6.4
Retail trade	424	14.1
Transportation and warehousing, and utilities	129	4.3
Information	163	5.4
Finance, insurance, real estate, and rental and leasing	257	8.6
Professional, scientific, management, administrative, and waste management services	210	7.0
Educational, health and social services	416	13.8
Arts, entertainment, recreation, accommodation and food services	185	6.2
Other services (except public administration)	196	6.5
Public administration	143	4.8
CLASS OF WORKER		
Private wage and salary workers	2,250	74.9
Government workers	398	13.2
Self-employed workers in own not incorporated business	343	11.4
Unpaid family workers	13	0.4

Subject	Number	Percent
INCOME IN 1999		
Households	2,106	100.0
Less than $10,000	115	5.5
$10,000 to $14,999	113	5.4
$15,000 to $24,999	200	9.5
$25,000 to $34,999	334	15.9
$35,000 to $49,999	440	20.9
$50,000 to $74,999	585	27.8
$75,000 to $99,999	133	6.3
$100,000 to $149,999	96	4.6
$150,000 to $199,999	33	1.6
$200,000 or more	57	2.7
Median household income (dollars)	44,148	(X)
With earnings	1,853	88.0
Mean earnings (dollars)[1]	52,030	(X)
With Social Security income	400	19.0
Mean Social Security income (dollars)[1]	11,894	(X)
With Supplemental Security Income	45	2.1
Mean Supplemental Security Income (dollars)[1]	6,247	(X)
With public assistance income	53	2.5
Mean public assistance income (dollars)[1]	681	(X)
With retirement income	218	10.4
Mean retirement income (dollars)[1]	33,431	(X)
Families	1,592	100.0
Less than $10,000	54	3.4
$10,000 to $14,999	64	4.0
$15,000 to $24,999	126	7.9
$25,000 to $34,999	223	14.0
$35,000 to $49,999	335	21.0
$50,000 to $74,999	480	30.2
$75,000 to $99,999	124	7.8
$100,000 to $149,999	96	6.0
$150,000 to $199,999	33	2.1
$200,000 or more	57	3.6
Median family income (dollars)	49,817	(X)
Per capita income (dollars)[1]	20,403	(X)
Median earnings (dollars):		
Male full-time, year-round workers	36,461	(X)
Female full-time, year-round workers	26,277	(X)

Subject	Number below poverty level	Percent below poverty level
POVERTY STATUS IN 1999		
Families	89	5.6
With related children under 18 years	62	6.3
With related children under 5 years	42	10.7
Families with female householder, no husband present	26	11.1
With related children under 18 years	26	15.6
With related children under 5 years	17	50.0
Individuals	485	8.1
18 years and over	286	7.0
65 years and over	56	12.3
Related children under 18 years	186	10.2
Related children 5 to 17 years	97	7.4
Unrelated individuals 15 years and over	123	16.6

-Represents zero or rounds to zero. (X) Not applicable.

[1]If the denominator of a mean value or per capita value is less than 30, then that value is calculated using a rounded aggregate in the numerator. See text.

Source: U.S. Bureau of the Census, Census 2000.

Table DP-4. Profile of Selected Housing Characteristics: 2000
Geographic area: Fairview city, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent	Subject	Number	Percent
Total housing units	2,218	100.0	OCCUPANTS PER ROOM		
UNITS IN STRUCTURE			Occupied housing units	2,113	100.0
1-unit, detached	1,641	74.0	1.00 or less	2,085	98.7
1-unit, attached	24	1.1	1.01 to 1.50	22	1.0
2 units	65	2.9	1.51 or more	6	0.3
3 or 4 units	20	0.9			
5 to 9 units	149	6.7	Specified owner-occupied units	1,323	100.0
10 to 19 units	37	1.7	VALUE		
20 or more units	32	1.4	Less than $50,000	23	1.7
Mobile home	250	11.3	$50,000 to $99,999	445	33.6
Boat, RV, van, etc	-	-	$100,000 to $149,999	574	43.4
			$150,000 to $199,999	184	13.9
YEAR STRUCTURE BUILT			$200,000 to $299,999	83	6.3
1999 to March 2000	233	10.5	$300,000 to $499,999	14	1.1
1995 to 1998	382	17.2	$500,000 to $999,999	-	-
1990 to 1994	197	8.9	$1,000,000 or more	-	-
1980 to 1989	333	15.0	Median (dollars)	115,400	(X)
1970 to 1979	696	31.4			
1960 to 1969	180	8.1	MORTGAGE STATUS AND SELECTED MONTHLY OWNER COSTS		
1940 to 1959	142	6.4	With a mortgage	1,122	84.8
1939 or earlier	55	2.5	Less than $300	-	-
			$300 to $499	78	5.9
ROOMS			$500 to $699	135	10.2
1 room	-	-	$700 to $999	344	26.0
2 rooms	16	0.7	$1,000 to $1,499	422	31.9
3 rooms	105	4.7	$1,500 to $1,999	100	7.6
4 rooms	338	15.2	$2,000 or more	43	3.3
5 rooms	685	30.9	Median (dollars)	1,004	(X)
6 rooms	517	23.3	Not mortgaged	201	15.2
7 rooms	340	15.3	Median (dollars)	244	(X)
8 rooms	65	2.9			
9 or more rooms	152	6.9	SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME IN 1999		
Median (rooms)	5.4	(X)			
Occupied housing units	2,113	100.0	Less than 15.0 percent	384	29.0
YEAR HOUSEHOLDER MOVED INTO UNIT			15.0 to 19.9 percent	230	17.4
1999 to March 2000	514	24.3	20.0 to 24.9 percent	255	19.3
1995 to 1998	704	33.3	25.0 to 29.9 percent	153	11.6
1990 to 1994	342	16.2	30.0 to 34.9 percent	49	3.7
1980 to 1989	188	8.9	35.0 percent or more	252	19.0
1970 to 1979	266	12.6	Not computed	-	-
1969 or earlier	99	4.7			
			Specified renter-occupied units	482	100.0
VEHICLES AVAILABLE			GROSS RENT		
None	79	3.7	Less than $200	8	1.7
1	617	29.2	$200 to $299	28	5.8
2	856	40.5	$300 to $499	175	36.3
3 or more	561	26.5	$500 to $749	163	33.8
			$750 to $999	39	8.1
HOUSE HEATING FUEL			$1,000 to $1,499	26	5.4
Utility gas	381	18.0	$1,500 or more	-	-
Bottled, tank, or LP gas	90	4.3	No cash rent	43	8.9
Electricity	1,553	73.5	Median (dollars)	509	(X)
Fuel oil, kerosene, etc	25	1.2			
Coal or coke	-	-	GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME IN 1999		
Wood	64	3.0			
Solar energy	-	-	Less than 15.0 percent	84	17.4
Other fuel	-	-	15.0 to 19.9 percent	84	17.4
No fuel used	-	-	20.0 to 24.9 percent	72	14.9
			25.0 to 29.9 percent	64	13.3
SELECTED CHARACTERISTICS			30.0 to 34.9 percent	11	2.3
Lacking complete plumbing facilities	8	0.4	35.0 percent or more	124	25.7
Lacking complete kitchen facilities	-	-	Not computed	43	8.9
No telephone service	56	2.7			

-Represents zero or rounds to zero. (X) Not applicable.

Source: U.S. Bureau of the Census, Census 2000.

City of Franklin

Table DP-1. Profile of General Demographic Characteristics: 2000
Geographic area: Franklin city, Tennessee
[For information on confidentiality protection, nonsampling error, and definitions, see text]

Subject	Number	Percent
Total population	41,842	100.0
SEX AND AGE		
Male	20,224	48.3
Female	21,618	51.7
Under 5 years	3,558	8.5
5 to 9 years	3,344	8.0
10 to 14 years	3,106	7.4
15 to 19 years	2,486	5.9
20 to 24 years	2,287	5.5
25 to 34 years	7,813	18.7
35 to 44 years	8,119	19.4
45 to 54 years	5,482	13.1
55 to 59 years	1,452	3.5
60 to 64 years	1,102	2.6
65 to 74 years	1,541	3.7
75 to 84 years	1,091	2.6
85 years and over	461	1.1
Median age (years)	33.0	(X)
18 years and over	30,179	72.1
Male	14,312	34.2
Female	15,867	37.9
21 years and over	28,957	69.2
62 years and over	3,726	8.9
65 years and over	3,093	7.4
Male	1,127	2.7
Female	1,966	4.7
RACE		
One race	41,398	98.9
White	35,368	84.5
Black or African American	4,330	10.3
American Indian and Alaska Native	99	0.2
Asian	674	1.6
Asian Indian	139	0.3
Chinese	155	0.4
Filipino	46	0.1
Japanese	98	0.2
Korean	165	0.4
Vietnamese	21	0.1
Other Asian [1]	50	0.1
Native Hawaiian and Other Pacific Islander	19	-
Native Hawaiian	4	-
Guamanian or Chamorro	6	-
Samoan	1	-
Other Pacific Islander [2]	8	-
Some other race	908	2.2
Two or more races	444	1.1
Race alone or in combination with one or more other races: [3]		
White	35,766	85.5
Black or African American	4,448	10.6
American Indian and Alaska Native	198	0.5
Asian	794	1.9
Native Hawaiian and Other Pacific Islander	29	0.1
Some other race	1,086	2.6

Subject	Number	Percent
HISPANIC OR LATINO AND RACE		
Total population	41,842	100.0
Hispanic or Latino (of any race)	2,025	4.8
Mexican	1,500	3.6
Puerto Rican	81	0.2
Cuban	45	0.1
Other Hispanic or Latino	399	1.0
Not Hispanic or Latino	39,817	95.2
White alone	34,377	82.2
RELATIONSHIP		
Total population	41,842	100.0
In households	41,125	98.3
Householder	16,128	38.5
Spouse	9,069	21.7
Child	13,002	31.1
Own child under 18 years	11,035	26.4
Other relatives	1,426	3.4
Under 18 years	511	1.2
Nonrelatives	1,500	3.6
Unmarried partner	520	1.2
In group quarters	717	1.7
Institutionalized population	526	1.3
Noninstitutionalized population	191	0.5
HOUSEHOLD BY TYPE		
Total households	16,128	100.0
Family households (families)	11,232	69.6
With own children under 18 years	6,219	38.6
Married-couple family	9,069	56.2
With own children under 18 years	4,941	30.6
Female householder, no husband present	1,748	10.8
With own children under 18 years	1,080	6.7
Nonfamily households	4,896	30.4
Householder living alone	4,039	25.0
Householder 65 years and over	878	5.4
Households with individuals under 18 years	6,557	40.7
Households with individuals 65 years and over	2,111	13.1
Average household size	2.55	(X)
Average family size	3.09	(X)
HOUSING OCCUPANCY		
Total housing units	17,296	100.0
Occupied housing units	16,128	93.2
Vacant housing units	1,168	6.8
For seasonal, recreational, or occasional use	60	0.3
Homeowner vacancy rate (percent)	3.7	(X)
Rental vacancy rate (percent)	6.2	(X)
HOUSING TENURE		
Occupied housing units	16,128	100.0
Owner-occupied housing units	10,249	63.5
Renter-occupied housing units	5,879	36.5
Average household size of owner-occupied units	2.78	(X)
Average household size of renter-occupied units	2.15	(X)

- Represents zero or rounds to zero. (X) Not applicable.
[1] Other Asian alone, or two or more Asian categories.
[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.
[3] In combination with one or more of the other races listed. The six numbers may add to more than the total population and the six percentages may add to more than 100 percent because individuals may report more than one race.

Source: U.S. Census Bureau, Census 2000.

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U.S. Census Bureau

Table DP-2. Profile of Selected Social Characteristics: 2000
Geographic area: Franklin city, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent
SCHOOL ENROLLMENT		
Population 3 years and over enrolled in school	10,798	100.0
Nursery school, preschool	1,200	11.1
Kindergarten	653	6.0
Elementary school (grades 1-8)	5,502	51.0
High school (grades 9-12)	1,965	18.2
College or graduate school	1,478	13.7
EDUCATIONAL ATTAINMENT		
Population 25 years and over	27,052	100.0
Less than 9th grade	1,128	4.2
9th to 12th grade, no diploma	1,762	6.5
High school graduate (includes equivalency)	5,098	18.8
Some college, no degree	6,184	22.9
Associate degree	1,435	5.3
Bachelor's degree	8,535	31.6
Graduate or professional degree	2,910	10.8
Percent high school graduate or higher	89.3	(X)
Percent bachelor's degree or higher	42.3	(X)
MARITAL STATUS		
Population 15 years and over	31,530	100.0
Never married	7,275	23.1
Now married, except separated	19,205	60.9
Separated	424	1.3
Widowed	1,374	4.4
Female	1,136	3.6
Divorced	3,252	10.3
Female	2,105	6.7
GRANDPARENTS AS CAREGIVERS		
Grandparent living in household with one or more own grandchildren under 18 years	546	100.0
Grandparent responsible for grandchildren	180	33.0
VETERAN STATUS		
Civilian population 18 years and over	29,999	100.0
Civilian veterans	2,581	8.6
DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION		
Population 5 to 20 years	9,270	100.0
With a disability	665	7.2
Population 21 to 64 years	25,404	100.0
With a disability	2,787	11.0
Percent employed	67.2	(X)
No disability	22,617	89.0
Percent employed	83.2	(X)
Population 65 years and over	2,857	100.0
With a disability	1,335	46.7
RESIDENCE IN 1995		
Population 5 years and over	38,171	100.0
Same house in 1995	12,423	32.5
Different house in the U.S. in 1995	24,723	64.8
Same county	6,606	17.3
Different county	18,117	47.5
Same state	7,136	18.7
Different state	10,981	28.8
Elsewhere in 1995	1,025	2.7

Subject	Number	Percent
NATIVITY AND PLACE OF BIRTH		
Total population	41,756	100.0
Native	39,284	94.1
Born in United States	38,875	93.1
State of residence	16,836	40.3
Different state	22,039	52.8
Born outside United States	409	1.0
Foreign born	2,472	5.9
Entered 1990 to March 2000	1,616	3.9
Naturalized citizen	598	1.4
Not a citizen	1,874	4.5
REGION OF BIRTH OF FOREIGN BORN		
Total (excluding born at sea)	2,472	100.0
Europe	336	13.6
Asia	683	27.6
Africa	39	1.6
Oceania	29	1.2
Latin America	1,255	50.8
Northern America	130	5.3
LANGUAGE SPOKEN AT HOME		
Population 5 years and over	38,171	100.0
English only	35,209	92.2
Language other than English	2,962	7.8
Speak English less than "very well"	1,496	3.9
Spanish	1,741	4.6
Speak English less than "very well"	989	2.6
Other Indo-European languages	723	1.9
Speak English less than "very well"	334	0.9
Asian and Pacific Island languages	418	1.1
Speak English less than "very well"	154	0.4
ANCESTRY (single or multiple)		
Total population	41,756	100.0
Total ancestries reported	*42,456*	*101.7*
Arab	195	0.5
Czech[1]	195	0.5
Danish	120	0.3
Dutch	813	1.9
English	5,798	13.9
French (except Basque)[1]	1,329	3.2
French Canadian[1]	117	0.3
German	6,149	14.7
Greek	158	0.4
Hungarian	212	0.5
Irish[1]	5,551	13.3
Italian	1,649	3.9
Lithuanian	90	0.2
Norwegian	527	1.3
Polish	1,048	2.5
Portuguese	35	0.1
Russian	199	0.5
Scotch-Irish	1,391	3.3
Scottish	1,167	2.8
Slovak	47	0.1
Subsaharan African	450	1.1
Swedish	391	0.9
Swiss	51	0.1
Ukrainian	121	0.3
United States or American	4,073	9.8
Welsh	485	1.2
West Indian (excluding Hispanic groups)	61	0.1
Other ancestries	10,034	24.0

-Represents zero or rounds to zero. (X) Not applicable.
[1]The data represent a combination of two ancestries shown separately in Summary File 3. Czech includes Czechoslovakian. French includes Alsatian. French Canadian includes Acadian/Cajun. Irish includes Celtic.

Source: U.S. Bureau of the Census, Census 2000.

Table DP-3. Profile of Selected Economic Characteristics: 2000

Geographic area: Franklin city, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent
EMPLOYMENT STATUS		
Population 16 years and over	31,081	100.0
In labor force	23,077	74.2
Civilian labor force	23,077	74.2
Employed	22,335	71.9
Unemployed	742	2.4
Percent of civilian labor force	3.2	(X)
Armed Forces	-	-
Not in labor force	8,004	25.8
Females 16 years and over	16,328	100.0
In labor force	10,664	65.3
Civilian labor force	10,664	65.3
Employed	10,350	63.4
Own children under 6 years	4,162	100.0
All parents in family in labor force	2,154	51.8
COMMUTING TO WORK		
Workers 16 years and over	21,957	100.0
Car, truck, or van - - drove alone	18,202	82.9
Car, truck, or van - - carpooled	2,232	10.2
Public transportation (including taxicab)	47	0.2
Walked	189	0.9
Other means	244	1.1
Worked at home	1,043	4.8
Mean travel time to work (minutes)[1]	22.9	(X)
Employed civilian population 16 years and over	22,335	100.0
OCCUPATION		
Management, professional, and related occupations	10,013	44.8
Service occupations	2,385	10.7
Sales and office occupations	6,538	29.3
Farming, fishing, and forestry occupations	57	0.3
Construction, extraction, and maintenance occupations	1,362	6.1
Production, transportation, and material moving occupations	1,980	8.9
INDUSTRY		
Agriculture, forestry, fishing and hunting, and mining	45	0.2
Construction	1,142	5.1
Manufacturing	2,924	13.1
Wholesale trade	895	4.0
Retail trade	2,646	11.8
Transportation and warehousing, and utilities	481	2.2
Information	1,313	5.9
Finance, insurance, real estate, and rental and leasing	2,845	12.7
Professional, scientific, management, administrative, and waste management services	2,327	10.4
Educational, health and social services	3,941	17.6
Arts, entertainment, recreation, accommodation and food services	2,005	9.0
Other services (except public administration)	1,194	5.3
Public administration	577	2.6
CLASS OF WORKER		
Private wage and salary workers	18,855	84.4
Government workers	1,897	8.5
Self-employed workers in own not incorporated business	1,494	6.7
Unpaid family workers	89	0.4

Subject	Number	Percent
INCOME IN 1999		
Households	16,092	100.0
Less than $10,000	805	5.0
$10,000 to $14,999	700	4.3
$15,000 to $24,999	1,316	8.2
$25,000 to $34,999	1,814	11.3
$35,000 to $49,999	2,407	15.0
$50,000 to $74,999	3,326	20.7
$75,000 to $99,999	2,387	14.8
$100,000 to $149,999	2,354	14.6
$150,000 to $199,999	552	3.4
$200,000 or more	431	2.7
Median household income (dollars)	56,431	(X)
With earnings	14,434	89.7
Mean earnings (dollars)[1]	69,184	(X)
With Social Security income	2,352	14.6
Mean Social Security income (dollars)[1]	11,424	(X)
With Supplemental Security Income	282	1.8
Mean Supplemental Security Income (dollars)[1]	6,604	(X)
With public assistance income	250	1.6
Mean public assistance income (dollars)[1]	1,996	(X)
With retirement income	1,502	9.3
Mean retirement income (dollars)[1]	19,383	(X)
Families	11,238	100.0
Less than $10,000	292	2.6
$10,000 to $14,999	369	3.3
$15,000 to $24,999	678	6.0
$25,000 to $34,999	928	8.3
$35,000 to $49,999	1,442	12.8
$50,000 to $74,999	2,449	21.8
$75,000 to $99,999	2,085	18.6
$100,000 to $149,999	2,088	18.6
$150,000 to $199,999	525	4.7
$200,000 or more	382	3.4
Median family income (dollars)	69,431	(X)
Per capita income (dollars)[1]	27,276	(X)
Median earnings (dollars):		
Male full-time, year-round workers	50,226	(X)
Female full-time, year-round workers	31,531	(X)

Subject	Number below poverty level	Percent below poverty level
POVERTY STATUS IN 1999		
Families	576	5.1
With related children under 18 years	449	6.7
With related children under 5 years	230	8.3
Families with female householder, no husband present	292	17.6
With related children under 18 years	249	21.8
With related children under 5 years	120	37.9
Individuals	2,744	6.7
18 years and over	1,808	6.2
65 years and over	344	12.0
Related children under 18 years	929	8.0
Related children 5 to 17 years	635	7.9
Unrelated individuals 15 years and over	771	12.3

-Represents zero or rounds to zero. (X) Not applicable.

[1]If the denominator of a mean value or per capita value is less than 30, then that value is calculated using a rounded aggregate in the numerator. See text.

Source: U.S. Bureau of the Census, Census 2000.

Table DP-4. Profile of Selected Housing Characteristics: 2000
Geographic area: Franklin city, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent	Subject	Number	Percent
Total housing units	17,214	100.0	OCCUPANTS PER ROOM		
UNITS IN STRUCTURE			Occupied housing units	16,090	100.0
1-unit, detached	10,196	59.2	1.00 or less	15,680	97.5
1-unit, attached	992	5.8	1.01 to 1.50	246	1.5
2 units	452	2.6	1.51 or more	164	1.0
3 or 4 units	607	3.5			
5 to 9 units	1,695	9.8	Specified owner-occupied units	9,233	100.0
10 to 19 units	1,573	9.1	VALUE		
20 or more units	1,268	7.4	Less than $50,000	92	1.0
Mobile home	431	2.5	$50,000 to $99,999	931	10.1
Boat, RV, van, etc	-	-	$100,000 to $149,999	1,703	18.4
			$150,000 to $199,999	2,757	29.9
YEAR STRUCTURE BUILT			$200,000 to $299,999	2,971	32.2
1999 to March 2000	1,592	9.2	$300,000 to $499,999	634	6.9
1995 to 1998	5,344	31.0	$500,000 to $999,999	137	1.5
1990 to 1994	2,429	14.1	$1,000,000 or more	8	0.1
1980 to 1989	3,197	18.6	Median (dollars)	184,500	(X)
1970 to 1979	2,106	12.2			
1960 to 1969	892	5.2	MORTGAGE STATUS AND SELECTED MONTHLY OWNER COSTS		
1940 to 1959	1,104	6.4			
1939 or earlier	550	3.2	With a mortgage	7,978	86.4
			Less than $300	37	0.4
ROOMS			$300 to $499	215	2.3
1 room	122	0.7	$500 to $699	339	3.7
2 rooms	482	2.8	$700 to $999	1,207	13.1
3 rooms	1,404	8.2	$1,000 to $1,499	2,677	29.0
4 rooms	2,877	16.7	$1,500 to $1,999	2,403	26.0
5 rooms	2,784	16.2	$2,000 or more	1,100	11.9
6 rooms	2,239	13.0	Median (dollars)	1,410	(X)
7 rooms	2,460	14.3	Not mortgaged	1,255	13.6
8 rooms	1,856	10.8	Median (dollars)	331	(X)
9 or more rooms	2,990	17.4			
Median (rooms)	5.9	(X)	SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME IN 1999		
Occupied housing units	16,090	100.0			
YEAR HOUSEHOLDER MOVED INTO UNIT			Less than 15.0 percent	2,435	26.4
1999 to March 2000	5,234	32.5	15.0 to 19.9 percent	2,092	22.7
1995 to 1998	6,360	39.5	20.0 to 24.9 percent	1,602	17.4
1990 to 1994	2,164	13.4	25.0 to 29.9 percent	1,016	11.0
1980 to 1989	1,277	7.9	30.0 to 34.9 percent	634	6.9
1970 to 1979	544	3.4	35.0 percent or more	1,396	15.1
1969 or earlier	511	3.2	Not computed	58	0.6
VEHICLES AVAILABLE			Specified renter-occupied units	5,834	100.0
None	638	4.0	GROSS RENT		
1	5,171	32.1	Less than $200	164	2.8
2	7,986	49.6	$200 to $299	133	2.3
3 or more	2,295	14.3	$300 to $499	346	5.9
			$500 to $749	2,119	36.3
HOUSE HEATING FUEL			$750 to $999	1,947	33.4
Utility gas	8,897	55.3	$1,000 to $1,499	813	13.9
Bottled, tank, or LP gas	118	0.7	$1,500 or more	160	2.7
Electricity	6,963	43.3	No cash rent	152	2.6
Fuel oil, kerosene, etc	45	0.3	Median (dollars)	758	(X)
Coal or coke	-	-			
Wood	43	0.3	GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME IN 1999		
Solar energy	7	-			
Other fuel	10	0.1	Less than 15.0 percent	989	17.0
No fuel used	7	-	15.0 to 19.9 percent	983	16.8
			20.0 to 24.9 percent	914	15.7
SELECTED CHARACTERISTICS			25.0 to 29.9 percent	706	12.1
Lacking complete plumbing facilities	37	0.2	30.0 to 34.9 percent	572	9.8
Lacking complete kitchen facilities	146	0.9	35.0 percent or more	1,469	25.2
No telephone service	117	0.7	Not computed	201	3.4

-Represents zero or rounds to zero. (X) Not applicable.

Source: U.S. Bureau of the Census, Census 2000.

Town of Nolensville

Table DP-1. Profile of General Demographic Characteristics: 2000
Geographic area: Nolensville town, Tennessee
[For information on confidentiality protection, nonsampling error, and definitions, see text]

Subject	Number	Percent
Total population	3,099	100.0
SEX AND AGE		
Male	1,533	49.5
Female	1,566	50.5
Under 5 years	234	7.6
5 to 9 years	301	9.7
10 to 14 years	330	10.6
15 to 19 years	222	7.2
20 to 24 years	105	3.4
25 to 34 years	319	10.3
35 to 44 years	675	21.8
45 to 54 years	501	16.2
55 to 59 years	130	4.2
60 to 64 years	83	2.7
65 to 74 years	145	4.7
75 to 84 years	39	1.3
85 years and over	15	0.5
Median age (years)	35.8	(X)
18 years and over	2,078	67.1
Male	1,018	32.8
Female	1,060	34.2
21 years and over	1,988	64.1
62 years and over	251	8.1
65 years and over	199	6.4
Male	86	2.8
Female	113	3.6
RACE		
One race	3,082	99.5
White	2,862	92.4
Black or African American	198	6.4
American Indian and Alaska Native	5	0.2
Asian	3	0.1
Asian Indian	-	-
Chinese	2	0.1
Filipino	-	-
Japanese	-	-
Korean	1	-
Vietnamese	-	-
Other Asian [1]	-	-
Native Hawaiian and Other Pacific Islander	-	-
Native Hawaiian	-	-
Guamanian or Chamorro	-	-
Samoan	-	-
Other Pacific Islander [2]	-	-
Some other race	14	0.5
Two or more races	17	0.5
Race alone or in combination with one or more other races: [3]		
White	2,879	92.9
Black or African American	199	6.4
American Indian and Alaska Native	14	0.5
Asian	3	0.1
Native Hawaiian and Other Pacific Islander	-	-
Some other race	21	0.7

Subject	Number	Percent
HISPANIC OR LATINO AND RACE		
Total population	3,099	100.0
Hispanic or Latino (of any race)	41	1.3
Mexican	23	0.7
Puerto Rican	6	0.2
Cuban	1	-
Other Hispanic or Latino	11	0.4
Not Hispanic or Latino	3,058	98.7
White alone	2,836	91.5
RELATIONSHIP		
Total population	3,099	100.0
In households	3,099	100.0
Householder	995	32.1
Spouse	761	24.6
Child	1,159	37.4
Own child under 18 years	955	30.8
Other relatives	141	4.5
Under 18 years	60	1.9
Nonrelatives	43	1.4
Unmarried partner	19	0.6
In group quarters	-	-
Institutionalized population	-	-
Noninstitutionalized population	-	-
HOUSEHOLD BY TYPE		
Total households	995	100.0
Family households (families)	867	87.1
With own children under 18 years	507	51.0
Married-couple family	761	76.5
With own children under 18 years	454	45.6
Female householder, no husband present	84	8.4
With own children under 18 years	46	4.6
Nonfamily households	128	12.9
Householder living alone	109	11.0
Householder 65 years and over	44	4.4
Households with individuals under 18 years	541	54.4
Households with individuals 65 years and over	150	15.1
Average household size	3.11	(X)
Average family size	3.38	(X)
HOUSING OCCUPANCY		
Total housing units	1,024	100.0
Occupied housing units	995	97.2
Vacant housing units	29	2.8
For seasonal, recreational, or occasional use	2	0.2
Homeowner vacancy rate (percent)	1.8	(X)
Rental vacancy rate (percent)	1.8	(X)
HOUSING TENURE		
Occupied housing units	995	100.0
Owner-occupied housing units	941	94.6
Renter-occupied housing units	54	5.4
Average household size of owner-occupied units	3.15	(X)
Average household size of renter-occupied units	2.57	(X)

- Represents zero or rounds to zero. (X) Not applicable.
[1] Other Asian alone, or two or more Asian categories.
[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.
[3] In combination with one or more of the other races listed. The six numbers may add to more than the total population and the six percentages may add to more than 100 percent because individuals may report more than one race.

Source: U.S. Census Bureau, Census 2000.

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U.S. Census Bureau

Table DP-2. Profile of Selected Social Characteristics: 2000
Geographic area: Nolensville town, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent
SCHOOL ENROLLMENT		
Population 3 years and over enrolled in school	1,035	100.0
Nursery school, preschool	92	8.9
Kindergarten	53	5.1
Elementary school (grades 1-8)	564	54.5
High school (grades 9-12)	192	18.6
College or graduate school	134	12.9
EDUCATIONAL ATTAINMENT		
Population 25 years and over	1,965	100.0
Less than 9th grade	93	4.7
9th to 12th grade, no diploma	124	6.3
High school graduate (includes equivalency)	399	20.3
Some college, no degree	431	21.9
Associate degree	113	5.8
Bachelor's degree	627	31.9
Graduate or professional degree	178	9.1
Percent high school graduate or higher	89.0	(X)
Percent bachelor's degree or higher	41.0	(X)
MARITAL STATUS		
Population 15 years and over	2,288	100.0
Never married	368	16.1
Now married, except separated	1,677	73.3
Separated	41	1.8
Widowed	113	4.9
Female	83	3.6
Divorced	89	3.9
Female	45	2.0
GRANDPARENTS AS CAREGIVERS		
Grandparent living in household with one or more own grandchildren under 18 years	85	100.0
Grandparent responsible for grandchildren	20	23.5
VETERAN STATUS		
Civilian population 18 years and over	2,131	100.0
Civilian veterans	339	15.9
DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION		
Population 5 to 20 years	917	100.0
With a disability	32	3.5
Population 21 to 64 years	1,797	100.0
With a disability	159	8.8
Percent employed	47.2	(X)
No disability	1,638	91.2
Percent employed	83.5	(X)
Population 65 years and over	246	100.0
With a disability	101	41.1
RESIDENCE IN 1995		
Population 5 years and over	2,960	100.0
Same house in 1995	1,861	62.9
Different house in the U.S. in 1995	1,075	36.3
Same county	176	5.9
Different county	899	30.4
Same state	665	22.5
Different state	234	7.9
Elsewhere in 1995	24	0.8

Subject	Number	Percent
NATIVITY AND PLACE OF BIRTH		
Total population	3,211	100.0
Native	3,096	96.4
Born in United States	3,080	95.9
State of residence	1,807	56.3
Different state	1,273	39.6
Born outside United States	16	0.5
Foreign born	115	3.6
Entered 1990 to March 2000	48	1.5
Naturalized citizen	43	1.3
Not a citizen	72	2.2
REGION OF BIRTH OF FOREIGN BORN		
Total (excluding born at sea)	115	100.0
Europe	47	40.9
Asia	10	8.7
Africa	24	20.9
Oceania	-	-
Latin America	18	15.7
Northern America	16	13.9
LANGUAGE SPOKEN AT HOME		
Population 5 years and over	2,960	100.0
English only	2,812	95.0
Language other than English	148	5.0
Speak English less than "very well"	35	1.2
Spanish	74	2.5
Speak English less than "very well"	25	0.8
Other Indo-European languages	58	2.0
Speak English less than "very well"	10	0.3
Asian and Pacific Island languages	-	-
Speak English less than "very well"	-	-
ANCESTRY (single or multiple)		
Total population	3,211	100.0
Total ancestries reported	*3,126*	*97.4*
Arab	-	-
Czech[1]	17	0.5
Danish	8	0.2
Dutch	29	0.9
English	500	15.6
French (except Basque)[1]	126	3.9
French Canadian[1]	-	-
German	310	9.7
Greek	-	-
Hungarian	-	-
Irish[1]	354	11.0
Italian	131	4.1
Lithuanian	-	-
Norwegian	9	0.3
Polish	64	2.0
Portuguese	-	-
Russian	-	-
Scotch-Irish	48	1.5
Scottish	143	4.5
Slovak	-	-
Subsaharan African	24	0.7
Swedish	18	0.6
Swiss	32	1.0
Ukrainian	-	-
United States or American	704	21.9
Welsh	58	1.8
West Indian (excluding Hispanic groups)	3	0.1
Other ancestries	548	17.1

-Represents zero or rounds to zero. (X) Not applicable.
[1]The data represent a combination of two ancestries shown separately in Summary File 3. Czech includes Czechoslovakian. French includes Alsatian. French Canadian includes Acadian/Cajun. Irish includes Celtic.

Source: U.S. Bureau of the Census, Census 2000.

Table DP-3. Profile of Selected Economic Characteristics: 2000

Geographic area: Nolensville town, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent
EMPLOYMENT STATUS		
Population 16 years and over	2,217	100.0
In labor force	1,636	73.8
Civilian labor force	1,636	73.8
Employed	1,563	70.5
Unemployed	73	3.3
Percent of civilian labor force	4.5	(X)
Armed Forces	-	-
Not in labor force	581	26.2
Females 16 years and over	1,117	100.0
In labor force	747	66.9
Civilian labor force	747	66.9
Employed	706	63.2
Own children under 6 years	312	100.0
All parents in family in labor force	229	73.4
COMMUTING TO WORK		
Workers 16 years and over	1,539	100.0
Car, truck, or van - - drove alone	1,233	80.1
Car, truck, or van - - carpooled	206	13.4
Public transportation (including taxicab)	-	-
Walked	-	-
Other means	8	0.5
Worked at home	92	6.0
Mean travel time to work (minutes)[1]	29.7	(X)
Employed civilian population 16 years and over	1,563	100.0
OCCUPATION		
Management, professional, and related occupations	793	50.7
Service occupations	126	8.1
Sales and office occupations	358	22.9
Farming, fishing, and forestry occupations	-	-
Construction, extraction, and maintenance occupations	175	11.2
Production, transportation, and material moving occupations	111	7.1
INDUSTRY		
Agriculture, forestry, fishing and hunting, and mining	-	-
Construction	147	9.4
Manufacturing	132	8.4
Wholesale trade	58	3.7
Retail trade	170	10.9
Transportation and warehousing, and utilities	107	6.8
Information	121	7.7
Finance, insurance, real estate, and rental and leasing	112	7.2
Professional, scientific, management, administrative, and waste management services	130	8.3
Educational, health and social services	356	22.8
Arts, entertainment, recreation, accommodation and food services	90	5.8
Other services (except public administration)	79	5.1
Public administration	61	3.9
CLASS OF WORKER		
Private wage and salary workers	1,139	72.9
Government workers	273	17.5
Self-employed workers in own not incorporated business	151	9.7
Unpaid family workers	-	-

Subject	Number	Percent
INCOME IN 1999		
Households	996	100.0
Less than $10,000	13	1.3
$10,000 to $14,999	45	4.5
$15,000 to $24,999	46	4.6
$25,000 to $34,999	70	7.0
$35,000 to $49,999	150	15.1
$50,000 to $74,999	233	23.4
$75,000 to $99,999	217	21.8
$100,000 to $149,999	164	16.5
$150,000 to $199,999	32	3.2
$200,000 or more	26	2.6
Median household income (dollars)	69,318	(X)
With earnings	869	87.2
Mean earnings (dollars)[1]	78,444	(X)
With Social Security income	237	23.8
Mean Social Security income (dollars)[1]	11,668	(X)
With Supplemental Security Income	14	1.4
Mean Supplemental Security Income (dollars)[1]	2,871	(X)
With public assistance income	18	1.8
Mean public assistance income (dollars)[1]	1,106	(X)
With retirement income	160	16.1
Mean retirement income (dollars)[1]	11,907	(X)
Families	898	100.0
Less than $10,000	-	-
$10,000 to $14,999	17	1.9
$15,000 to $24,999	31	3.5
$25,000 to $34,999	57	6.3
$35,000 to $49,999	141	15.7
$50,000 to $74,999	223	24.8
$75,000 to $99,999	207	23.1
$100,000 to $149,999	164	18.3
$150,000 to $199,999	32	3.6
$200,000 or more	26	2.9
Median family income (dollars)	72,426	(X)
Per capita income (dollars)[1]	24,123	(X)
Median earnings (dollars):		
Male full-time, year-round workers	46,563	(X)
Female full-time, year-round workers	33,622	(X)

Subject	Number below poverty level	Percent below poverty level
POVERTY STATUS IN 1999		
Families	19	2.1
With related children under 18 years	19	3.4
With related children under 5 years	-	-
Families with female householder, no husband present	-	-
With related children under 18 years	-	-
With related children under 5 years	-	-
Individuals	94	2.9
18 years and over	43	2.0
65 years and over	-	-
Related children under 18 years	51	4.7
Related children 5 to 17 years	51	6.2
Unrelated individuals 15 years and over	6	5.7

-Represents zero or rounds to zero. (X) Not applicable.

[1]If the denominator of a mean value or per capita value is less than 30, then that value is calculated using a rounded aggregate in the numerator. See text.

Source: U.S. Bureau of the Census, Census 2000.

Table DP-4. Profile of Selected Housing Characteristics: 2000
Geographic area: Nolensville town, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent	Subject	Number	Percent
Total housing units	1,013	100.0	OCCUPANTS PER ROOM		
UNITS IN STRUCTURE			Occupied housing units	1,013	100.0
1-unit, detached	955	94.3	1.00 or less	1,013	100.0
1-unit, attached	8	0.8	1.01 to 1.50	-	-
2 units	8	0.8	1.51 or more	-	-
3 or 4 units	-	-			
5 to 9 units	-	-	Specified owner-occupied units	842	100.0
10 to 19 units	-	-	VALUE		
20 or more units	-	-	Less than $50,000	14	1.7
Mobile home	42	4.1	$50,000 to $99,999	14	1.7
Boat, RV, van, etc	-	-	$100,000 to $149,999	182	21.6
			$150,000 to $199,999	430	51.1
YEAR STRUCTURE BUILT			$200,000 to $299,999	169	20.1
1999 to March 2000	81	8.0	$300,000 to $499,999	33	3.9
1995 to 1998	101	10.0	$500,000 to $999,999	-	-
1990 to 1994	180	17.8	$1,000,000 or more	-	-
1980 to 1989	302	29.8	Median (dollars)	171,200	(X)
1970 to 1979	201	19.8			
1960 to 1969	47	4.6	MORTGAGE STATUS AND SELECTED MONTHLY OWNER COSTS		
1940 to 1959	44	4.3			
1939 or earlier	57	5.6	With a mortgage	737	87.5
			Less than $300	-	-
ROOMS			$300 to $499	-	-
1 room	-	-	$500 to $699	24	2.9
2 rooms	-	-	$700 to $999	191	22.7
3 rooms	14	1.4	$1,000 to $1,499	360	42.8
4 rooms	50	4.9	$1,500 to $1,999	151	17.9
5 rooms	134	13.2	$2,000 or more	11	1.3
6 rooms	253	25.0	Median (dollars)	1,177	(X)
7 rooms	246	24.3	Not mortgaged	105	12.5
8 rooms	163	16.1	Median (dollars)	242	(X)
9 or more rooms	153	15.1			
Median (rooms)	6.7	(X)	SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME IN 1999		
Occupied housing units	1,013	100.0			
YEAR HOUSEHOLDER MOVED INTO UNIT			Less than 15.0 percent	204	24.2
1999 to March 2000	163	16.1	15.0 to 19.9 percent	240	28.5
1995 to 1998	219	21.6	20.0 to 24.9 percent	122	14.5
1990 to 1994	240	23.7	25.0 to 29.9 percent	139	16.5
1980 to 1989	239	23.6	30.0 to 34.9 percent	44	5.2
1970 to 1979	81	8.0	35.0 percent or more	93	11.0
1969 or earlier	71	7.0	Not computed	-	-
VEHICLES AVAILABLE			Specified renter-occupied units	49	100.0
None	32	3.2	GROSS RENT		
1	189	18.7	Less than $200	-	-
2	533	52.6	$200 to $299	-	-
3 or more	259	25.6	$300 to $499	-	-
			$500 to $749	-	-
HOUSE HEATING FUEL			$750 to $999	10	20.4
Utility gas	555	54.8	$1,000 to $1,499	15	30.6
Bottled, tank, or LP gas	115	11.4	$1,500 or more	-	-
Electricity	331	32.7	No cash rent	24	49.0
Fuel oil, kerosene, etc	-	-	Median (dollars)	1,292	(X)
Coal or coke	4	0.4			
Wood	8	0.8	GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME IN 1999		
Solar energy	-	-			
Other fuel	-	-	Less than 15.0 percent	-	-
No fuel used	-	-	15.0 to 19.9 percent	10	20.4
			20.0 to 24.9 percent	15	30.6
SELECTED CHARACTERISTICS			25.0 to 29.9 percent	-	-
Lacking complete plumbing facilities	9	0.9	30.0 to 34.9 percent	-	-
Lacking complete kitchen facilities	9	0.9	35.0 percent or more	-	-
No telephone service	9	0.9	Not computed	24	49.0

-Represents zero or rounds to zero. (X) Not applicable.

Source: U.S. Bureau of the Census, Census 2000.

City of Spring Hill

Table DP-1. Profile of General Demographic Characteristics: 2000
Geographic area: Spring Hill city, Tennessee
[For information on confidentiality protection, nonsampling error, and definitions, see text]

Subject	Number	Percent
Total population	7,715	100.0
SEX AND AGE		
Male	3,862	50.1
Female	3,853	49.9
Under 5 years	850	11.0
5 to 9 years	770	10.0
10 to 14 years	587	7.6
15 to 19 years	459	5.9
20 to 24 years	356	4.6
25 to 34 years	1,700	22.0
35 to 44 years	1,542	20.0
45 to 54 years	850	11.0
55 to 59 years	218	2.8
60 to 64 years	108	1.4
65 to 74 years	166	2.2
75 to 84 years	84	1.1
85 years and over	25	0.3
Median age (years)	30.2	(X)
18 years and over	5,186	67.2
Male	2,572	33.3
Female	2,614	33.9
21 years and over	4,986	64.6
62 years and over	335	4.3
65 years and over	275	3.6
Male	111	1.4
Female	164	2.1
RACE		
One race	7,625	98.8
White	6,815	88.3
Black or African American	602	7.8
American Indian and Alaska Native	25	0.3
Asian	38	0.5
Asian Indian	3	-
Chinese	-	-
Filipino	9	0.1
Japanese	2	-
Korean	14	0.2
Vietnamese	2	-
Other Asian [1]	8	0.1
Native Hawaiian and Other Pacific Islander	5	0.1
Native Hawaiian	-	-
Guamanian or Chamorro	4	0.1
Samoan	1	-
Other Pacific Islander [2]	-	-
Some other race	140	1.8
Two or more races	90	1.2
Race alone or in combination with one or more other races: [3]		
White	6,891	89.3
Black or African American	629	8.2
American Indian and Alaska Native	56	0.7
Asian	57	0.7
Native Hawaiian and Other Pacific Islander	7	0.1
Some other race	175	2.3

Subject	Number	Percent
HISPANIC OR LATINO AND RACE		
Total population	7,715	100.0
Hispanic or Latino (of any race)	307	4.0
Mexican	182	2.4
Puerto Rican	25	0.3
Cuban	20	0.3
Other Hispanic or Latino	80	1.0
Not Hispanic or Latino	7,408	96.0
White alone	6,681	86.6
RELATIONSHIP		
Total population	7,715	100.0
In households	7,650	99.2
Householder	2,634	34.1
Spouse	1,904	24.7
Child	2,718	35.2
Own child under 18 years	2,378	30.8
Other relatives	211	2.7
Under 18 years	81	1.0
Nonrelatives	183	2.4
Unmarried partner	89	1.2
In group quarters	65	0.8
Institutionalized population	51	0.7
Noninstitutionalized population	14	0.2
HOUSEHOLD BY TYPE		
Total households	2,634	100.0
Family households (families)	2,161	82.0
With own children under 18 years	1,325	50.3
Married-couple family	1,904	72.3
With own children under 18 years	1,146	43.5
Female householder, no husband present	183	6.9
With own children under 18 years	135	5.1
Nonfamily households	473	18.0
Householder living alone	386	14.7
Householder 65 years and over	75	2.8
Households with individuals under 18 years	1,383	52.5
Households with individuals 65 years and over	212	8.0
Average household size	2.90	(X)
Average family size	3.24	(X)
HOUSING OCCUPANCY		
Total housing units	2,819	100.0
Occupied housing units	2,634	93.4
Vacant housing units	185	6.6
For seasonal, recreational, or occasional use	2	0.1
Homeowner vacancy rate (percent)	4.1	(X)
Rental vacancy rate (percent)	10.0	(X)
HOUSING TENURE		
Occupied housing units	2,634	100.0
Owner-occupied housing units	2,267	86.1
Renter-occupied housing units	367	13.9
Average household size of owner-occupied units	2.99	(X)
Average household size of renter-occupied units	2.35	(X)

- Represents zero or rounds to zero. (X) Not applicable.
[1] Other Asian alone, or two or more Asian categories.
[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.
[3] In combination with one or more of the other races listed. The six numbers may add to more than the total population and the six percentages may add to more than 100 percent because individuals may report more than one race.

Source: U.S. Census Bureau, Census 2000.

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U.S. Census Bureau

Table DP-2. Profile of Selected Social Characteristics: 2000
Geographic area: Spring Hill city, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent
SCHOOL ENROLLMENT		
Population 3 years and over enrolled in school	2,155	100.0
Nursery school, preschool	183	8.5
Kindergarten	146	6.8
Elementary school (grades 1-8)	1,097	50.9
High school (grades 9-12)	445	20.6
College or graduate school	284	13.2
EDUCATIONAL ATTAINMENT		
Population 25 years and over	4,800	100.0
Less than 9th grade	135	2.8
9th to 12th grade, no diploma	333	6.9
High school graduate (includes equivalency)	1,195	24.9
Some college, no degree	1,324	27.6
Associate degree	386	8.0
Bachelor's degree	1,107	23.1
Graduate or professional degree	320	6.7
Percent high school graduate or higher	90.3	(X)
Percent bachelor's degree or higher	29.7	(X)
MARITAL STATUS		
Population 15 years and over	5,606	100.0
Never married	902	16.1
Now married, except separated	4,135	73.8
Separated	40	0.7
Widowed	86	1.5
Female	74	1.3
Divorced	443	7.9
Female	258	4.6
GRANDPARENTS AS CAREGIVERS		
Grandparent living in household with one or more own grandchildren under 18 years	55	100.0
Grandparent responsible for grandchildren	37	67.3
VETERAN STATUS		
Civilian population 18 years and over	5,288	100.0
Civilian veterans	449	8.5
DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION		
Population 5 to 20 years	1,843	100.0
With a disability	79	4.3
Population 21 to 64 years	4,826	100.0
With a disability	451	9.3
Percent employed	66.5	(X)
No disability	4,375	90.7
Percent employed	80.8	(X)
Population 65 years and over	276	100.0
With a disability	116	42.0
RESIDENCE IN 1995		
Population 5 years and over	6,989	100.0
Same house in 1995	1,972	28.2
Different house in the U.S. in 1995	5,017	71.8
Same county	1,418	20.3
Different county	3,599	51.5
Same state	1,844	26.4
Different state	1,755	25.1
Elsewhere in 1995	-	-

Subject	Number	Percent
NATIVITY AND PLACE OF BIRTH		
Total population	7,884	100.0
Native	7,649	97.0
Born in United States	7,597	96.4
State of residence	3,034	38.5
Different state	4,563	57.9
Born outside United States	52	0.7
Foreign born	235	3.0
Entered 1990 to March 2000	97	1.2
Naturalized citizen	141	1.8
Not a citizen	94	1.2
REGION OF BIRTH OF FOREIGN BORN		
Total (excluding born at sea)	235	100.0
Europe	61	26.0
Asia	31	13.2
Africa	-	-
Oceania	-	-
Latin America	134	57.0
Northern America	9	3.8
LANGUAGE SPOKEN AT HOME		
Population 5 years and over	6,989	100.0
English only	6,590	94.3
Language other than English	399	5.7
Speak English less than "very well"	105	1.5
Spanish	263	3.8
Speak English less than "very well"	94	1.3
Other Indo-European languages	102	1.5
Speak English less than "very well"	11	0.2
Asian and Pacific Island languages	34	0.5
Speak English less than "very well"	-	-
ANCESTRY (single or multiple)		
Total population	7,884	100.0
Total ancestries reported	*8,305*	*105.3*
Arab	31	0.4
Czech[1]	12	0.2
Danish	61	0.8
Dutch	186	2.4
English	1,075	13.6
French (except Basque)[1]	266	3.4
French Canadian[1]	102	1.3
German	1,135	14.4
Greek	49	0.6
Hungarian	13	0.2
Irish[1]	1,220	15.5
Italian	265	3.4
Lithuanian	5	0.1
Norwegian	84	1.1
Polish	260	3.3
Portuguese	14	0.2
Russian	18	0.2
Scotch-Irish	251	3.2
Scottish	200	2.5
Slovak	22	0.3
Subsaharan African	73	0.9
Swedish	55	0.7
Swiss	59	0.7
Ukrainian	-	-
United States or American	1,079	13.7
Welsh	36	0.5
West Indian (excluding Hispanic groups)	-	-
Other ancestries	1,734	22.0

-Represents zero or rounds to zero. (X) Not applicable.
[1]The data represent a combination of two ancestries shown separately in Summary File 3. Czech includes Czechoslovakian. French includes Alsatian. French Canadian includes Acadian/Cajun. Irish includes Celtic.

Source: U.S. Bureau of the Census, Census 2000.

Table DP-3. Profile of Selected Economic Characteristics: 2000

Geographic area: Spring Hill city, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent
EMPLOYMENT STATUS		
Population 16 years and over	5,508	100.0
In labor force	4,238	76.9
Civilian labor force	4,238	76.9
Employed	4,098	74.4
Unemployed	140	2.5
Percent of civilian labor force	3.3	(X)
Armed Forces	-	-
Not in labor force	1,270	23.1
Females 16 years and over	2,781	100.0
In labor force	1,757	63.2
Civilian labor force	1,757	63.2
Employed	1,682	60.5
Own children under 6 years	1,045	100.0
All parents in family in labor force	522	50.0
COMMUTING TO WORK		
Workers 16 years and over	4,030	100.0
Car, truck, or van - - drove alone	3,565	88.5
Car, truck, or van - - carpooled	314	7.8
Public transportation (including taxicab)	-	-
Walked	33	0.8
Other means	36	0.9
Worked at home	82	2.0
Mean travel time to work (minutes)[1]	30.4	(X)
Employed civilian population 16 years and over	4,098	100.0
OCCUPATION		
Management, professional, and related occupations	1,558	38.0
Service occupations	450	11.0
Sales and office occupations	1,040	25.4
Farming, fishing, and forestry occupations	-	-
Construction, extraction, and maintenance occupations	252	6.1
Production, transportation, and material moving occupations	798	19.5
INDUSTRY		
Agriculture, forestry, fishing and hunting, and mining	14	0.3
Construction	220	5.4
Manufacturing	881	21.5
Wholesale trade	131	3.2
Retail trade	453	11.1
Transportation and warehousing, and utilities	167	4.1
Information	138	3.4
Finance, insurance, real estate, and rental and leasing	396	9.7
Professional, scientific, management, administrative, and waste management services	391	9.5
Educational, health and social services	639	15.6
Arts, entertainment, recreation, accommodation and food services	283	6.9
Other services (except public administration)	259	6.3
Public administration	126	3.1
CLASS OF WORKER		
Private wage and salary workers	3,577	87.3
Government workers	326	8.0
Self-employed workers in own not incorporated business	195	4.8
Unpaid family workers	-	-

Subject	Number	Percent
INCOME IN 1999		
Households	2,655	100.0
Less than $10,000	87	3.3
$10,000 to $14,999	42	1.6
$15,000 to $24,999	103	3.9
$25,000 to $34,999	207	7.8
$35,000 to $49,999	454	17.1
$50,000 to $74,999	927	34.9
$75,000 to $99,999	565	21.3
$100,000 to $149,999	219	8.2
$150,000 to $199,999	47	1.8
$200,000 or more	4	0.2
Median household income (dollars)	60,872	(X)
With earnings	2,532	95.4
Mean earnings (dollars)[1]	63,185	(X)
With Social Security income	245	9.2
Mean Social Security income (dollars)[1]	9,075	(X)
With Supplemental Security Income	19	0.7
Mean Supplemental Security Income (dollars)[1]	7,484	(X)
With public assistance income	44	1.7
Mean public assistance income (dollars)[1]	1,541	(X)
With retirement income	149	5.6
Mean retirement income (dollars)[1]	7,603	(X)
Families	2,292	100.0
Less than $10,000	52	2.3
$10,000 to $14,999	28	1.2
$15,000 to $24,999	92	4.0
$25,000 to $34,999	152	6.6
$35,000 to $49,999	392	17.1
$50,000 to $74,999	809	35.3
$75,000 to $99,999	526	22.9
$100,000 to $149,999	190	8.3
$150,000 to $199,999	47	2.1
$200,000 or more	4	0.2
Median family income (dollars)	62,643	(X)
Per capita income (dollars)[1]	21,688	(X)
Median earnings (dollars):		
Male full-time, year-round workers	50,819	(X)
Female full-time, year-round workers	29,821	(X)

Subject	Number below poverty level	Percent below poverty level
POVERTY STATUS IN 1999		
Families	70	3.1
With related children under 18 years	69	4.7
With related children under 5 years	15	2.0
Families with female householder, no husband present	61	27.0
With related children under 18 years	61	30.7
With related children under 5 years	15	23.8
Individuals	315	4.0
18 years and over	170	3.2
65 years and over	23	8.3
Related children under 18 years	127	5.0
Related children 5 to 17 years	99	6.0
Unrelated individuals 15 years and over	101	18.4

-Represents zero or rounds to zero. (X) Not applicable.

[1]If the denominator of a mean value or per capita value is less than 30, then that value is calculated using a rounded aggregate in the numerator. See text.

Source: U.S. Bureau of the Census, Census 2000.

Table DP-4. Profile of Selected Housing Characteristics: 2000
Geographic area: Spring Hill city, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent	Subject	Number	Percent
Total housing units	2,871	100.0	OCCUPANTS PER ROOM		
UNITS IN STRUCTURE			Occupied housing units	2,682	100.0
1-unit, detached	2,546	88.7	1.00 or less	2,651	98.8
1-unit, attached	4	0.1	1.01 to 1.50	31	1.2
2 units	26	0.9	1.51 or more	-	-
3 or 4 units	45	1.6			
5 to 9 units	133	4.6	Specified owner-occupied units	2,169	100.0
10 to 19 units	28	1.0	VALUE		
20 or more units	25	0.9	Less than $50,000	13	0.6
Mobile home	64	2.2	$50,000 to $99,999	279	12.9
Boat, RV, van, etc	-	-	$100,000 to $149,999	921	42.5
			$150,000 to $199,999	853	39.3
YEAR STRUCTURE BUILT			$200,000 to $299,999	100	4.6
1999 to March 2000	457	15.9	$300,000 to $499,999	3	0.1
1995 to 1998	1,235	43.0	$500,000 to $999,999	-	-
1990 to 1994	583	20.3	$1,000,000 or more	-	-
1980 to 1989	164	5.7	Median (dollars)	145,300	(X)
1970 to 1979	211	7.3			
1960 to 1969	29	1.0	MORTGAGE STATUS AND SELECTED MONTHLY OWNER COSTS		
1940 to 1959	67	2.3			
1939 or earlier	125	4.4	With a mortgage	2,007	92.5
			Less than $300	-	-
ROOMS			$300 to $499	23	1.1
1 room	9	0.3	$500 to $699	77	3.6
2 rooms	18	0.6	$700 to $999	322	14.8
3 rooms	131	4.6	$1,000 to $1,499	1,157	53.3
4 rooms	234	8.2	$1,500 to $1,999	389	17.9
5 rooms	463	16.1	$2,000 or more	39	1.8
6 rooms	605	21.1	Median (dollars)	1,225	(X)
7 rooms	798	27.8	Not mortgaged	162	7.5
8 rooms	421	14.7	Median (dollars)	280	(X)
9 or more rooms	192	6.7			
Median (rooms)	6.5	(X)	SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME IN 1999		
Occupied housing units	2,682	100.0			
YEAR HOUSEHOLDER MOVED INTO UNIT			Less than 15.0 percent	358	16.5
1999 to March 2000	757	28.2	15.0 to 19.9 percent	417	19.2
1995 to 1998	1,333	49.7	20.0 to 24.9 percent	530	24.4
1990 to 1994	359	13.4	25.0 to 29.9 percent	317	14.6
1980 to 1989	77	2.9	30.0 to 34.9 percent	194	8.9
1970 to 1979	131	4.9	35.0 percent or more	334	15.4
1969 or earlier	25	0.9	Not computed	19	0.9
VEHICLES AVAILABLE			Specified renter-occupied units	332	100.0
None	71	2.6	GROSS RENT		
1	515	19.2	Less than $200	-	-
2	1,597	59.5	$200 to $299	-	-
3 or more	499	18.6	$300 to $499	50	15.1
			$500 to $749	177	53.3
HOUSE HEATING FUEL			$750 to $999	58	17.5
Utility gas	1,877	70.0	$1,000 to $1,499	31	9.3
Bottled, tank, or LP gas	72	2.7	$1,500 or more	4	1.2
Electricity	725	27.0	No cash rent	12	3.6
Fuel oil, kerosene, etc	-	-	Median (dollars)	693	(X)
Coal or coke	-	-			
Wood	8	0.3	GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME IN 1999		
Solar energy	-	-			
Other fuel	-	-	Less than 15.0 percent	115	34.6
No fuel used	-	-	15.0 to 19.9 percent	31	9.3
			20.0 to 24.9 percent	70	21.1
SELECTED CHARACTERISTICS			25.0 to 29.9 percent	35	10.5
Lacking complete plumbing facilities	2	0.1	30.0 to 34.9 percent	11	3.3
Lacking complete kitchen facilities	2	0.1	35.0 percent or more	58	17.5
No telephone service	-	-	Not computed	12	3.6

-Represents zero or rounds to zero. (X) Not applicable.

Source: U.S. Bureau of the Census, Census 2000.

Town of Thompson Station

Table DP-1. Profile of General Demographic Characteristics: 2000
Geographic area: Thompson's Station town, Tennessee
[For information on confidentiality protection, nonsampling error, and definitions, see text]

Subject	Number	Percent
Total population	1,283	100.0
SEX AND AGE		
Male	649	50.6
Female	634	49.4
Under 5 years	91	7.1
5 to 9 years	86	6.7
10 to 14 years	99	7.7
15 to 19 years	102	8.0
20 to 24 years	47	3.7
25 to 34 years	141	11.0
35 to 44 years	257	20.0
45 to 54 years	245	19.1
55 to 59 years	71	5.5
60 to 64 years	28	2.2
65 to 74 years	57	4.4
75 to 84 years	42	3.3
85 years and over	17	1.3
Median age (years)	38.4	(X)
18 years and over	939	73.2
Male	461	35.9
Female	478	37.3
21 years and over	893	69.6
62 years and over	130	10.1
65 years and over	116	9.0
Male	49	3.8
Female	67	5.2
RACE		
One race	1,277	99.5
White	1,170	91.2
Black or African American	90	7.0
American Indian and Alaska Native	2	0.2
Asian	7	0.5
Asian Indian	-	-
Chinese	1	0.1
Filipino	6	0.5
Japanese	-	-
Korean	-	-
Vietnamese	-	-
Other Asian [1]	-	-
Native Hawaiian and Other Pacific Islander	-	-
Native Hawaiian	-	-
Guamanian or Chamorro	-	-
Samoan	-	-
Other Pacific Islander [2]	-	-
Some other race	8	0.6
Two or more races	6	0.5
Race alone or in combination with one or more other races: [3]		
White	1,175	91.6
Black or African American	92	7.2
American Indian and Alaska Native	2	0.2
Asian	10	0.8
Native Hawaiian and Other Pacific Islander	1	0.1
Some other race	10	0.8

Subject	Number	Percent
HISPANIC OR LATINO AND RACE		
Total population	1,283	100.0
Hispanic or Latino (of any race)	33	2.6
Mexican	17	1.3
Puerto Rican	8	0.6
Cuban	-	-
Other Hispanic or Latino	8	0.6
Not Hispanic or Latino	1,250	97.4
White alone	1,145	89.2
RELATIONSHIP		
Total population	1,283	100.0
In households	1,283	100.0
Householder	447	34.8
Spouse	336	26.2
Child	411	32.0
Own child under 18 years	315	24.6
Other relatives	68	5.3
Under 18 years	28	2.2
Nonrelatives	21	1.6
Unmarried partner	9	0.7
In group quarters	-	-
Institutionalized population	-	-
Noninstitutionalized population	-	-
HOUSEHOLD BY TYPE		
Total households	447	100.0
Family households (families)	376	84.1
With own children under 18 years	179	40.0
Married-couple family	336	75.2
With own children under 18 years	160	35.8
Female householder, no husband present	31	6.9
With own children under 18 years	16	3.6
Nonfamily households	71	15.9
Householder living alone	63	14.1
Householder 65 years and over	21	4.7
Households with individuals under 18 years	194	43.4
Households with individuals 65 years and over	81	18.1
Average household size	2.87	(X)
Average family size	3.17	(X)
HOUSING OCCUPANCY		
Total housing units	473	100.0
Occupied housing units	447	94.5
Vacant housing units	26	5.5
For seasonal, recreational, or occasional use	2	0.4
Homeowner vacancy rate (percent)	1.2	(X)
Rental vacancy rate (percent)	2.4	(X)
HOUSING TENURE		
Occupied housing units	447	100.0
Owner-occupied housing units	406	90.8
Renter-occupied housing units	41	9.2
Average household size of owner-occupied units	2.91	(X)
Average household size of renter-occupied units	2.49	(X)

- Represents zero or rounds to zero. (X) Not applicable.
[1] Other Asian alone, or two or more Asian categories.
[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.
[3] In combination with one or more of the other races listed. The six numbers may add to more than the total population and the six percentages may add to more than 100 percent because individuals may report more than one race.

Source: U.S. Census Bureau, Census 2000.

1

U.S. Census Bureau

Table DP-2. Profile of Selected Social Characteristics: 2000
Geographic area: Thompson's Station town, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent
SCHOOL ENROLLMENT		
Population 3 years and over enrolled in school	304	100.0
Nursery school, preschool	16	5.3
Kindergarten	18	5.9
Elementary school (grades 1-8)	130	42.8
High school (grades 9-12)	104	34.2
College or graduate school	36	11.8
EDUCATIONAL ATTAINMENT		
Population 25 years and over	831	100.0
Less than 9th grade	67	8.1
9th to 12th grade, no diploma	44	5.3
High school graduate (includes equivalency)	295	35.5
Some college, no degree	164	19.7
Associate degree	50	6.0
Bachelor's degree	157	18.9
Graduate or professional degree	54	6.5
Percent high school graduate or higher	86.6	(X)
Percent bachelor's degree or higher	25.4	(X)
MARITAL STATUS		
Population 15 years and over	982	100.0
Never married	172	17.5
Now married, except separated	691	70.4
Separated	8	0.8
Widowed	36	3.7
Female	23	2.3
Divorced	75	7.6
Female	32	3.3
GRANDPARENTS AS CAREGIVERS		
Grandparent living in household with one or more own grandchildren under 18 years	21	100.0
Grandparent responsible for grandchildren	9	42.9
VETERAN STATUS		
Civilian population 18 years and over	901	100.0
Civilian veterans	100	11.1
DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION		
Population 5 to 20 years	292	100.0
With a disability	10	3.4
Population 21 to 64 years	727	100.0
With a disability	73	10.0
Percent employed	64.4	(X)
No disability	654	90.0
Percent employed	83.6	(X)
Population 65 years and over	127	100.0
With a disability	59	46.5
RESIDENCE IN 1995		
Population 5 years and over	1,146	100.0
Same house in 1995	748	65.3
Different house in the U.S. in 1995	386	33.7
Same county	167	14.6
Different county	219	19.1
Same state	131	11.4
Different state	88	7.7
Elsewhere in 1995	12	1.0

Subject	Number	Percent
NATIVITY AND PLACE OF BIRTH		
Total population	1,220	100.0
Native	1,203	98.6
Born in United States	1,194	97.9
State of residence	718	58.9
Different state	476	39.0
Born outside United States	9	0.7
Foreign born	17	1.4
Entered 1990 to March 2000	10	0.8
Naturalized citizen	4	0.3
Not a citizen	13	1.1
REGION OF BIRTH OF FOREIGN BORN		
Total (excluding born at sea)	17	100.0
Europe	-	-
Asia	1	5.9
Africa	-	-
Oceania	-	-
Latin America	16	94.1
Northern America	-	-
LANGUAGE SPOKEN AT HOME		
Population 5 years and over	1,146	100.0
English only	1,107	96.6
Language other than English	39	3.4
Speak English less than "very well"	16	1.4
Spanish	28	2.4
Speak English less than "very well"	11	1.0
Other Indo-European languages	11	1.0
Speak English less than "very well"	5	0.4
Asian and Pacific Island languages	-	-
Speak English less than "very well"	-	-
ANCESTRY (single or multiple)		
Total population	1,220	100.0
Total ancestries reported	*995*	*81.6*
Arab	-	-
Czech[1]	3	0.2
Danish	7	0.6
Dutch	12	1.0
English	178	14.6
French (except Basque)[1]	37	3.0
French Canadian[1]	15	1.2
German	114	9.3
Greek	-	-
Hungarian	5	0.4
Irish[1]	115	9.4
Italian	42	3.4
Lithuanian	-	-
Norwegian	2	0.2
Polish	5	0.4
Portuguese	11	0.9
Russian	6	0.5
Scotch-Irish	47	3.9
Scottish	37	3.0
Slovak	-	-
Subsaharan African	13	1.1
Swedish	12	1.0
Swiss	-	-
Ukrainian	-	-
United States or American	122	10.0
Welsh	8	0.7
West Indian (excluding Hispanic groups)	-	-
Other ancestries	204	16.7

-Represents zero or rounds to zero. (X) Not applicable.
[1]The data represent a combination of two ancestries shown separately in Summary File 3. Czech includes Czechoslovakian. French includes Alsatian. French Canadian includes Acadian/Cajun. Irish includes Celtic.

Source: U.S. Bureau of the Census, Census 2000.

Table DP-3. Profile of Selected Economic Characteristics: 2000
Geographic area: Thompson's Station town, Tennessee
[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent
EMPLOYMENT STATUS		
Population 16 years and over	963	100.0
In labor force	676	70.2
Civilian labor force	676	70.2
Employed	652	67.7
Unemployed	24	2.5
Percent of civilian labor force	3.6	(X)
Armed Forces	-	-
Not in labor force	287	29.8
Females 16 years and over	481	100.0
In labor force	312	64.9
Civilian labor force	312	64.9
Employed	295	61.3
Own children under 6 years	85	100.0
All parents in family in labor force	61	71.8
COMMUTING TO WORK		
Workers 16 years and over	639	100.0
Car, truck, or van - - drove alone	514	80.4
Car, truck, or van - - carpooled	65	10.2
Public transportation (including taxicab)	-	-
Walked	13	2.0
Other means	8	1.3
Worked at home	39	6.1
Mean travel time to work (minutes)[1]	29.9	(X)
Employed civilian population 16 years and over	652	100.0
OCCUPATION		
Management, professional, and related occupations	219	33.6
Service occupations	90	13.8
Sales and office occupations	154	23.6
Farming, fishing, and forestry occupations	13	2.0
Construction, extraction, and maintenance occupations	86	13.2
Production, transportation, and material moving occupations	90	13.8
INDUSTRY		
Agriculture, forestry, fishing and hunting, and mining	26	4.0
Construction	47	7.2
Manufacturing	90	13.8
Wholesale trade	13	2.0
Retail trade	68	10.4
Transportation and warehousing, and utilities	40	6.1
Information	41	6.3
Finance, insurance, real estate, and rental and leasing	49	7.5
Professional, scientific, management, administrative, and waste management services	66	10.1
Educational, health and social services	93	14.3
Arts, entertainment, recreation, accommodation and food services	25	3.8
Other services (except public administration)	59	9.0
Public administration	35	5.4
CLASS OF WORKER		
Private wage and salary workers	508	77.9
Government workers	62	9.5
Self-employed workers in own not incorporated business	80	12.3
Unpaid family workers	2	0.3

Subject	Number	Percent
INCOME IN 1999		
Households	420	100.0
Less than $10,000	19	4.5
$10,000 to $14,999	7	1.7
$15,000 to $24,999	19	4.5
$25,000 to $34,999	43	10.2
$35,000 to $49,999	58	13.8
$50,000 to $74,999	98	23.3
$75,000 to $99,999	95	22.6
$100,000 to $149,999	59	14.0
$150,000 to $199,999	15	3.6
$200,000 or more	7	1.7
Median household income (dollars)	66,875	(X)
With earnings	384	91.4
Mean earnings (dollars)[1]	73,471	(X)
With Social Security income	90	21.4
Mean Social Security income (dollars)[1]	11,731	(X)
With Supplemental Security Income	7	1.7
Mean Supplemental Security Income (dollars)[1]	6,929	(X)
With public assistance income	5	1.2
Mean public assistance income (dollars)[1]	1,020	(X)
With retirement income	59	14.0
Mean retirement income (dollars)[1]	13,566	(X)
Families	367	100.0
Less than $10,000	12	3.3
$10,000 to $14,999	5	1.4
$15,000 to $24,999	16	4.4
$25,000 to $34,999	26	7.1
$35,000 to $49,999	52	14.2
$50,000 to $74,999	89	24.3
$75,000 to $99,999	90	24.5
$100,000 to $149,999	57	15.5
$150,000 to $199,999	13	3.5
$200,000 or more	7	1.9
Median family income (dollars)	70,568	(X)
Per capita income (dollars)[1]	24,143	(X)
Median earnings (dollars):		
Male full-time, year-round workers	50,337	(X)
Female full-time, year-round workers	31,528	(X)

Subject	Number below poverty level	Percent below poverty level
POVERTY STATUS IN 1999		
Families	15	4.1
With related children under 18 years	8	4.3
With related children under 5 years	-	-
Families with female householder, no husband present	3	12.5
With related children under 18 years	3	21.4
With related children under 5 years	-	-
Individuals	54	4.4
18 years and over	37	4.1
65 years and over	16	12.6
Related children under 18 years	17	5.3
Related children 5 to 17 years	17	6.9
Unrelated individuals 15 years and over	8	11.4

-Represents zero or rounds to zero. (X) Not applicable.
[1]If the denominator of a mean value or per capita value is less than 30, then that value is calculated using a rounded aggregate in the numerator. See text.
Source: U.S. Bureau of the Census, Census 2000.

Table DP-4. Profile of Selected Housing Characteristics: 2000
Geographic area: Thompson's Station town, Tennessee

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent	Subject	Number	Percent
Total housing units	454	100.0	OCCUPANTS PER ROOM		
UNITS IN STRUCTURE			Occupied housing units	417	100.0
1-unit, detached	415	91.4	1.00 or less	414	99.3
1-unit, attached	2	0.4	1.01 to 1.50	3	0.7
2 units	2	0.4	1.51 or more	-	-
3 or 4 units	-	-			
5 to 9 units	-	-	Specified owner-occupied units	252	100.0
10 to 19 units	-	-	VALUE		
20 or more units	-	-	Less than $50,000	-	-
Mobile home	35	7.7	$50,000 to $99,999	23	9.1
Boat, RV, van, etc	-	-	$100,000 to $149,999	63	25.0
			$150,000 to $199,999	90	35.7
YEAR STRUCTURE BUILT			$200,000 to $299,999	57	22.6
1999 to March 2000	34	7.5	$300,000 to $499,999	19	7.5
1995 to 1998	58	12.8	$500,000 to $999,999	-	-
1990 to 1994	89	19.6	$1,000,000 or more	-	-
1980 to 1989	72	15.9	Median (dollars)	165,400	(X)
1970 to 1979	93	20.5			
1960 to 1969	13	2.9	MORTGAGE STATUS AND SELECTED MONTHLY OWNER COSTS		
1940 to 1959	29	6.4			
1939 or earlier	66	14.5	With a mortgage	211	83.7
			Less than $300	-	-
ROOMS			$300 to $499	4	1.6
1 room	-	-	$500 to $699	14	5.6
2 rooms	-	-	$700 to $999	46	18.3
3 rooms	4	0.9	$1,000 to $1,499	83	32.9
4 rooms	46	10.1	$1,500 to $1,999	48	19.0
5 rooms	57	12.6	$2,000 or more	16	6.3
6 rooms	82	18.1	Median (dollars)	1,241	(X)
7 rooms	127	28.0	Not mortgaged	41	16.3
8 rooms	69	15.2	Median (dollars)	240	(X)
9 or more rooms	69	15.2			
Median (rooms)	6.8	(X)	SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME IN 1999		
Occupied housing units	417	100.0			
YEAR HOUSEHOLDER MOVED INTO UNIT			Less than 15.0 percent	75	29.8
1999 to March 2000	69	16.5	15.0 to 19.9 percent	75	29.8
1995 to 1998	97	23.3	20.0 to 24.9 percent	44	17.5
1990 to 1994	97	23.3	25.0 to 29.9 percent	23	9.1
1980 to 1989	85	20.4	30.0 to 34.9 percent	4	1.6
1970 to 1979	42	10.1	35.0 percent or more	31	12.3
1969 or earlier	27	6.5	Not computed	-	-
VEHICLES AVAILABLE			Specified renter-occupied units	19	100.0
None	2	0.5	GROSS RENT		
1	74	17.7	Less than $200	-	-
2	191	45.8	$200 to $299	-	-
3 or more	150	36.0	$300 to $499	6	31.6
			$500 to $749	3	15.8
HOUSE HEATING FUEL			$750 to $999	2	10.5
Utility gas	104	24.9	$1,000 to $1,499	2	10.5
Bottled, tank, or LP gas	88	21.1	$1,500 or more	-	-
Electricity	208	49.9	No cash rent	6	31.6
Fuel oil, kerosene, etc	-	-	Median (dollars)	508	(X)
Coal or coke	-	-			
Wood	17	4.1	GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME IN 1999		
Solar energy	-	-			
Other fuel	-	-	Less than 15.0 percent	6	31.6
No fuel used	-	-	15.0 to 19.9 percent	2	10.5
			20.0 to 24.9 percent	-	-
SELECTED CHARACTERISTICS			25.0 to 29.9 percent	-	-
Lacking complete plumbing facilities	5	1.2	30.0 to 34.9 percent	2	10.5
Lacking complete kitchen facilities	2	0.5	35.0 percent or more	3	15.8
No telephone service	-	-	Not computed	6	31.6

-Represents zero or rounds to zero. (X) Not applicable.

Source: U.S. Bureau of the Census, Census 2000.

Appendix F

Williamson County, Tennessee
DRAFT Storm Water Management Regulation
August 26, 2004

Table of Contents

Section 1: General

1.1 Title

These Regulations shall be known, cited and referred to as the "Storm Water Regulations of Williamson County, Tennessee"

1.2 Preamble

The Williamson County Board of Commissioners finds and declares that it is in the best interest of the citizens of Williamson County to regulate the discharge of storm water, alleviate the effects of flooding and facilitate compliance with the Water Quality Act of 1977, the Water Quality Act of 1987 and the Clean Water Act of 1977. In furtherance of same, the Williamson County Board of Commissioners hereby adopts these Regulations governing storm water discharges, storm water management, flood control and erosion prevention.

1.3 Purpose and Authority

A. Protect, maintain, and enhance the environment of Williamson County and the public health, safety and the general welfare of the citizens of the County, by controlling discharges of pollutants to the storm water system and to maintain and improve the quality of the receiving waters into which the storm water outfalls flow, including, without limitation, lakes, rivers, streams, ponds, wetlands, and groundwater of the County.

B. Enable Williamson County to comply with the National Pollution Discharge Elimination System permit (NPDES) and applicable regulations, 40 CFR _122.26 for storm water discharges.

C. Allow Williamson County to exercise the powers granted in Tennessee Code Annotated _68-221-1105 or as amended by the State of Tennessee.

D. Williamson County shall have authority to implement and supplement these Regulations by reference to appropriate guidance or other related materials. Guidance or other related materials may be modified to meet the objectives and policies of this regulation, so long as such modifications to guidance or other related materials are not contrary or beyond the intent of these Regulations. The guidance or other related materials shall not in any way endorse specific commercially available products. However, they may refer to performance specifications, class of devices, construction, or management practice.

E. Williamson County shall have right-of-entry upon the property subject to this regulation and any permit/document issued hereunder. Williamson County shall be provided ready access to all parts of the premises for the purposes of inspection, monitoring, sampling, inventory, records examination and copying, and the performance of any other duties necessary to determine compliance with this regulation.

F. Where a property, site or facility has security measures in place that require proper identification and clearance before entry into its premises, the owner/operator shall make necessary arrangements with its security personnel so that, upon presentation of suitable identification, Williamson County will be permitted to enter without delay for the purposes of performing specific responsibilities.

G. Williamson County shall have the right to utilize on the owner/operator property such devices as are necessary to conduct sampling and/or metering of the person's storm water operations or discharges.

H. Any temporary or permanent obstruction to safe and easy access to the areas to be inspected and/or monitored shall be removed promptly by the owner/operator at the written or verbal request of Williamson County. The costs of clearing such access shall be borne by the owner/operator. The County reserves the right to determine and impose inspection schedules necessary to enforce the provisions of these Regulations.

1.4 Exemptions

The following activities are exempt from the requirements of these Regulations:
Any emergency activity that is immediately necessary for the protection of life, property, or natural resources;
Agricultural land management activities; and
Any silviculture or agricultural activity that is consistent with an approved farm conservation plan or a timber management plan prepared or approved by the State of Tennessee.

1.5 Duty to mitigate

The owner/operator shall take all reasonable steps to minimize or prevent any discharge in violation of these Regulations.

1.6 Duty to provide information

The owner/operator shall furnish to Williamson County any information that is requested to determine compliance with these Regulations or other information.

1.7 Other information

When the owner/operator becomes aware that the owner/operator failed to submit any relevant facts or submitted incorrect information in the Notice of Intent or in any other report to Williamson County, the owner/operator shall promptly submit such facts or information.

1.8 Applicability and Jurisdiction

The Storm Water Regulations shall govern all properties within the unincorporated limits of Williamson County, Tennessee.

1.9 Savings Provision

These regulations shall not be construed as altering, modifying, vacating or nullifying any action now impending or any rights of obligations obtained by any person, firm or corporation through approval of a preliminary plat by the Williamson County Regional Planning Commission or through the approval of any grading/land disturbance permit or any other lawful action of the County prior to the adoption of these Regulations.

Section 2: Standards

2.1 Storm Water Quality

A. There shall be no distinctly visible floating scum, oil or other matter contained in the storm water discharge.

B. The storm water discharge must not cause an objectionable color contrast in the receiving stream.

C. Development will be required to minimize the impact to storm water quality by applying structural and/or nonstructural management practices selected to address site-specific conditions. The goal for water quality treatment shall be 80% removal of total suspended solids from the first flush, defined by land use characteristics or at least 0.5-inches where not defined.

D. Re-development activities will be required to follow storm water quality requirements.

E. No land disturbance activities, whether by private or public action, shall be performed in a manner that will negatively impact storm water quality whether by flow restrictions, increased runoff, or by diminishing channel or floodplain storage capacity. Acceleration of erosion or sedimentation, or transport of other pollutants or forms of pollution, due to various land development activities must be controlled.

2.2 Storm Water Quantity

A. New development shall meet a storm water quantity level of service defined by:
   1. Designing road catch basins and connecting culverts to convey the 10-year, 24-hour design storm runoff.
   2. Designing bridges, culverts, channels and cross-drains to pass the 25-year, 24-hour design storm runoff. Calculations shall also be provided for the 100-year, 24-hour design storm.

B. Storm water infrastructure shall be designed in a way that:
   1. Critical service roads are not inundated by more than three inches of water over one-half the roadway width under a 100-year, 24-hour design storm event.
   2. Other new roads shall be designed to have no more than 6-inches of road overtopping at the 25-year, 24-hour design storm event.

C. Re-development activities will be required to follow storm water quantity requirements.

D. No land disturbance activities, whether by private or public action, shall be performed in a manner that will negatively impact storm water quantity whether by flow restrictions, increased runoff, or by diminishing channel or floodplain storage capacity. Acceleration of erosion or sedimentation, or transport of other pollutants or forms of pollution, due to various land development activities must be controlled.

2.3 Allowable Discharges

A. Pursuant to the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) program administered by the Tennessee Department of Environment and Conservation (TDEC) illicit discharges to the MS4 are being defined as illegal. This is being accomplished through the identification of allowable non-storm water discharges into the MS4 in the best interest of Williamson County, Tennessee.

B. Non-storm water discharge means any discharge to the Municipal Separate Storm Sewer System except as permitted by Section D.

C. Except as hereinafter provided, all non-storm water discharges into the Municipal Separate Storm Sewer System are prohibited and declared to be unlawful.

D. Unless Williamson County has identified them as a source of pollutants to the "Waters of the State of Tennessee", the following non-storm water discharges into the Municipal Separate Storm Sewer System are lawful:

1. Discharges from emergency fire fighting activities
2. Rising ground waters
3. Uncontaminated groundwater infiltration to separate storm sewer systems (as defined by 40 CFR_35.2005 (20))
4. Uncontaminated pumped ground water
5. Discharges from potable water sources as required for system maintenance
6. Water line flushing
7. Foundation, footing, and crawl space drains and pumps
8. Air conditioning condensate
9. Landscape and lawn irrigation
10. Uncontaminated springs
11. Individual residential vehicle washing
12. Flows from riparian habitats and wetlands
13. Dechlorinated swimming pool discharges
14. Street wash waters resulting from normal street cleaning operations
15. Controlled flushing storm water conveyances (controlled by appropriate BMPs)
16. Discharges within the constraints of a National Pollutant Discharge Elimination System (NPDES) permit from the Tennessee Department of Environment and Conservation (TDEC)
17. Other special discharges as approved by Williamson County

Section 3: Storm Water Runoff Controls

3.1 Storm Water Detention

A. Land disturbance activities may not aggravate upstream or downstream flooding.

B. Detention and retention facilities shall be sized such that the post-development peak discharge rate is less than or equal to the pre-development peak discharge rate for the first flush, 2 year, 5 year, 10 year, 25 year, 50 year, and 100 year, 24 hour design storms. The facilities shall be designed such that the cumulative post-development discharge volume is less than or equal to the cumulative pre-development discharge volume during the critical time for the first flush, 2 year, 5 year, 10 year, 25 year, 50 year, and 100 year, 24 hour design storms. The critical time shall be between the hours of 11 and 18 of the 24 hour design storm unless otherwise specified by a County accepted watershed plan.

C. Water quality measures such as forebays or other BMPs shall be incorporated into detention facilities for added quality benefit and ease of maintenance.

D. Consideration shall be given to the use of regional facilities.

E. Fee in lieu of detention shall be evaluated on a site-by-site basis. The fee shall include cost of construction and fair market value of the land required for detention facility construction. The use of the fee in lieu of detention does not exempt the requirement of water quality BMPs.

F. Detention facilities shall not be located in the right-of-way nor in the Waterway Natural Area.

G. Detention facilities shall not be located on privately owned single family residential parcels.

Section 4: Waterway Natural Areas

A. Waterway Natural Areas shall be implemented in Major Subdivisions as Open Space. In any development other than a Major Subdivision where open space is not provided, the Waterway Natural Areas shall be on private lots. The Waterway Natural Area shall be implemented on non-residential developments on a case-by-case basis.

B. Waterway Natural Areas width shall be at least 100 feet perpendicular from the top of bank on each side of the waterway where tributary area is greater than or equal to five (5) square miles.

C. Waterway Natural Areas width shall be at least 75 feet perpendicular from the top of bank on each side of the waterway where the tributary area is greater than or equal to one (1) square mile and less than five (5) square miles.

D. Waterway Natural Areas width shall be at least 50 feet perpendicular from the top of bank on each side of the waterway where the tributary area is less than one (1) square mile.

E. Waterway Natural Areas shall be applied along all intermittent and perennial stream waterways as determined by the County, State, or USGS topographic information. This determination shall be conducted at the pre-application conference phase, however the County reserves the right to identify a waterbody until the preliminary plat approval.

F. Waterway Natural Areas shall be recorded on the plat for parcels subject to plat revision.

G. On parcels not subject to plat revisions, the Waterway Natural Area shall be applied as a setback from the top of bank.

H. WNA designations shall not reduce Base Site Area (as defined in the Williamson County Zoning Ordinance).

I. All site development plans and plats prepared for recording shall:
   1. Show the extent of any streamside water quality buffer on the subject property by metes and bounds and be labeled as “Streamside Water Quality Buffer”
   2. Provide a note to reference any streamside water quality buffer stating: "There shall be no clearing, grading, construction or disturbance of vegetation except as permitted by the Williamson County Engineering Department."
   3. Provide a note to reference any protective covenants governing all streamside water quality buffer areas stating: "Any streamside water quality buffer shown hereon is subject to protective covenants which may be found in the land records and which restrict disturbance and use of these areas."

J. All streamside water quality buffer areas must be protected during development activities. Construction layout survey must include staking and labeling the streamside water quality buffer areas. Use a combination of stakes and flagging to ensure adequate visibility.

K. As part of development activities, the streamside water quality buffer must be monitored for vegetative conditions. Minor landscaping is allowed within the streamside water quality buffer to repair erosion, damaged vegetation, or other problems identified. Landscaping or stabilization activities must have prior approval by the Engineering Department.

4.1 Waterway Natural Area width adjustment:

A. If the adjacent land use involves subsurface discharges from a wastewater treatment system, effluent will not be allowed to discharge in the WNA; current Williamson County and State of Tennessee regulations will govern effluent regulations.

B. Septic tanks must be outside of Waterway Natural Area. Septic field lines may be allowed within the WNA to within 25' from stream top of bank or as determined by the Williamson County Department of Sewage Disposal Management, whichever provides the greatest distance from top of stream bank.

4.2 Permitted Waterway Natural Area Uses

No buildings shall be allowed in the Waterway Natural Area with the exception of passive recreation areas (as defined in the Williamson County Zoning Ordinance).

Section 5: Storm Water System Long-Term Operation and Maintenance

A. The maintenance responsibilities for permanent storm water runoff control facilities shall be the responsibility of the owner/operator.

B. Residential developments that form a homeowners association, trust indenture, or other management entity, that entity shall be responsible for long term operation and maintenance of storm water infrastructure located in drainage easements or open space.

C. An engineer shall provide a storm water infrastructure long-term operation and maintenance plan with an opinion of probable costs and schedule, subject to approval by Williamson County. The long term operation and maintenance plan shall be in writing, shall be in recordable form, and shall, in addition to any other terms deemed necessary by the Williamson County, contain a provision permitting inspection at any reasonable time by Williamson County of the facilities deemed critical to the public welfare.

D. Williamson County will have the authority to maintain facilities not properly maintained and to recover costs associated with the maintenance from the owner/operator.

E. Operation and maintenance plans for residential development shall be submitted and recorded with the final plat.

F. Operation and maintenance plans for non-residential development shall be submitted and recorded prior to the issuance of a land disturbance permit.

G. Upon approval of the storm water management facilities by Williamson County, the facility owner/operator (s) shall demonstrate the ability to garner and apply the financial resources necessary for long-term maintenance requirements. The funding mechanism shall be in a form approved by Williamson County. The County will only approve funding mechanism(s) for long-term maintenance responsibilities that can be demonstrated to be permanent or transferable to another entity with equivalent longevity.

H. Long term operation and maintenance provisions of the storm water infrastructure shall be documented in the restrictive covenants.

Section 6: Land Disturbance Permits

6.1 Applicability

A. Every owner/operator will be required to obtain a land disturbance permit from Williamson County in the following cases:
   1. Land disturbing activity greater than 5,000 square feet of land;
   2. Whenever excavation, fill, or any combination thereof will exceed five hundred (500) cubic yards of material.
   3. Where land disturbance activities pose a threat to water, public health or safety;

B. No building permit shall be issued until the applicant has obtained a land disturbance permit where the same is required by these Regulations.

6.2 Land Disturbance Permit Application

A. Application for a Land Disturbance Permit on sites requiring a "Tennessee General Permit for Storm Water Discharges from Construction Activities" shall require the following be submitted to Williamson County for review and approval:
   1. The Notice of Intent (NOI) submitted to TDEC for coverage under the "Tennessee General Permit for Storm Water Discharges from Construction Activities."
   2. The Storm Water Pollution Prevention Plan prepared for coverage under the "Tennessee General Permit for Storm Water Discharges from Construction Activities."
   3. Separate sheets, stamped by an engineer at a scale not to exceed one (1) inch equal to fifty (50) feet, for pre-construction, construction, and post construction storm water BMPs.

B. Application for a Land Disturbance Permit on sites with land disturbance activities greater than 5,000 square feet but less than one (1) acre and does not require a "Tennessee General Permit for Storm Water Discharges from Construction Activities" shall require the following be submitted to Williamson County for review and approval:
   1. The applicant shall submit to Williamson County a Williamson County Erosion Prevention and Sediment Control Checklist signed by the applicant.

6.3 Fee Schedule

A. Single Lot – A storm water review and inspection fee of $150 per lot is payable at building permit application for residential lots which are part of a platted subdivision, or exceed one (1) acre of disturbed area.

B. Subdivision – A storm water review and inspection fee of $300 is required for all subdivisions and non-residential site plans.

C. Non-Residential Site Plans – A storm water review and inspection fee of $300 is required for all subdivisions and non-residential site plans.

Section 7: Inspections

Inspections shall be performed to ensure that vegetation, erosion and sediment control measures and other protective measures identified in the site plan are kept in good and effective operating condition.

7.1 Owner/Operator Inspections

A. Inspections required by TDEC.
B. Williamson County may request submission of inspection documentation.
C. Pre-Construction storm water management BMPs must be inspected and certified that the BMPs are in accordance with the approved plans by an engineer, licensed in the State of Tennessee on sites greater than one acre or part of a larger development.
D. Construction storm water management BMPs must be inspected and certified that the BMPs are in accordance with the approved plans by an engineer, licensed in the State of Tennessee, prior to granting building permit on sites with land disturbance activities greater than one (1) acre.
E. Post Construction BMPs must be inspected and certified that the BMPs are in accordance with the approved plans by an engineer, licensed in the State of Tennessee, prior to release of surety.
F. Final storm water management BMPs must be inspected and certified that the BMPs are in accordance with the approved plans by an engineer, licensed in the State of Tennessee, prior to certificate of occupancy.
G. Hard copy and digital as-built plans will be required in the State of Tennessee Plans system with the North American Datum 1983 (NAD83) and North American Vertical Datum (NAVD) of 1988.

7.2 County Inspections

A. County inspections may include, but are not limited to, the following:
    1. An initial inspection prior to storm water pollution prevention plan approval;
    2. A bury inspection prior to burial of any underground drainage structure;
    3. Erosion prevention and sediment control inspections as necessary to ensure effective control of erosion and sedimentation; and
    4. A final inspection when all work, including installation of storm management facilities, has been completed.
    5. Periodic inspections to ensure storm water facilities are being maintained.

Section 8: Enforcement

A. Enforcement authority. Williamson County shall have the authority to issue Notices of Violation and citations, to impose the civil penalties provided in this section, and to institute appropriate actions or proceedings at law or equity for the enforcement of these Regulations.

B. Notification of Violation.

1. Written Notice. Whenever the County Engineer, the Director of Codes Compliance or his designee finds that any owner/operator or any other person discharging storm water has violated or is violating these Regulations or a permit or order issued hereunder, he may serve upon such person written Notice of the Violation (NOV). In addition to the NOV, whenever the County Engineer, the Director of Codes Compliance or his designee finds that any permittee, person, company or facility owning, occupying or operating on any premises has violated or is violating these Regulations or a permit or order issued hereunder, he may revoke any permit issued by the County. Any permit mistakenly issued in violation of any applicable federal, state or local law or regulation may be revoked. Notice of such revocation shall be in accordance with the same notification requirements for NOV's.
   Within a time limit established by this Notice, an explanation of the violation and a plan for the satisfactory correction and prevention thereof, to include specific required actions, shall be submitted to Williamson County. Submission of this plan in no way relieves the discharger of liability for any violations occurring before or after receipt of the Notice of Violation.
2. Consent Orders. The County Engineer or Director of Codes Compliance or his designee is empowered to enter into consent orders, assurances of voluntary compliance, or other similar documents establishing an agreement with the person responsible for the noncompliance. Such orders will include specific action to be taken by the person to correct the noncompliance within a time period also specified by the order. Consent orders shall have the same force and effect as administrative orders issued pursuant to paragraphs B.3 and B.5 below.
3. Compliance Order. When the County Engineer or Director of Codes Compliance or his designee finds that any person has violated or continues to violate these Regulations or a permit or order issued thereunder, he may issue an order to the violator directing that, following a specific time period, adequate structures, devices, be installed or procedures implemented and properly operated. Orders may also contain such other requirements as might be reasonably necessary and appropriate to address the noncompliance, including the construction of appropriate structures, installation of devices, self-monitoring and management practices.
4. Cease and Desist Orders. When the County Engineer or Director of Codes Compliance or his designee finds that any person has violated or continues to violate these Regulations or any permit or order issued hereunder, he may issue an order to cease and desist all such violations and direct those persons in noncompliance to:
   a. Comply forthwith; or

b. Take such appropriate remedial or preventive action as may be needed to properly address a continuing or threatened violation, including halting operations and terminating the discharge.

c. Conflicting standards. Whenever there is a conflict between any standard contained in these Regulations and in the BMP manual adopted by Williamson County pursuant to these Regulations, the strictest standard shall prevail.

5. Show Cause Hearing. The County Engineer or Director of Codes Compliance or his designee may order any person who violates these Regulations or permit or order issued hereunder, to show cause why a proposed enforcement action should not be taken. Notice shall be served on the person specifying the time and place for the show cause hearing, the proposed enforcement action and the reasons for such action, and a request that the violator show cause why this proposed enforcement action should not be taken. The notice of the meeting shall be served personally or by registered or certified mail (return receipt requested) at least ten (10) days prior to the hearing.

Section 9: Penalties

Any person who shall commit any act declared unlawful under these Regulations, who violates any provision of these Regulations, who violates the provisions of any permit issued pursuant to these Regulations, or who fails or refuses to comply with any lawful communication or notice to abate or take corrective action by the County Engineer or Director of Codes Compliance or his designee, shall be guilty of a civil offense.

9.1 Penalties

Under the authority provided in Tennessee Code Annotated Section 68-221-1106, Williamson County declares that any person violating the provisions of these Regulations may be assessed a civil penalty by the County Engineer or Director of Codes Compliance or his designee of not less than fifty dollars ($50.00) and not more than five thousand dollars ($5,000.00) per day for each day of violation. Each day of violation shall constitute a separate violation. The penalties may be assessed beyond schedules applied in a NOV or other schedules issued to the property owner or other person responsible for unauthorized activity defined in these Regulations.

9.2 Measuring civil penalties

In assessing a civil penalty, the County Engineer or Director of Codes Compliance or his designee may consider:

A. The harm done to the public health or the environment;
B. Whether the civil penalty imposed will be a substantial economic deterrent to the illegal activity;
C. The economic benefit gained by the violator;
D. The amount of effort put forth by the violator to remedy this violation;
E. Any unusual or extraordinary enforcement costs incurred by the municipality;
F. The amount of penalty established by ordinance or resolution for specific categories of violations; and
G. Any equities of the situation which outweigh the benefit of imposing any penalty or damage assessment.

9.3 Recovery of damages and costs

Williamson County may recover damages and costs in addition to civil penalties.

A. Williamson County may recover all damages proximately caused by the violator to Williamson County, which may include any reasonable expenses incurred in investigating violations of, and enforcing compliance with, these Regulations, or any other actual damages caused by the violation.
B. Williamson County may recover the costs to Williamson County for maintenance of storm water facilities when the user of such facilities fails to maintain them as required by these Regulations.
C. In the event that there are penalties assessed by the State against Williamson County caused by or as a result of the act or omission of any person, company or facility, said person, company or facility shall be assessed the equivalent amount of such penalty. This shall include, but is not limited to, penalties for improper disposal or illegal dumping, or illicit connection into the municipal separate storm sewer system.

D. If corrective action, including maintenance delinquency, is not taken in the time specified, or within a reasonable time if not time is specified, Williamson County may undertake the corrective action, and the cost of such corrective action shall be the responsibility of the person, company, facility, owner and\or developer. The cost of abatement and restoration shall be borne by the owner of the property, with such costs invoiced to the owner of the property. If said invoice is not paid within ninety (90) days of receipt of such invoice, Williamson County shall have the authority to place a lien upon and against the property. If the lien is not removed within ninety (90) days, Williamson County is authorized to take all legal action necessary to enforce the lien as a judgment, including without limitation, enforcing the lien in an action brought in a court of competent jurisdiction.

9.4 Other remedies
Williamson County may bring legal action to enjoin the continuing violation of these Regulations, and the existence of any other remedy, at law or equity, shall be no defense to any such actions.

9.5 Remedies cumulative
The remedies set forth in this section shall be cumulative, not exclusive, and it shall not be a defense to any action, civil or criminal, that one (1) or more of the remedies set forth herein has been sought or granted.

9.6 Emergency Orders and Abatement
The County Engineer or Director of Codes Compliance or his designee may order the abatement of any discharge from any source to the storm water conveyance system when, in the opinion of the County Engineer or Director of Codes Compliance or his designee, the discharge causes or threatens to cause a condition which presents an imminent danger to the public health, safety or welfare, or the environment, or a violation of the NPDES permit. In emergency situations where the property owner or other responsible party is unavailable and time constraints are such that service of a notice and order to abate cannot be effected without presenting an immediate danger to the public health, safety or welfare, or the environment or a violation of the NPDES permit, the County may perform or cause to be performed such work as shall be necessary to abate said threat or danger. The costs of any such abatement shall be borne by the property owner and shall be collected in accordance with the provisions herein.

Section 10: Authority of Storm Water Appeals Board

A. Pursuant to Tennessee Code Annotated Section 68-221-1106, Williamson County hereby creates a board to hear and decide appeals or these Storm Water Regulations.
   1. Said board shall be called the "Storm Water Appeals Board".
   2. The Storm Water Appeals Board shall consist of seven members, appointed by the County Mayor, subject to confirmation by the Board of County Commissioners. Each member must be a resident of Williamson County. There shall be one member that is representative of the following groups:
      a. Member of the Board of County Commissioners
      b. Member of the Profession of Building Contractors
      c. Member of the Profession of Engineering
      d. Member of the Profession of Agriculture
      e. Member of the Residential/Commercial Development Community
      f. Current or former board member of a Home Owners Association
      g. Member of an Environmental Profession.
   3. Each member shall be appointed to a term of three years, with the first term of members a-d lasting two years, and the first term of member e-g lasting three years. Thereafter the term of each member shall be three years, except the Member of the Board of County Commissioners, whose term shall run concomitant with his/her elected term of office.
   4. The Storm Water Appeals Board shall meet as needed.
   5. Each member of the Storm Water Appeals Board shall be entitled fifty (50) dollars per meeting attended.
   6. The Storm Water Appeals Board shall be empowered to adopt bylaws to govern the order of proceedings as well as a method for electing officers and keeping records.
   7. Each meeting of the Storm Water Appeals Board shall be memorialized in a set of minutes that will be kept in a well-bound book by the County Engineer.
   8. The Storm Water Appeals Board is hereby authorized to hear and decide appeals of any order, decision or ruling of the County Engineer or Director of Codes Compliance or his designee issued pursuant to these Regulations. Following the hearing on an application for appeal, the Storm Water Appeals Board may affirm, reverse, modify or remand for more information, the order, decision or ruling of the County Engineer or Director of Codes Compliance or his designee. In no event shall be Storm Water Appeals Board issue a decision that in any way conflicts or contradicts these Regulations or any other federal, state or local laws or regulations relating to Storm Water, Wastewater, Zoning or Planning.

B. Pursuant to Tennessee Code Annotated Section 68-221-1106(d), any person aggrieved by the imposition of a civil penalty or damage assessment as provided by these Regulations may appeal said penalty or damage assessment to the Storm Water Appeals Board, created pursuant to these Regulations.

C. The appeal shall be in writing and filed with the County Engineer within fifteen (15) days after the civil penalty and/or damage assessment is served in any manner authorized by law.

D. Upon receipt of an appeal, the Storm Water Appeals Board shall hold a public hearing within thirty (30) days. Ten (10) days prior notice of the time, date, and location of said hearing shall be published in a newspaper of general circulation. Ten (10) days notice by registered mail shall also be provided to the appellant, such notice to be sent to the address provided by the appellant on the notice of appeal. The decision of the Storm Water Appeals Board shall be final.

E. Appealing decisions of the Storm Water Appeals Board. Any alleged violator may appeal a decision of the Storm Water Appeals Board pursuant to the provisions of Tennessee Code Annotated, title 27, chapter 8.

Section 11: Administration and Miscellaneous

A. In order that storm water quality and quantity may be managed in accordance with these purposes and policies, these Regulations are hereby adopted.

B. Should any article, section, subsection, clause or provision of this Storm Water Management Regulation be declared by a court of competent jurisdiction to be unconstitutional or invalid, such decision shall not affect the validity of the regulation as a whole or any part thereof other than the part declared to be unconstitutional or invalid, each article, section clause and provision being declared severable.

C. In their interpretation and application, the provisions of these Regulations shall be held to be the minimum requirements for promotion of the public health, safety and general welfare.

D. It is established that these regulations are not intended to interfere with, abrogate or annul any regulations, statutes, or laws. In any case where these Regulations impose restrictions different from those imposed by any other provision of these regulations, or any other regulation, law or statues, whichever provisions are more restrictive or impose higher standards shall control.

E. For the purpose of these Regulations, certain numbers, abbreviations, terms, and words used herein shall be used, interpreted, and defined as set forth in Section 12.
Where words within these regulations have not been defined, the standard dictionary definition shall prevail.

F. Unless the context clearly indicates to the contrary, words used in the present tense include the future tense; words in the plural include the singular; words used in the masculine include the feminine.

Section 12: Definitions

Agricultural Land Management Activities – the practice of cultivating the soil, producing crops, and raising livestock for the preparation and marketing of the resulting products.

As-Built Plans – means drawings depicting conditions as they were actually constructed.

Base Flood – The flood having a one percent chance of being equaled or exceeded in any given year. While this statistical event may occur more frequently, it may also be known as the "100-year flood event".

Best Management Practice (BMP) – This may refer collectively or specifically to a structural or non-structural practice intended to address water quantity or quality as best available.

BMP Treatment Train – A technique for progressively selecting various storm water management practices to address water quality, by which groups of practices may be used to achieve a treatment goal while optimizing effectiveness, maintenance needs and space.

Bridge – A man made conveyance of storm water flows.

Building – A structure built, maintained, or intended for use for the shelter or enclosure of persons, animals, or property of any kind. The term is inclusive of any part thereof. Where independent units with separate entrances are divided by party walls, each unit is a building.

Channel – A natural or artificial watercourse of perceptible extent, with definite bed and banks to confine and conduct continuously or periodically flowing water. Channel flow is that water which is flowing within the limits of the defined channel.

Clearing – To remove vegetation, trees, debris, or structures.

Culvert – A man made conveyance of storm water flows. This may include a pipe or other constructed conveyance.

Cross-drain – A culvert used to convey flow under a road or other obstruction between channels or surface flow.

Critical area – A site subject to erosion or sedimentation as a result of cutting, filling, grading, or other disturbance of the soil; a site difficult to stabilize due to exposed subsoil, steep slope, extent of exposure, and other conditions.

Critical service roads – Designated County evacuation routes, or other access to police, fire, emergency medical services, hospitals, or shelters.

Cut – Portion of land surface or area from which earth has been removed or will be removed by excavation; the depth below original ground surface to the excavated surface.

Design storm event – A hypothetical storm event, of a given frequency interval and duration, used in the analysis and design of a storm water facility.

Detention – The temporary delay of storm runoff prior to discharge into receiving waters. This includes facilities with a normal pool elevation.

Developer – Any individual, firm, corporation, association, partnership, or trust involved in commencing proceedings to effect development of land for himself or others. This includes any legal or engineering representative of the "developer".

Development – Any man-made change to improved or unimproved real property, including but not limited to, buildings, mining, dredging, filling, grading, paving, excavating, drilling operations, or permanent storage of materials (as defined as materials of like nature stored in whole or in part for more than six months).

Discharge – To dispose, deposit, spill, pour, inject, seep, dump, leak or place by any means, or that which is disposed, deposited, spilled, poured, injected, seeped, dumped, leaked, or placed by any means including any direct or indirect entry of any solid or liquid matter into the municipal separate storm sewer system.

Drainage Basin – A part of the surface of the earth that is occupied by and provides surface water runoff into a storm water management system (MS4 or Waters of the State), which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Engineer – An engineer duly registered, licensed or otherwise authorized by the State of Tennessee to practice in the field of civil engineering.

Erosion Prevention and Sediment Control (EP&SC) – See "erosion prevention" and "sediment control"

Erosion – The removal of soil particles by the action of water, wind, ice or other geological agents, whether naturally occurring or acting in conjunction with or promoted by anthropogenic activities or effects.

Erosion prevention – practices implemented to prevent, through shielding, binding or other mechanism(s), the suspension of soil particles, often associated with erosion prevention and sedimentation control.

Excavation – See cut.

Existing Grade – The slope or elevation of existing ground surface prior to cutting or filling.

Existing Construction – Any structure for which the "start of construction" commenced before the effective date of these Regulations.

Fill – Portion of land surface or area to which soil, rock, or other materials have been or will be added; height above original ground surface after the material has been or will be added.
Finished Grade – The final slope or elevation of the ground surface, after cutting or filling.

First Flush – The runoff that occurs at the beginning of a rain event.

Flood or Flooding – Water from a river, stream, watercourse, lake, or other body of standing water that temporarily overflows and inundates adjacent lands and which may affect other lands and activities through increased surface water levels and/or increased groundwater level.

Flood Insurance Rate Map (FIRM) – An official map of Williamson County, on which the Federal Emergency Management Agency has delineated both the areas of special flood hazard and the risk premium zones applicable to Williamson County.

Flood Insurance Study – The official report provided by the Federal Emergency Management Agency. The report contains elevations of the base flood, floodway widths, flood velocities, and flood profiles.

Flood Plain – The relatively flat or lowland area adjoining a river, stream, watercourse, lake, or other body of standing water which has been or may be covered temporarily by floodwater. For purposes of this manual, the flood plain is defined as the 100-year floodplain having a one percent chance of being equaled or exceeded in any given year.

Floodproofing – A combination of structural provisions, changes, or adjustments to properties and structures subject to flooding primarily for the reduction or elimination of flood damages to properties, water and sanitary facilities, structures, and contents of buildings in a flood hazard area.

Floodway – That portion of the stream channel and adjacent flood plain required for the passage or conveyance of a 100-year flood discharge. The floodway boundaries are placed to limit encroachment in the flood plain so that a 100-year flood discharge can be conveyed through the flood plain without materially increasing (less than one foot) the water surface elevation at any point and without producing hazardous velocities or conditions. This is the area of significant depths and velocities and due consideration should be given to effects of fill, loss of cross sectional flow area, and resulting increased water surface elevations.

Floodway Fringe – That portion of the flood plain lying outside the floodway.

Floor - The top surface of an enclosed area in a building (including basement), i.e., top of slab in concrete slab construction or top of wood flooring in wood frame construction. The term does not include the floor of a garage used solely for parking vehicles.

Grading – Any operation or occurrence by which the existing site elevations are changed; or where any ground cover, natural, or man- made, is removed; or any watercourse or body of water, either natural or man- made, is relocated on any site, thereby creating an unprotected area. This includes stripping, cutting, filling, stockpiling, or any combination thereof, and shall apply to the land in its cut or filled condition. Grading activities may only be performed with a Land Disturbance Permit.

Historic Structure Designation – Any structure that is: listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register; certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historical district or a district preliminarily determined by the Secretary to qualify as a registered historic district; or listed individually on a state or local inventory of historic places which have been approved by the Secretary of the Interior.

Illicit Connection – Any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.

Illicit Discharge – Defined at 40 CFR _122.26(b)(2) and refers to any discharge to a municipal separate storm sewer that is not entirely composed of storm water, except discharges authorized under an NPDES permit (other than the NPDES permit for discharges from the MS4) and discharges resulting from fire fighting activities.

Impervious Cover – A term applied to any ground or structural surface that water cannot penetrate or through which water penetrates with great difficulty.

Intermittent Stream Waterways – Natural or man-made watercourses (streams) which cease to flow for sustained periods during a normal rainfall year (typically during the later summer through the fall months).

Land disturbing activity – Any activity on property that results in a change in the existing soil cover (both vegetative and non-vegetative) and/or the existing soil topography. Land-disturbing activities include, but are not limited to, development, re-development, demolition, construction, reconstruction, clearing, grading, filling, and excavation.

Municipal Separate Storm Sewer System (MS4) – defined at 40 CFR _122.26(b)(8) and means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

i. Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or a designated and approved management agency under section 208 of the Clean Water Act (CWA) that discharges to waters of the state;

ii. Designed or used for collecting or conveying storm water;

iii. Which is not a combined sewer; and

iv. Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR _122.2.

New Construction – Structures for which the "start of construction" commenced on or after the effective date of these Regulations. The term also includes any subsequent improvements to such structures.

Nonpoint Source – Any source of pollutant(s) that is not a point source. Examples are sheet flow from pastures and runoff from paved areas.

NPDES Permit – National Pollution Discharge Elimination System permit issued pursuant to 33 U.S.C. _1342.

NRCS – National Resources Conservation Service.

One Hundred (100) -Year Flood – A flood that has an average frequency of occurrence of once in one hundred (100) years, determined from an analysis of floods on a particular watercourse and other watercourses in the same general region. Statistically, it has a one percent chance of occurring in any given year. See "Base Flood".

Owner/Operator – Any and all persons, natural or artificial, including any individual, firm or association and any municipal or private corporation organized or existing under the laws of this or any other state or country that holds property or performs land disturbance activities.

Perennial Stream Waterways – Watercourses (streams) that generally flow year-round. However, they may go dry in droughty years.

Permittee - Any person, firm, or any other legal entity to whom a site disturbance, grading, building or other related permit is issued in accordance with Williamson County regulations.

Point Source – Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not included return flows from irrigated agriculture or agricultural storm water runoff.

Redevelopment – development improvements that have a value less than 50% of the current assessed value and/or increases the floor area by less than 25%. Demolition and reconstruction is considered development and not redevelopment. Note: this is different from significant redevelopment.

Regional Storm Water Management Facility – A device or management practice, typically but not always a detention or retention pond, with a tributary area with more than one development site. This may be multiple homogenous land use areas or an area of various land uses.

Retention – The prevention of storm runoff from direct discharge into receiving waters. Examples include systems which discharge through percolation, exfiltration, filtered bleed-down and evaporation processes.

SCS – Soil Conservation Service

Sediment – Solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, or gravity as a product of erosion.

Sediment Control – practices implemented to manage through filtering, settling or other mechanism(s) to remove suspended particles (soil, organic or mineral) from water, often associated with erosion prevention and sedimentation control.

Significant Redevelopment – development improvements that have a value greater than 50% of the current assessed value, increases the floor area than 25% or more, any change in the impervious surface area, redirects the flow of storm water in any way, modifies the storm sewer system, or changes the storm water characteristics. Demolition and reconstruction is considered development and not redevelopment. Note: this is different from redevelopment.

Site – All contiguous land and bodies of water in one ownership, graded or proposed for grading or development as a unit, although not necessarily at one time.

Slope – Degree of deviation of a surface from the horizontal, usually expressed in percent or ratio.

Small Municipal Separate Storm Sewer System – defined at 40 CFR _122.26(b)(16) and refers to all separate storm sewers that are owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or a designated and approved management agency under section 208 of the Clean Water Act (CWA) that discharges to waters of the state, but is not defined as "large" or "medium" municipal separate storm sewer system. This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.

Storm Water – is defined at 40 CFR _122.26(b)(13) and means storm water runoff, snow melt runoff, and surface runoff and drainage.

Stripping – Any activity that removes or significantly disturbs the vegetative surface cover, including clearing and grubbing operations.

Structure – See Building.

Tributary Area – The drainage area upstream of a specified point including all overland flow that directly or indirectly connects down-slope to the specified point.

Waters of the State – All water, public or private, on or beneath the surface of the ground, except those bodies of water retained within single ownership which do not join with natural surface or underground waters..

Waterway Natural Area – A strip of undisturbed native vegetation, either original or reestablished, that borders streams and rivers, ponds and lakes, wetlands, and springs.

Wetland – Those areas that are inundated or saturated by surface or ground water at a frequency or duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typical to life in saturated soil conditions. Wetlands generally include, but are not limited to, swamps, marshes, bogs and similar areas.

Wet Weather Conveyance – Man-made or natural watercourses that flow only in direct response to precipitation runoff in their immediate locality, and whose channels are above the groundwater table, and which do not support fish and aquatic life.

Section 13: Performance Bonds

A. Williamson County may, at its discretion, require the submittal of a performance security or performance bond prior to issuance of a permit in order to ensure that the storm water practices are installed by the permit holder as required by the approved storm water management plan in accordance with the Williamson County Zoning Ordinance and Subdivision Regulations.

B. The Williamson County Regional Planning Commission will administer the guarantee of improvements. Applicable provisions of Section IV, "ASSURANCE FOR COMPLETION AND MAINTENANCE OF IMPROVEMENTS", of the Williamson County Subdivision Regulations, concerning the type of acceptable performance bonds and Williamson County Regional Planning Commission's rights under the required bonds are incorporated herein and are made part of these Regulations.

Chapter 56

STORMWATER MANAGEMENT, EROSION CONTROL AND FLOOD PREVENTION

ARTICLE I.

STORMWATER MANAGEMENT AND EROSION CONTROL

DIVISION 1.

IN GENERAL

Sec. 56-1. Intent; application.

(a) Land disturbances and stormwater can contribute to the degradation of land surfaces and streams, erosion, siltation, earth slides, mud flows, dusty conditions, clogged storm sewers, additional road maintenance cost, increased water runoff and localized flooding. It is the intent of this chapter to protect the health and safety of residents and to preserve adjoining or nearby properties, including hilltops, hillsides, waterways, vegetation, structures and other natural and manmade features, through the regulation of land disturbances and stormwater runoff and the imposition of erosion control and stormwater management measures.

(b) Except as otherwise provided for, the following regulations shall apply to all properties throughout the city.
(Ord. No. 2008-02, § 1, 3-24-2008)

Sec. 56-2. Definitions.

The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Best Management Practices Manual means a manual approved for use by the city's engineering director to provide examples of structural or non-structural practices intended to address water quantity or quality. The Best Management Practices Manual is intended to be utilized by design professionals and/or construction personnel in the course of development and construction activities within the city.

Channel means the portion of a natural stream which conveys normal flows of water.

Combined sewer means a sewer which conveys both sanitary sewage and stormwater.

Construction activities means activities which include but are not limited to clearing and grubbing, grading, excavating and demolition.

Cut means the portion of land surface or area from which earth has been or will be removed by excavation; also, the depth below original ground surface to excavated surface.

Disturbed area means an area of land subjected to erosion due to the removal of vegetative cover and/or earthmoving activities, including filling.

Drainage means the interception and removal of groundwater or surface water by natural or artificial means.

EPA means the United States Environmental Protection Agency.

Erosion means any removal or loss of soil by the action of wind and water. Erosion includes both the detachment and transportation of soil particles.

Erosion control measures means one or more of the following measures, or other methods of slowing or stopping the removal of soil by wind, water, or gravity used singularly or in combination as appropriate:

(1) *Diversion:* A swale or channel with supporting ridge (berm, dike or wall) constructed across a sloping land surface along the contour, or with predetermined grades, to intercept and divert surface runoff before it gains sufficient volume or velocity to create conditions of erosion.

(2) *Drains:* Underground conduits or filter drains to reduce surface runoff or lower a high-water table.

(3) *Grade stabilization structures:* Drop structures made of concrete, corrugated metal pipe or other suitable materials which dissipate the energy of flowing water by dropping it in a relatively short horizontal distance.

(4) *Grassed waterways:* A natural or constructed waterway, usually broad and shallow, covered with erosion-resistant grasses used to carry surface water.

(5) *Land grading:* Reshaping the ground surface by grading to planned slopes and configurations that will prevent excessive erosion conditions.

(6) *Mulching:* The application of plant or other suitable materials on the soil surface to conserve moisture, reduce erosion and aid in establishing plant cover.

(7) *Sediment barriers:* A temporary barrier installed to intercept runoff containing sediment. The barrier shall filter sediment and allow runoff to pass through. Sediment barriers may include straw bale barriers and silt fences.

Excavation means the act of removing dirt or soil (see *Cut*).

Fill means the portion of land surface or area to which soil, rock or other materials have been or will be added; height above original ground surface after the material has been or will be added.

Grade means the slope or elevation of the ground surface prior to or after cutting and filling.

Grading means any operation or occurrence by which the existing site elevations are changed by cutting, filling, borrowing or stockpiling, or where any ground cover, natural or manmade, is removed, or any buildings or other structures are removed or any watercourse or body of water, either natural or manmade, is relocated on any site, thereby creating an unprotected area. Grading shall be synonymous with land disturbance activity.

Hazardous material means any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property or the environment when improperly treated, stored, transported, disposed of or otherwise managed.

Immediate threat to public health and safety means a very serious threat to the community or adjacent property including, but not limited to, clogged drainage ditches, flooding of adjacent properties, threat of landslides or other problems which should be resolved without delay. In instances where this is the case, verbal instructions to remedy the situation with follow-up of written notification shall be sufficient to meet the notification requirements of this article.

Illicit discharge means either of the following:

(1) Any discharge to a municipal separate storm sewer system that is not composed entirely of stormwater, except as authorized herein.

(2) Any infiltration into the storm drain system resulting from spills, illegal dumping, or contaminated runoff from residential, commercial or industrial properties.

Illicit connection means either of the following:

(1) Any drain or conveyance, whether on the surface or subsurface, that allows an illicit discharge to enter the storm drain system, including but not limited to any conveyance that allows any non-stormwater discharge (including sewage, processed wastewater or wash water) to enter the storm drain system or any connection to the storm drain system from an indoor drain or sink, regardless of whether said connection had been previously allowed, permitted or approved by an authorized enforcement agency.

(2) Any drain or conveyance connected from a commercial or industrial land use to the storm drain system that has not been documented in plans, maps or equivalent records and approved by an authorized enforcement agency.

Land disturbance plan means the plan required before a grading permit may be issued. A land disturbance plan consists of a narrative description and appropriate drawings and plans that spell out the methods, techniques and procedures to be followed on a site to control erosion and other potential degradation of adjoining or nearby properties, during and after development, including methods of final stabilization of the site.

Municipal separate storm sewer system (MS4) means the system of conveyances (including sidewalks, roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

(1) Owned or operated by the city;

(2) Designed or used for collecting or conveying stormwater;

(3) Which is not a combined sewer; and

(4) Which is not part of a sanitary sewage treatment facility operated by a public utility.

National Pollutant Discharge Elimination System (NPDES) permit means a permit issued by the EPA or by the state under authority delegated by the EPA that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.

Non-stormwater discharge means any discharge to the storm drain system that is not

composed entirely of stormwater.

Owner means the person or entity holding the registered title to property. The city property tax rolls shall be prima facie evidence that the person or entity listed therein is the registered owner.

Permit holder means the owner of the property or the owner's representative in whose name a permit has been applied for and issued by the city.

Pollutant means anything that causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes and solvents; oil and other automotive fluids; non-hazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter or other discarded or abandoned objects and accumulations, so that some may cause or contribute to pollution; floatables; pesticides and fertilizers; hazardous substances and wastes; sewage, fecal coli form and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

Potable water means any water from a public water supply system or private well that is suitable to drink.

Sediment means rocks, sand, gravel, silt or other material deposited by action of wind, water or gravity.

Sedimentation means the action of settling out of the soil particles which are transported by wind, water or gravity.

Site means any tract, lot or parcel of land or combination of tracts, lots or parcels of land proposed for development.

Stop work order means an order issued by the city requiring construction activity on a site to be stopped.

Stormwater means any accumulation of water from rain, snow or other forms of precipitation.

Stormwater runoff means stormwater flowing over the surface of the ground or collected in channels, watercourses or conduits, measured in depth of inches.

Stripping means any activity which removes or significantly disturbs the vegetative cover, including clearing and grubbing operations and top soil stripping.

TDEC means the Tennessee Department of Environment and Conservation.

USGS means the U.S. Geological Survey, an agency of the U.S. Department of the Interior.

Vegetative cover means grasses, shrubs, trees and other vegetation which hold and stabilize soils.

Wastewater means the discharge of any water or other liquid, other than uncontaminated stormwater.

Waterway natural area or *WNA* means the area adjacent to, on either side, an intermittent or perennial stream waterway, as determined by the city, state, or USGS topographic information that is to remain in its natural state to protect the quality and ecology of the stream.
(Ord. No. 2008-02, § 1, 3-24-2008)

Secs. 56-3--56-10. Reserved.

DIVISION 2.

EROSION AND SEDIMENT CONTROL

Subdivision I.

Grading Permits

Sec. 56-11. Grading permit procedure.

(a) *Requirements.* Except as otherwise exempted in section 56-12, no person shall engage in any land-disturbing activity which will modify the existing grade and/or may result in increased soil erosion or sedimentation, including, but not limited to, clearing, stripping, grading, excavation, transporting and filling, unless a grading permit has first been obtained from the city's engineering department. The owner of the property or his representative shall complete an application for the permit on forms provided by the engineering department and shall submit a proposed land disturbance plan in compliance with section 56-13 herein with the application. The property owner shall be responsible for compliance with all provisions of this article. The grading permit does not preclude additional permits or authorization required by the state or the city.

(b) *Staff authorization; appeals of staff decisions.* No grading permit or building permit shall be issued until the proposed land disturbance is reviewed and approved by the city's engineering department. The engineering department shall require such revisions to the land disturbance plan as may be necessary to carry out the intent of this chapter. In the event a property owner or permit applicant disputes a decision made by the engineering department in regard to the review of a land disturbance plan, an appeal may be filed with the board of building construction appeals as set forth in chapter 14, article II of this Code.

(c) *Fees.* In order to defray costs associated with the processing of permits

and for inspections of land disturbance activities, a nonrefundable fee as established in subsection 14-72(h) or such other applicable section of this Code shall be required with the application for a grading permit.

(d) *Security.* Prior to the issuing of a permit for any land disturbance activity affecting more than five acres, the applicant shall be required to provide a letter of credit or cashier's check to the city to guarantee completion of all land and grade stabilization measures and improvements as shown by the approved plan. For smaller areas when potentially hazardous soil or drainage conditions exist due to types of soils, steep grades, floodplain development or nearby lakes, streams or large drainage ditches, the applicant may be required, at the discretion of the engineering department, to provide a letter of credit or cashier's check to the city to guarantee completion of all land and grade stabilization measures and improvements as shown by the approved plan. The city's engineering director or his designee shall establish the amount and time period of the security, based on the estimated cost and time for completing the plan. Within 30 days of the engineering department's determination that all provisions of the approved plan have been completed or upon receipt of performance security for required subdivision improvements by the city, such land and grade stabilization security shall be refunded or terminated
(Ord. No. 2008-02, § 1, 3-24-2008)

Sec. 56-12. Properties exempt from grading permit requirements.

The following uses and activities shall be exempt from the requirements for a grading permit:

(1) *Single-family residence.* The construction of a single-family residence or addition to an existing single-family residence with an approved building permit, on a lot with grades less than 15 percent; provided, however, such construction shall be required to comply with the erosion control requirements set forth in subsection 56-13(3).

(2) *Public utilities and roadway construction.* The installation, maintenance and repair of any public utility, as well as public roadway and storm drainage construction and maintenance by governmental agencies and/or their agents; provided, however, that such land-disturbing activity shall comply fully with the rules and regulations set forth by TDEC.

(3) *Agricultural uses.* Farming or other accepted agricultural uses, as identified in the Tennessee Right to Farm Act (T.C.A. § 43-26-101 et seq., or as hereafter replaced or amended.)

(4) *Lawns/gardens/landscaping.* Home gardens, home landscaping or lawn preparations on existing lots or parcels, unless the possibility for erosion or alteration of drainage patterns or structures is such to necessitate a grading permit, as determined by the city's engineering department.
(Ord. No. 2008-02, § 1, 3-24-2008)

Sec. 56-13. Land disturbance plan.

A land disturbance plan required under the provisions of this article shall comply with the requirements set forth in this section. The complexity of the plan shall be commensurate with the severity of site conditions and potential for off-site damage. The engineering department may require additional information if deemed necessary and appropriate to evaluate the feasibility of the plan.

(1) *Basic plan requirements.* The plan shall identify the specific and appropriate erosion control practices and sediment trapping facilities proposed for the site to be disturbed, as well as a schedule for implementation and maintenance. The plan shall address the specific requirements of sections 58-14 through 58-18 herein. The plan shall also identify final stabilized conditions for the site, provisions for removing temporary control measures and stabilization of the site when temporary measures are removed, permanent stormwater conveyance structures and maintenance requirements for any permanent measures.

(2) *Professional design.* The land disturbance plan shall be developed by a qualified professional engineer or landscape architect, licensed to practice in the state, when the area of disturbance exceeds five acres or when potentially hazardous soil or drainage conditions exist due to types of soils, steep grades, floodplain development or nearby lakes, streams or large drainage ditches.

(3) *Erosion control.* Erosion control measures shall be designed and carried out in accordance with the TDEC Construction General Permit for Stormwater Discharge and the requirements of the city's Best Management Practices Manual. Areas that are to be developed or excavated shall apply these guidelines, fitting the appropriate measures to the specific soils and topography so as to minimize soil erosion and surface water runoff. The erosion control measures shall be maintained, and replaced if necessary, until vegetative cover is significantly established.

(4) *Protection of natural vegetation and trees.* Natural vegetation shall be retained and protected whenever feasible during construction. If an area is stripped of vegetation during construction, the exposed area shall be limited to the smallest practical size, and duration of the exposure limited to the shortest practical time.

(5) *Minimum information required.* It shall be at the discretion of the city's engineering director to determine how much information is necessary to obtain a grading permit. The engineering director may also determine the number of paper copies of the land disturbance plan to be submitted, and/or may require that the plan be submitted in a specified electronic format. At a minimum, a land disturbance plan shall contain the following:

a. Name, address and telephone number of the applicant, and the owners and developer, if other than the applicant, of the property to be graded.

b. The registration seal and signature of the engineer or landscape architect who prepared the plan.

c. A brief project description.

d. Drawings showing pre-development topographic conditions and post-development grades, at a scale appropriate to the land area of the plan, and with contour intervals no greater than two feet. The plan shall include off-site existing topographic conditions extended to a minimum of 25 feet beyond the boundaries of the subject tract if grading is designed to be within 20 feet of any boundary line. Information on all public roads and utilities adjoining the subject property shall also be included.

e. The site location, boundaries, adjacent properties, location of any existing or proposed structures on the property or on adjacent land within 100 feet of the area to be disturbed, floodplain areas, ditch lines and any existing on-site and off-site structural or natural features of the land which have a significant impact on drainage or sediment control.

f. The location and a description of temporary and permanent erosion control measures and drainage apparatuses to be constructed and structural changes and improvements to the land, including clearing and grading limits, daily cleanup and site control practices (to include designated concrete washout locations and waste disposal measures) and other activities to mitigate the adverse impact of land disturbance.
(Ord. No. 2008-02, § 1, 3-24-2008; Ord. No. 2010-15, §§ 1, 2, 8-23-2010)

Sec. 56-14. Construction access routes.

Prior to the initiation of any grading work, a stabilized stone pad shall be placed at any point where traffic will be entering or leaving a construction site. Stone pads shall contain ASTM-1 stone, six inches thick, with a minimum width of 12 feet and a minimum length from the public or private road of 100 feet for commercial property and 50 feet for residential property.
(Ord. No. 2008-02, § 1, 3-24-2008)

Sec. 56-15. Cut and fill slopes.

Permanent cut and fill slopes shall be designed and constructed in a manner that will minimize erosion. Consideration shall be given to the length and steepness of the slope, the soil type, upslope drainage area, groundwater conditions and other applicable factors. Any slopes installed at two foot horizontal to one foot vertical or steeper shall be stabilized with rock riprap or other acceptable method approved by the city's engineering director.
(Ord. No. 2008-02, § 1, 3-24-2008)

Sec. 56-16. Stabilization of denuded areas and soil stockpiles.

Permanent erosion control measures shall be applied to denuded areas within 15 days after final grade is reached on any portion of the site. Soil stabilization shall also be applied within 15 days to any denuded area which may not be at final grade, but will remain dormant (undisturbed by construction activity) for longer than 60 days. Any temporary soil stockpiles shall be stabilized or protected with sediment trapping measures to prevent erosion. Applicable erosion control measures shall include establishment of vegetation, mulching and the early application of gravel base on areas to be paved. Selected permanent or temporary erosion control measures shall be appropriate for the time of year, site conditions and estimated duration of use.
(Ord. No. 2008-02, § 1, 3-24-2008)

Sec. 56-17. Establishment of permanent vegetation.

A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized through the construction of approved structures and parking lots or driveways. Permanent vegetation shall not be considered stabilized until a ground cover is achieved, which in the opinion of the city's engineering director or his designee is mature enough to control erosion and to survive seasonal conditions for a period of one year from initial planting.
(Ord. No. 2008-02, § 1, 3-24-2008)

Sec. 56-18. Protection of adjacent properties.

(a) *Downhill protection.* All properties adjacent to and/or downhill from the site of a land disturbance shall be protected from soil erosion and sedimentation. This shall be accomplished by preserving a well-vegetated buffer strip around the lower perimeter of the land disturbance or by installing perimeter controls such as sediment barriers, filters or dikes, or sediment basins, or by a combination of such measures.

(b) *Use of buffer strips.* Vegetated buffer strips shall be used alone only where stormwater runoff is anticipated to occur through sheet flow and shall be a minimum of 20 feet in width. If at any time it is found that a vegetated buffer strip alone is ineffective in stopping erosion onto adjacent property, additional perimeter controls shall be provided by the owner.

(c) *Sediment control.* Sediment basins and traps, perimeter dikes, sediment barriers, dams, diversions and other erosion control measures intended to trap sediment on-site shall be constructed as the first step in grading and shall be made functional prior to disturbance of upslope land. Earthen structures such as dams, dikes and diversions shall be seeded and mulched within seven days of installation.

(d) *Stormwater runoff.* Stormwater runoff from disturbed areas five acres or greater shall pass through a sediment basin or other suitable sediment trapping facility. All storm drainage inlets shall be protected during construction with a sediment barrier to prevent clogging and localized flooding. All means of protection shall be maintained and

monitored throughout construction.
(Ord. No. 2008-02, § 1, 3-24-2008)

Sec. 56-19. Inspections; corrections of problems.

(a) *Permit holder's responsibility.* Upon issuance of a grading permit, it shall be the responsibility of the permit holder to:

(1) Promptly notify the city in writing of any proposed changes to the phasing plan and schedules for the land disturbance activities and periodic maintenance as included in the approved land disturbance plan, provided that such proposed changes may be rejected or revised by the city's engineering department; and

(2) Conduct periodic inspections of the erosion control measures installed during construction and of nearby downstream properties, to determine if the land disturbance plan is effective. The permit holder shall make immediate arrangements for the repair or remediation of any damage to downhill property caused by erosion, such as clogged storm sewers, inlets or drainage ditches.

(b) *City authority.* The city's engineering director or his designee may enter upon any site for which a grading permit has been issued and periodically make inspections of any area before, during and after construction to ensure compliance with the requirements of this article and the authorized land disturbance plan. If the engineering director or his designee determines that significant erosion problems are occurring on the site, notwithstanding compliance with the approved land disturbance plan, the permit holder shall be required to take additional corrective actions to protect the adversely affected area. The specifications of the additional measures shall be considered as an amendment to the land disturbance plan. The engineering director or his designee may also require that the phasing plan and schedules for the land disturbance activities and periodic maintenance be revised at any point in order to meet the intent of this chapter.

(c) *Correction of problems.* If it is determined by the city's engineering director or his designee that a grading permit holder has failed to comply with the approved plan, a correction notice shall immediately be served upon the permit holder in writing, setting forth the measures needed to come into compliance and specifying time for such compliance. Where an immediate threat to public health and safety exists, verbal notice given by the engineering director or his designee to immediately correct the problem shall be sufficient, but shall be followed by written notice. Failure to comply within the time specified for compliance shall subject the permit holder to a stop work order. The stop work order shall remain in effect until the work in progress is determined to be in compliance with the specifications of the approved plan. The issuance of a stop work order shall not preclude other remedial or punitive actions which may be taken under this Code or state law. Upon completion of the work set forth in an approved land disturbance plan, the property owner shall adequately maintain and repair erosion control measures, pursuant to the requirements of section 56-51 herein.

(Ord. No. 2008-02, § 1, 3-24-2008)

Secs. 56-20---56-30. Reserved.

Subdivision II.

Waterway Natural Areas

Sec. 56-31. Waterway natural areas.

In order to create, protect and maintain water quality buffers, a waterway natural area (WNA) shall be established as part of any new development or redevelopment of property bordering or traversed by an intermittent or perennial stream waterway. The following provisions are hereby established for the designation, protection and maintenance of WNAs:

(1) WNAs shall be designated along all intermittent and perennial stream waterways as determined by the city, state or USGS topographic information. This determination shall be conducted at the preliminary planning phase; however, the city reserves the right to identify a waterway at any point until construction plans have been approved.

(2) In any residential subdivision, the WNA, if required, shall be designated as open space. No portion of the WNA may be within a private lot. The WNA within an OSRD subdivision's open space shall be counted toward the open space requirements for the subdivision at 100 percent of the WNA's area unless the WNA falls within an area for which another percentage applies.

(3) The WNA width, as measured from the top of the bank on each side of the waterway, shall be as follows:

Upstream Watershed Area	WNA Width
At least 5 square miles	60 feet
At least 1 square mile/less than 5 square miles	45 feet
Less than 1 square mile	30 feet

(4) If the required width of a WNA or waterway buffer under federal or state regulations differs from the width required by the city, the more stringent requirement shall govern.

(5) The WNA shall be recorded on all final plats approved on or after June 1, 2008 for property bordering or traversed by an intermittent or perennial stream waterway, provided that the requirement for a WNA may be waived or reduced if an unexpired

preliminary plan was approved prior to June 1, 2008 and if, in the opinion of the city's engineering department, a WNA cannot be designated on the plat at the required width without significant impact to the approved development plan. For a final plat approved prior to June 1, 2008, the planning commission may require that any subsequent revisions provide for a WNA up to the extent a WNA would be required under this section for a new final plat if, in the opinion of the city's engineering department, a WNA can be so designated on the plat without significant impact to the approved development plan.

(6) All site development plans and plats prepared for recording shall:

a. Clearly identify the boundaries of any WNA on the subject property and label the area as "Waterway Natural Area."

b. Provide a note to reference any WNA stating: "There shall be no clearing, grading, construction or disturbance of vegetation within the waterway natural area, except as permitted by the City of Brentwood."

(7) Any WNA or portions of any WNA shall also be designated as a public drainage easement if required by the planning commission, based on the recommendation of the city's engineering department.

(8) All WNAs must be protected during development activities. Each WNA shall be staked and labeled as part of a construction layout survey prior to commencement of construction, using a combination of stakes and flagging to ensure adequate visibility.

(9) Minor landscaping and stabilization is allowed within a WNA to repair erosion, damaged vegetation or other problems, if prior approval has been granted by the city's engineering department. Nothing shall be installed within a WNA except as permitted under this section.

(10) Any person seeking a grading permit for property within a WNA shall provide evidence that appropriate permits required from federal and state regulatory agencies or written waivers of such permits have been obtained.

(11) If a land use adjacent to a WNA involves subsurface discharges or surface application from a wastewater treatment system that serves more than one household or a nonresidential use, no effluent may be discharged in the WNA except as provided herein. If a NPDES wastewater permit has been granted, the permittee may convey the effluent through the WNA to the waterway designated in the NPDES permit.

(12) No septic tanks may be located within a WNA. Septic field lines may be allowed within the WNA, but no closer than 25 feet from the top of the stream bank or such greater distance as may be required by the state or the Williamson County Department of Health.

(13) No structures shall be allowed in a WNA, with the exception of greenway trails, drainage structures, watertight utility line crossings and bridges that have been approved by the city and are constructed to minimize disturbance to the WNA.
(Ord. No. 2008-02, § 1, 3-24-2008)

Secs. 56-32--56-40. Reserved.

DIVISION 3.

STORMWATER MANAGEMENT

Sec. 56-41. Purpose.

The intent of this article is to protect the health and safety of the residents of the city; to control the level, intensity and quality of stormwater runoff; to minimize expenditure of public funds for costly flood control projects; to minimize the need for rescue and relief efforts associated with flooding; to maximize beneficial use of land without incurring flood hazard potential; to ensure a functional drainage system that will not result in excessive maintenance costs; to encourage the use of natural and aesthetically pleasing design; to ensure water quality; and to protect or improve ground waters and surface waters.
(Ord. No. 2008-02, § 1, 3-24-2008)

Sec. 56-42. Stormwater management plan.

(a) *Drainage plan approval.* Prior to approval of any site development plan or subdivision plat, approval of any construction plans or issuance of a grading permit, the engineering department shall determine whether there is a need for a stormwater management plan based upon the standards outlined in the city's subdivision regulations. When a stormwater management plan is required, such plan shall be submitted to the engineering department for review and approval.

(b) *Improvements required.* The engineering department may require additional structural or other improvements designed to control the level, intensity and quality of stormwater runoff associated with the development, above and beyond the requirements outlined in the city's subdivision regulations, if local conditions warrant such additional measures.

(c) *Location/maintenance required.* All structures or other improvements constructed to meet the requirements of this article shall remain in the ownership of the property owner, who shall be responsible for maintaining such improvements in accordance with section 56-43 unless an alternative plan is approved by the planning commission. In addition, any such structures or other improvements within a residential subdivision shall be located within permanent designated open space for the subdivision with the legally designated homeowners or property owners association being responsible for such maintenance. Prior to the recording of lots for a subdivision, subdivision

covenant provisions or other legal documents ensuring the maintenance of such improvements and funding mechanism for said maintenance in perpetuity shall be submitted to the city attorney for his review and approval.
(Ord. No. 2008-02, § 1, 3-24-2008)

Sec. 56-43. Stormwater system long-term operation and maintenance.

(a) All storm drainage systems, structures and facilities shall be maintained such that the original design function is maintained over time. The storm drainage elements requiring maintenance shall include, but not be limited to, detention/retention systems, outlet control structures, stormwater quality facilities and emergency overflows. These elements shall be maintained in accordance with a written "Stormwater Long-term Operation and Maintenance Plan." Said plan shall be recorded either separately or as part of other recorded documents such as a plat, covenants, or homeowners/property owners association documents. The plan shall be developed by a Tennessee licensed professional engineer and approved by the city's engineering department prior to recording.

(b) All stormwater long-term operation and maintenance plans shall include detailed operation and maintenance procedures to ensure the continued performance of the facilities. Each plan shall identify the parts or components of a stormwater management facility to be maintained and the necessary equipment and skills or training, along with an estimate of probable annual costs. Provisions for the periodic review and evaluation of the effectiveness of the maintenance program shall be included in the plan, so that revisions and additional maintenance procedures can be incorporated as necessary. The plan must contain a provision that grants access for inspection at any reasonable time by the engineering director or his designee to the facilities covered by the plan. A permanent elevation benchmark shall be identified in the plan to assist in the periodic inspection of the facility.
(Ord. No. 2008-02, § 1, 3-24-2008)

Sec. 56-44. Illicit discharges and connections.

(a) *Prohibition of illicit discharges and connections.*

(1) All illicit discharges, as such terms are defined in section 56-2 or this chapter, are prohibited.

(2) The construction, use, maintenance or continued existence of illicit connections to the storm sewer system is prohibited. This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under laws or practices applicable or prevailing at the time of connection.

(3) Improper connections in violation of this section shall be disconnected and redirected, if necessary, to an approved on-site wastewater management system or the sanitary sewer system. Any connection to a sanitary sewer system must be approved by

the governing utility.

(b) *Allowable non-stormwater discharges.* Unless the city, TDEC, EPA or other regulatory agency has identified them as a source of pollutants to the state's waters, non-stormwater discharges into the municipal separate storm sewer system from the following sources are not considered to be illicit discharges:

(1) Water line flushing or other potable water sources, dechlorinated to potable water standards.

(2) Landscape irrigation or lawn watering with potable water.

(3) Diverted stream flows.

(4) Rising ground water.

(5) Groundwater infiltration to storm drains.

(6) Pumped groundwater.

(7) Foundation or footing drains.

(8) Crawl space pumps.

(9) Air conditioning condensation.

(10) Springs.

(11) Non-commercial washing of vehicles.

(12) Natural riparian habitat or wetland flows.

(13) Non-commercial swimming pools (if dechlorinated).

(14) Firefighting activities.

(15) Street wash water.

(16) Discharges authorized in writing by the city as being necessary to protect public health and safety.

(17) Dye testing approved by the city.

(c) *Notification of spills.* Upon the release or suspected release of materials which is resulting in or may result in illicit discharges, the owner of the property from which the release occurs or is suspected, or any person responsible for a facility or

operation from which the release occurs or is suspected, or any person responsible for emergency response for such a facility or operation shall:

(1) Take all necessary steps to ensure the discovery, containment and cleanup of such release. Any such property owner or other person who fails to take such necessary steps shall be in violation of this section.

(2) Immediately notify emergency response agencies of the occurrence via emergency dispatch services, if the release or suspected release involves hazardous materials.

(3) Notify the city's engineering department in person or by telephone no later than the next business day in the event of a release or suspected release of non-hazardous materials. Notifications by telephone shall be confirmed by written notice delivered to the engineering department within three business days of the telephone notice.

(4) Retain an on-site written record of the discharge and the actions taken to prevent its recurrence if the discharge of prohibited materials emanates from a commercial or industrial establishment. Such records shall be retained for at least three years.
(Ord. No. 2008-02, § 1, 3-24-2008)

Secs. 56-45--56-50. Reserved.

DIVISION 4.

VIOLATIONS

Sec. 56-51. Correction of soil erosion, stormwater runoff or illicit discharge problems.

(a) The city's engineering department shall send written notification and demand for corrective action to the owner of any parcel of land which exhibits stormwater runoff conditions, illicit discharges or unstable or eroding soil conditions that are presently or potentially adversely affecting downhill properties, public rights-of-way, the storm sewer system or watercourses. The owner shall correct the problem within 30 calendar days from receipt of such notification. Upon written request by the owner, the engineering director may extend the period for correction if seasonal conditions warrant and temporary erosion control, stormwater control or illicit discharge prevention measures are installed or implemented. Minimum corrective measures may include stabilizing eroding slopes and revegetating all exposed soil surfaces. Before commencing corrective measures, the owner shall consult with the engineering director or his designee to determine an acceptable method of correction. A permanent plan for erosion control, stormwater management or illicit discharge prevention may be required by the engineering director or his designee prior to or concurrent with initiation of corrective measures.

(b) All temporary and permanent erosion control, stormwater management and illicit discharge prevention measures shall be maintained and repaired as needed by the property owner to assure continued performance of their intended function. If it is determined that a property owner has failed to maintain such measures, or has failed to comply with any of the provisions of this article, a corrective notice shall be sent to the property owner, setting forth the measures needed to bring the site into compliance and specifying time for such compliance. When an immediate threat to public health and safety exists, verbal notice given by the city's engineering director or his designee to immediately correct the problem shall be sufficient, but shall be followed by written notice within seven days.

(c) Should the property owner fail to remedy the above conditions within the prescribed time, the city's engineering director shall direct that the condition be remedied by an appropriate city department or outside contractual arrangement. Upon completion of work, the engineering department shall determine the reasonable costs thereof and bill the owner of the property. Should the owner fail to remit to the city the amount due within 30 days from the date of the bill, the amount due shall be certified to the city attorney, who may undertake such legal action as may be needed to collect the amount due, including an action to attach a lien to the property for which the expenditure was made.
(Ord. No. 2008-02, § 1, 3-24-2008)

Secs. 56-52--56-60. Reserved.

ARTICLE II.

FLOOD PREVENTION

DIVISION 1.

FINDINGS OF FACT, PURPOSE AND OBJECTIVES

Sec. 56-61. Findings of fact.

The city hereby finds:

(1) The city and its board of commissioners wish to maintain eligibility in the National Flood Insurance Program (NFIP) and, in order to do so, must meet the regulations found in Title 44 of the Code of Federal Regulations (CFR), Ch. 1, Section 60.3.

(2) Areas of the city are subject to periodic inundation which could result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and

general welfare.

(3) Flood losses are caused by the cumulative effect of obstructions in floodplains, causing increases in flood heights and velocities; uses in flood hazard areas which are vulnerable to floods; or construction which is inadequately elevated, floodproofed, or otherwise unprotected from flood damages.
(Ord. No. 2009-13, § 3, 1-25-2010)

Sec. 56-62. Purpose and objectives.

(a) It is the purpose of this article to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas. This article is designed to:

(1) Restrict or prohibit uses which are vulnerable to flooding or erosion hazards, or which result in damaging increases in erosion, flood heights, or velocities;

(2) Require that uses vulnerable to floods, including community facilities, be protected against flood damage at the time of initial construction;

(3) Control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of floodwaters;

(4) Control filling, grading, dredging and other development which may increase flood damage or erosion; and

(5) Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands.

(b) The objectives of this article are:

(1) To protect human life, health, safety and property;

(2) To minimize expenditure of public funds for costly flood control projects;

(3) To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

(4) To minimize prolonged business interruptions;

(5) To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, and streets and bridges located in floodprone areas;

(6) To help maintain a stable tax base by providing for the sound use and development of floodprone areas to minimize blight in flood areas;

(7) To ensure that potential homebuyers are notified that property is in a floodprone area; and

(8) To maintain eligibility for participation in the NFIP.
(Ord. No. 2009-13, § 3, 1-25-2010)

DIVISION 2.

DEFINITIONS

Sec. 56-63. Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning. The definitions listed in this section apply exclusively to this article and are intended to provide assistance in the interpretation and enforcement of this article. Unless specifically defined below or elsewhere in this Code,, words or phrases used in this article shall be interpreted as to give them the meaning they have in common usage and to give this article its most reasonable application, given its stated purpose and objectives.

Accessory structure means a subordinate structure to the principal structure on the same lot and, for the purpose of this article, shall conform to the following:

(1) Accessory structures shall only be used for parking of vehicles and storage.

(2) Accessory structures shall be designed to have low flood damage potential.

(3) Accessory structures shall be constructed and placed on the building site so as to offer the minimum resistance to the flow of floodwaters.

(4) Accessory structures shall be firmly anchored to prevent flotation, collapse and lateral movement, which otherwise may result in damage to other structures.

(5) Utilities and service facilities such as electrical and heating equipment shall be elevated or otherwise protected from intrusion of floodwaters.

Act means the statutes authorizing the National Flood Insurance Program that are incorporated in 42 U.S.C. 4001 *et seq*.

Addition (to an existing building) means any walled and roofed expansion to the perimeter or height of a building.

Administrator means the city manager or his designee, who shall be responsible for the implementation and administration of the provisions set forth herein for the floodway district.

Appeal means a request for a review of a local enforcement officer's interpretation of any provision of this article or a request for a variance.

Area of shallow flooding means a designated AO or AH zone on a community's Flood Insurance Rate Map (FIRM) with one percent or greater annual chance of flooding to an average depth of one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate, and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

Area of special flood hazard - see "special flood hazard area."

Base flood means the flood having a one percent chance of being equaled or exceeded in any given year. This term is also referred to as the 100-year flood or the one percent annual chance flood.

Basement means any portion of a building having its floor subgrade (below ground level) on all sides.

Buildable area means the area of a lot remaining after the minimum yard requirements for the specific zoning district have been met.

Building means any manmade walled and roofed structure affixed to a permanent site. (See "structure.")

Conditional letter of map revision based on fill (CLOMR-F) means a letter from FEMA stating that a parcel of land or proposed structure that will be elevated by fill would not be inundated by the base flood if fill is placed on the parcel as proposed or the structure is built as proposed.

Development means any manmade change to improved or unimproved real estate, including, but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavating, drilling operations, or storage of equipment or materials.

Development permit means any permit required for development activities under this Code, or under any other code which has been adopted by the city.

Elevate, in regard to a structure, means to have the lowest floor of the lowest enclosed area raised above the ground level by means of solid foundation perimeter walls with openings sufficient to facilitate the unimpeded movement of floodwater; pilings; columns; piers; or shear walls adequately anchored so as not to impair the structural integrity of the structure during a base flood event.

Erosion means the process of the gradual wearing away of land masses. This peril is not per se covered under the NFIP.

Existing construction means any structure for which the "start of construction" commenced before either November 27, 1972 (the effective date of the initial floodplain management code adopted by the city as a basis for participation in the NFIP) or the date the property was first included within a special flood hazard area, whichever occurred later.

Existing structures - see "existing construction."

FEMA means the Federal Emergency Management Agency of the United States government.

Flood or *flooding* means a general and temporary condition of partial or complete inundation of normally dry land areas from:

(1) The overflow of inland or tidal waters.

(2) The unusual and rapid accumulation or runoff of surface waters from any source.

Flood Insurance Rate Map (FIRM) means an official map of a community, issued by FEMA, delineating the areas of special flood hazard or the risk premium zones applicable to the community.

Flood Insurance Study is the official report provided by FEMA, evaluating flood hazards and containing flood profiles and water surface elevation of the base flood.

Floodplain or *floodprone area* means any land area susceptible to being inundated by water from any source (see definition of "flood").

Floodplain management means the operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works and floodplain management regulations.

Flood protection elevation means the elevation of the base flood plus two feet of freeboard at any given location in the special flood hazard area.

Flood protection system means those physical structural works for which funds have been authorized, appropriated and expended, and which have been constructed in conformance with sound engineering standards, specifically to modify flooding in order to reduce the extent of the area within a community subject to a "special flood hazard" and the extent of the depths of associated flooding. Such a system typically includes hurricane tidal barriers, dams, reservoirs, levees or dikes.

Floodproofing means any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, utility facilities, and structures and their contents.

Floodway means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. (See Illustration #1.)

GRAPHIC UNAVAILABLE: Click here

Floodway fringe means the area extending from the boundaries of the floodway to the outer boundary of the special flood hazard area, as depicted on a Flood Insurance Rate Map (FIRM.) (See Illustration #1.)

Freeboard means a factor of safety usually expressed in feet above a flood level for purposes of floodplain management. "Freeboard" tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, blockage of bridge or culvert openings, and the hydrological effect of urbanization of the watershed.

Functionally dependent use means a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, but does not include long-term storage or related manufacturing facilities.

Highest adjacent grade means the highest natural elevation of the ground surface, prior to construction, adjacent to the proposed walls of a structure.

Historic structure means any structure that is:

(1) Listed individually in the National Register of Historic Places (a listing maintained by the U.S. Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;

(2) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;

(3) Individually listed on the Tennessee inventory of historic places, pursuant to a historic preservation program which has been approved by the Secretary of the Interior; or

(4) Individually designated as a historically significant site and determined as eligible under a historic preservation program that has been certified either:

a. By the approved Tennessee program as determined by the Secretary of the Interior; or

b. Directly by the Secretary of the Interior.

Letter of map revision based on fill (LOMR-F) means a letter from FEMA stating that an existing structure or parcel of land that has been elevated by fill would not be inundated by the base flood.

Levee means a manmade structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control or divert the flow of water so as to provide protection from temporary flooding.

Lowest adjacent grade means the lowest natural elevation of the ground surface, prior to construction, adjacent to the proposed walls of a structure.

Lowest floor means the lowest floor of the lowest enclosed area, including a basement. An unfinished or flood resistant enclosure of five feet or less in height, measured from the lowest adjacent grade to the lowest floor, usable solely for building access or storage in an area other than a basement area, shall not be considered a building's lowest floor, provided that such enclosure is built in compliance with the applicable non-elevation design requirements of this article.

Manufactured home means a structure, transportable in one or more sections, which is built on a permanent chassis and designed for use with or without a permanent foundation when attached to the required utilities. The term "manufactured home" does not include a "recreational vehicle."

Manufactured home park or subdivision means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

Map means the Flood Insurance Rate Map (FIRM) for a community issued by FEMA.

Mean sea level means the average height of the sea for all stages of the tide. It is used as a reference for establishing various elevations within the floodplain. For the purposes of this article, the term is synonymous with the National Geodetic Vertical Datum (NGVD) of 1929, the North American Vertical Datum (NAVD) of 1988, or other datum, to which base flood elevations shown on a community's Flood Insurance Rate Map are referenced.

National Geodetic Vertical Datum (NGVD) means, as corrected in 1929, a vertical control used as a reference for establishing varying elevations within the floodplain.

New construction means any structure for which the "start of construction" commenced on or after November 27, 1972, and includes any subsequent improvements to such structure.

NFIP means the National Flood Insurance Program authorized by 42 U.S.C. 4001 *et seq*.

New manufactured home park or subdivision means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of November 27, 1972, or the date the property was first included within a special flood hazard area, whichever occurred later, and includes any subsequent improvements to such structures.

Nonsubstantial means a reconstruction, rehabilitation, addition, alteration or other improvement which is not deemed a "substantial improvement," as defined herein.

North American Vertical Datum (NAVD) means, as corrected in 1988, a vertical control used as a reference for establishing varying elevations within the floodplain.

"100-year flood" - see "base flood."

Person includes any individual or group of individuals, corporation, partnership, association, or any other entity, including state and local governments and agencies.

Reasonably safe from flooding means base floodwaters will not inundate the land or damage structures to be removed from the special flood hazard area and that any subsurface waters related to the base flood will not damage existing or proposed structures.

Recreational vehicle means a vehicle which is:

(1) Built on a single chassis;

(2) Four hundred square feet or less when measured at the largest horizontal projection;

(3) Designed to be self-propelled or permanently towable by a light duty truck; and

(4) Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

Regulatory floodway means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

Riverine means relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.

Special flood hazard area is the land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. The area may be designated as Zone A on the FIRM. After detailed ratemaking has been completed in preparation for publication of the FIRM, Zone A may be refined into Zones A, AO, AH, A1-30, AE or A99.

Start of construction includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure (including a manufactured home) on a site, such as the pouring of slabs or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; and includes the placement of a manufactured home on a foundation. Permanent construction does not include initial land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds, not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

Structure, for purposes of the floodplain management provisions of this article, means a walled and roofed building, a manufactured home, an above grade patio or deck, or a gas or liquid storage tank that is principally above ground.

Substantial damage means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

Substantial improvement means any reconstruction, rehabilitation, addition, alteration or other improvement of a structure, taking place during a five-year period, in which the cumulative cost equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the initial improvement. This term includes structures which have incurred "substantial damage," regardless of the actual repair work performed. The market value of the structure should be the appraised value of the structure prior to the start of the initial improvement, or in the case of substantial damage, the value of the structure prior to the damage occurring. The term does not, however, include either:

(1) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been pre-identified by the local code enforcement official and which are the minimum necessary to

assure safe living conditions and not solely triggered by an improvement or repair project, or;

(2) Any alteration of a "historic structure", provided that the alteration will not preclude the structure's continued designation as a "historic structure".

Substantially improved manufactured home park or subdivision means a manufactured home park or subdivision for which the repair, reconstruction, rehabilitation or improvement of the streets, utilities and pads equals or exceeds 50 percent of the value of the streets, utilities and pads before the repair, reconstruction or improvement commenced.

Variance is a grant of relief from the requirements of this article.

Violation means the failure of a structure or other development to be fully compliant with the regulations set forth in this article. A structure or other development without the elevation certificate, other certification, or other evidence of compliance required in this article is presumed to be in violation until such time as that documentation is provided.

Water surface elevation means the height, in relation to the National Geodetic Vertical Datum (NGVD) of 1929, the North American Vertical Datum (NAVD) of 1988, or other datum, where specified, of floods of various magnitudes and frequencies in the floodplains of riverine areas.
(Ord. No. 2009-13, § 3, 1-25-2010)

DIVISION 3.

GENERAL PROVISIONS

Sec. 56-64. Special flood hazard areas.

The special flood hazard areas are identified by FEMA for Williamson County, City of Brentwood, Tennessee in FEMA's Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRM) [Community Number 470205 - Map Panel Numbers 47187C0070F, 47187C0086F, 47187C0087F, 47187C0088F, 47187C0089F, 47187C0091F, 47187C0092F*, 47187C0093F, 47187C0094F, 47187C0115F*, 47187C0204F, 47187C0205F, 47187C0206F, 47187C0207F, 47187C0208F, 47187C0209F, 47187C0220F, 47187C0230F, 47187C0235F, and 47187C0240F, along with any additional map panels for areas that are annexed into the city, (*denotes panels not printed)] with the effective date of September 29, 2006, along with all supporting technical data. The FIRM, FIS and all supporting technical data, including any amendments and any renumbering of map panels are adopted by reference and declared to be a part of this article. The special flood hazard areas shall comprise the boundaries of the flood hazard district established in chapter 78 of this Code.
(Ord. No. 2009-13, § 3, 1-25-2010)

Sec. 56-65. Requirement for development permit.

A development permit shall be required in conformity with this article prior to the commencement of any development activities.
(Ord. No. 2009-13, § 3, 1-25-2010)

Sec. 56-66. Compliance.

No land, structure or use shall hereafter be located, extended, converted or structurally altered without full compliance with the terms of this article and other applicable regulations.
(Ord. No. 2009-13, § 3, 1-25-2010)

Sec. 56-67. Abrogation and greater restrictions.

This article is not intended to repeal, abrogate, or impair any existing easements, covenants or deed restrictions. However, where this article conflicts or overlaps with another regulatory instrument, whichever imposes the more stringent restrictions shall prevail.
(Ord. No. 2009-13, § 3, 1-25-2010)

Sec. 56-68. Interpretation.

In the interpretation and application of this article, all provisions shall be:

(1) Considered as minimum requirements;

(2) Liberally construed in favor of the governing body; and

(3) Deemed neither to limit nor repeal any other powers granted under Tennessee statutes or this Code.
(Ord. No. 2009-13, § 3, 1-25-2010)

Sec. 56-69. Warning and disclaimer of liability.

The degree of flood protection required by this article is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by manmade or natural causes. This article does not imply that land outside the areas of special flood hazard or uses permitted within such areas will be free from flooding or flood damages. This article shall not create liability on the part of the city or by any officer or employee thereof for any flood damages that result from reliance on this article or any administrative decision lawfully made hereunder.
(Ord. No. 2009-13, § 3, 1-25-2010)

Sec. 56-70. Penalties for violation.

(a) Any person who violates the provisions of this article or fails to comply with any of its requirements, including any conditions and safeguards established in connection with grants of variance shall be subject to punishment as provided in section 1-9 of this Code. In addition, any person who violates this article or fails to comply with any of its requirements shall pay all costs and expenses involved in the case. Each day any such violation continues shall be considered a separate offense. Nothing herein contained shall prevent the city from taking such other lawful actions to prevent or remedy any violation.

(b) Any structure or development without certification or other evidence of compliance required in this article is presumed to be in violation until such time as the required documentation is provided. Any structure or development for which the city's approval is required shall be in violation of this article if such approval is not obtained prior to the commencement of construction or development.
(Ord. No. 2009-13, § 3, 1-25-2010)

Secs. 56-71--56-75. Reserved.

DIVISION 4.

ADMINISTRATION

Sec. 56-76. Designation of administrator.

The city manager or the city manager's designee is hereby appointed to serve as the administrator, for the purpose of implementing the provisions of this article.
(Ord. No. 2009-13, § 3, 1-25-2010)

Sec. 56-77. Duties and responsibilities of the administrator.

Duties of the administrator shall include, but not be limited to, the following:

(1) Review all development permits to assure that the permit requirements of this article have been satisfied, and that proposed building sites will be reasonably safe from flooding.

(2) Review all proposed development to assure that all necessary permits have been received from those governmental agencies from which approval is required by federal or state law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334.

(3) Notify adjacent communities and the Tennessee Department of Economic and Community Development, Local Planning Assistance Office, prior to any alteration or relocation of a watercourse and submit evidence of such notification to FEMA.

(4) For any altered or relocated watercourse, submit engineering data/analysis within six months to FEMA to ensure accuracy of community FIRMs through the letter of map revision process.

(5) Assure that the flood carrying capacity within an altered or relocated portion of any watercourse is maintained.

(6) Record the elevation, in relation to mean sea level, of the lowest floor (including basement) of all new and substantially improved buildings, in accordance with section 56-78.

(7) Where interpretation is needed as to the exact location of boundaries of the areas of special flood hazard (for example, where there appears to be a conflict between a mapped boundary and actual field conditions), make the necessary interpretation. Any person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in this article.

(8) When base flood elevation data and floodway data have not been provided by FEMA, require development permit applicants to provide certification of base flood elevation and floodway data by a Tennessee registered engineer, to assure that new construction, substantial improvements, or other development in special flood hazard areas on the city's FIRM meet the requirements of this article.

(9) Maintain all records pertaining to the provisions of this article in the office of the administrator and provide for such records to be open for public inspection. Permits issued under the provisions of this article shall be maintained in a separate file or marked for expedited retrieval within combined files.
(Ord. No. 2009-13, § 3, 1-25-2010)

Sec. 56-78. Permit procedures.

(a) Application for a development permit shall be made to the administrator on forms furnished by the city prior to any development activities within a special flood hazard area. The development permit application requirements shall include, but are not limited to the following: plans in duplicate drawn to scale and prepared by a Tennessee registered surveyor or engineer, showing the nature, location, dimensions, and elevations of the area in question, existing or proposed structures, earthen fill placement, storage of materials or equipment, and drainage facilities. The requirements herein shall be in addition to any and all requirements for development permits that may be imposed pursuant to other provisions of this Code. The following information is specifically required for permits for development within areas of special flood hazard:

(1) *Application stage*.

a. Proposed elevation in relation to mean sea level of the proposed lowest floor, including basement.

b. Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.

c. For any location within a special flood hazard area where base flood elevation data is not initially available, or where the floodway has not been delineated, a Tennessee registered engineer shall determine the base flood elevation and establish the limits of the regulatory floodway. The engineer's certification shall be submitted with the permit application.

(2) *Construction stage.*

a. Elevation of the lowest floor relative to mean sea level, as determined by or under the direct supervision of, a Tennessee registered land surveyor and certified by a Tennessee registered land surveyor, to be provided upon completion of the foundation. Should the elevation of the lowest floor be lower than the proposed elevation on the approved permit, construction shall be discontinued until corrective action has been taken or the administrator is otherwise satisfied that the lowest floor elevation will comply with the provisions of this article. The administrator shall record the elevation of the lowest floor on the development permit.

b. Upon completion of construction, the permit holder shall provide to the administrator an elevation certificate, certifying the as-built lowest floor elevation level.

(b) Any work undertaken prior to submission of any required engineer's certification shall be at the permit holder's risk. The administrator shall review the above-referenced certification data. Deficiencies detected by such review shall be corrected by the permit holder immediately and prior to further work being allowed to proceed. Failure to submit the certification or failure to make said corrections required hereby shall be cause to issue a stop-work order for the project.
(Ord. No. 2009-13, § 3, 1-25-2010)

Secs. 56-79--56-80. Reserved.

DIVISION 5.

PROVISIONS FOR FLOOD HAZARD REDUCTION

Sec. 56-81. General standards.

In all areas of special flood hazard, the following provisions are required:

(1) New construction and substantial improvements shall be anchored to prevent flotation, collapse and lateral movement of the structure.

(2) Manufactured homes shall be installed using methods and practices that minimize flood damage. They must be elevated and anchored to prevent flotation, collapse and lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces.

(3) New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

(4) New construction and substantial improvements shall be constructed by methods and practices that minimize flood damage.

(5) All electrical, heating, ventilation, plumbing, air conditioning equipment and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

(6) New and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.

(7) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into floodwaters.

(8) On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding.

(9) Any alteration, repair, reconstruction or improvements to a building that is in compliance with the provisions of this article shall meet the requirements of "new construction" as contained in this article.

(10) Any alteration, repair, reconstruction or improvements to a building that is not in compliance with the provisions of this article shall be undertaken only if said nonconformity is not further extended or replaced.

(11) All new construction and substantial improvement proposals shall include copies of all necessary federal and state permits, including Section 404 of the Federal Water Pollution Control Act amendments of 1972, 33 U.S.C. 1334.

(12) All subdivision proposals and other proposed new development proposals shall meet the standards of section 56-82.

(13) When proposed new construction and substantial improvements are partially located in an area of special flood hazard, the entire structure shall meet the standards for new construction.

(14) When new construction and substantial improvements are proposed for a

location that lies in multiple flood hazard risk zones or in a flood hazard risk zone with multiple base flood elevations, the entire structure shall meet the standards for the most hazardous flood hazard risk zone and the highest base flood elevation.

(15) Proposals for new construction, substantial improvements, subdivisions and other new developments, including manufactured home parks, shall be reviewed to determine whether such proposals will be reasonably safe from flooding and that compliance with the above provisions of this section will be achieved. All such proposals shall meet the following standards:

a. Each proposal shall be consistent with the need to minimize flood damage.

b. Each proposal shall have public utilities and facilities, such as sewer, gas, electrical and water systems, located and constructed to minimize or eliminate flood damage.

c. Each proposal shall have adequate drainage provided to reduce exposure to flood hazards.

d. Each proposal shall include base flood elevation data. (See section 56-78.)

e. Subdivision proposals shall not contain special flood hazard areas within the buildable area of the lots.

(15) A portion of the performance security instrument held by the city for a subdivision or other new development shall be maintained, in an amount to be determined by the administrator, until the administrator receives a copy of the LOMR-F as approved by FEMA, where required.
(Ord. No. 2009-13, § 3, 1-25-2010)

Sec. 56-82. Specific standards for areas other than the floodway.

In all areas of special flood hazard other than the floodway, the following provisions, in addition to those set forth in section 56-81, shall apply:

(1) *Buildings.*

a. In areas where base flood elevation data is available and floodways have been designated, new construction and substantial improvement of any nonresidential (including commercial, industrial and institutional) or residential building (or manufactured home) may be permitted, provided that the lowest floor, including basement, shall be elevated to no lower than two feet above the base flood elevation. Solid foundation perimeter walls or piers may be used to elevate a structure, provided that:

1. The height of any perimeter wall used to elevate a building shall not exceed five feet, measured from the lowest adjacent grade to the lowest floor, and openings sufficient to facilitate equalization of flood hydrostatic forces on both sides of exterior walls shall be provided in accordance with subsection (2) of this section.

2. The minimum number of piers necessary to structurally support the building shall be used, and piers shall be designed to provide the least resistance to the flow of water.

b. Within special flood hazard areas where base flood elevations have not been established, or where no floodways have been designated, no construction may be permitted until a Tennessee registered engineer has determined the base flood elevation and established the limits of the regulatory floodway. Once the base flood elevation and floodway location have been established, construction shall comply with the building elevation requirements set forth in subsection (1)a. of this section.

(2) *Enclosures below the lowest floor.* Enclosed areas formed by foundation and walls below the lowest floor shall be designed to allow for the entry and exit of floodwaters to automatically equalize hydrostatic flood forces on exterior walls.

a. Designs for complying with this requirement must either be certified by a Tennessee professional engineer or architect or meet or exceed the following minimum criteria:

1. A minimum of two openings shall be provided, having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding.

2. The bottom of all openings shall be no higher than one foot above the finished grade.

3. Openings may be equipped with screens, louvers, valves or other coverings or devices, provided they permit the automatic flow of floodwaters in both directions.

b. The enclosed area shall not exceed five feet in height, measured from the lowest adjacent grade to the lowest floor.

c. The interior portion of such enclosed area may be used for building access or storage, but shall not be finished or partitioned into separate rooms in such a way as to impede the movement of floodwaters. Any partitions shall comply with the provisions of this section.

(3) *Standards for manufactured homes and recreational vehicles.*

a. All manufactured homes must meet all the requirements for new construction, whether placed or substantially improved:

1. On individual lots or parcels; or

2. In new and substantially improved manufactured home parks or subdivisions.

b. All manufactured homes placed or substantially improved on an individual lot or parcel or in a manufactured home park or subdivision must be elevated so that the lowest floor of the manufactured home lies on a permanent foundation no lower than two feet above the level of the base flood elevation.

c. Any manufactured home which has incurred "substantial damage" as the result of a flood must meet the standards of this division.

d. All manufactured homes must be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement.

e. All recreational vehicles placed in an identified special flood hazard area must either:

1. Be on the site for fewer than 180 consecutive days;

2. Be fully licensed and ready for highway use (a recreational vehicle is ready for highway use if it is licensed, on its wheels or jacking system, attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached structures or additions); or

3. Meet all requirements for new construction.

(4) *Filling.*

a. Filling may be permitted at locations outside the floodway. The volume of material shall be based upon an equal cut/fill quantity, so that the total amount of fill material added shall equal the amount of material removed. The building pad for each affected lot shall be filled to an elevation that equals or exceeds the flood protection elevation at that location. Approval for filling may be granted only if the administrator determines that the fill material will not unduly increase flood damage potential, and that the amount and dimensions of fill material in any location is not greater than is necessary to achieve the purpose of the fill as demonstrated in the plan submitted by the applicant.

b. In granting approval to fill property within the special flood hazard area, the administrator shall require that precautions be taken against erosion through the use of rip-rap, vegetative cover, bulk heading, or other suitable means.

c. Prior to the issuance of a development permit, the applicant shall secure a CLOMR-F from FEMA authorizing the proposed alterations to the special flood hazard area.

d. Where filling has been permitted on a platted lot, an as-built survey showing compliance with this division must be submitted to the administrator before a building permit will be issued. A copy of the LOMR-F, as approved by FEMA, must be submitted to the administrator before a certificate of occupancy will be issued.

e. Where filling has been permitted for a new subdivision, an as-built survey showing compliance with this division must be submitted to the administrator before the final plat is recorded. A copy of the LOMR-F, as approved by FEMA, must be submitted to the administrator before the performance security is released.

(5) *Private utility facilities.* In lieu of elevation, private utility facilities, including heating and air conditioning equipment and pool equipment, may be floodproofed and located and designed so as to minimize or eliminate flood damage. The administrator shall require certification by a Tennessee registered professional engineer or architect that the floodproofing, location and/or design of the utility facilities are in accordance with accepted standards of practice for meeting the provisions of this article.

(6) *Fences.* With the approval of the administrator, fences may be erected at any location within the special flood hazard area other than the floodway, provided that the administrator shall be satisfied that the fence is designed so as not to interfere with the flow of floodwaters.
(Ord. No. 2009-13, § 3, 1-25-2010)

Sec. 56-83. Special standards for floodways.

Located within the special flood hazard areas established in section 56-64 are areas designated as floodways. A floodway may be an extremely hazardous area due to the velocity of floodwaters, debris or erosion potential. In addition, the area must remain free of encroachment in order to allow for the discharge of the base flood without increased flood heights and velocities. Therefore, the following provisions shall apply:

(1) Except as otherwise permitted in subsections (2), (3) and (4) below, encroachments are prohibited within the floodway, including: earthen fill material; new construction; substantial improvements; decks or above-grade patios outside the existing building footprint; manufactured homes or recreational vehicles; and any other development.

(2) Fences on lots of three or more acres in size may be permitted, provided it is demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practices that the cumulative effect of the proposed fence encroachments shall not result in any increase in the water surface elevation of the base flood, velocities or floodway widths during the occurrence of a base flood discharge at

any point within the city. The property owner shall submit certification from a Tennessee registered professional engineer that the requirements of this subsection have been met, along with supporting technical data, using the same methodologies as in the effective Flood Insurance Study for the city.

(3) Nonsubstantial vertical additions to existing dwellings and nonsubstantial interior renovations within the existing building footprint may be permitted.

(4) The construction or placement of certain structures, facilities and improvements identified below may be permitted by the administrator. Such structures, facilities and improvements shall only be permitted if it is demonstrated through hydrologic and hydraulic analysis performed in accordance with standard engineering practices that their cumulative effect, when combined with all other existing and anticipated development, shall not result in any increase to the water surface elevation of the base flood, velocities or floodway widths during the occurrence of a base flood discharge at any point within the community. Certification thereof by a Tennessee registered professional engineer, along with supporting technical data, shall be provided to the administrator before construction or placement may be initiated. Structures, facilities and improvements permitted under these provisions shall be limited to:

a. Roads, sidewalks, bicycle/pedestrian paths and associated signs.

b. Drainage structures, including but not limited to bridges and culverts.

c. Other public infrastructure needs, including public utilities.

d. Parks and recreational facilities, including but not limited to open shelters, basketball courts and athletic fields,

e. Driveways and parking areas.

(Ord. No. 2009-13, § 3, 1-25-2010)

Secs. 56-84, 56-85. Reserved.

Sec. 56-86. Standards for unmapped streams.

Located within the city are unmapped streams where areas of special flood hazard are neither indicated nor identified. Adjacent to such streams, the following provisions shall apply:

(1) No encroachments, including fill material or structures or other development, shall be located within an area of at least twice the width of the stream, measured from the top of each stream bank, unless certification by a Tennessee registered professional engineer is provided, demonstrating that the cumulative effect of the proposed development, when combined with all other existing and anticipated

development, will not increase the water surface elevation of the base flood more than one foot at any point within the city.

(2) If the stream and the adjacent area are subsequently identified as a special flood hazard area, all development, including new construction and substantial improvements, shall meet the standards established in accordance with divisions 4 and 5 of this article.
(Ord. No. 2009-13, § 3, 1-25-2010)

Secs. 56-87--56-90. Reserved.

DIVISION 6.

VARIANCES AND APPEALS

Sec. 56-91. Board of building construction appeals authority.

The city's board of building construction appeals, established pursuant to chapter 14 of this Code, shall have the following powers in addition to those set forth in chapter 14:

(1) *Administrative review.* To hear and decide appeals where it is alleged by the appellant that there is error in any order, requirement, permit, decision, determination, or refusal made by the administrator or other administrative official of the city in carrying out or enforcing any terms of this article.

(2) *Variances.* To hear and decide upon applications for variance from the terms of this article.
(Ord. No. 2009-13, § 3, 1-25-2010)

Sec. 56-92. Procedures.

(a) *Appeals and variance requests--How taken.* An appeal to the board of building construction appeals may be taken by any person, firm or corporation aggrieved or by any governmental officer, department or bureau affected by any decision of the administrator based in whole or in part upon the provisions of this article. A request for variance may be submitted by any party owning an interest in property which is affected by the provisions of this article. Such appeal or request for variance shall be taken by filing with the board of building construction appeals a notice of appeal, specifying the grounds thereof, and paying the required fee established in this section. An appeal from a decision of the administrator must be filed within 30 days from the time the decision is rendered. The administrator shall transmit to the board of building construction appeals all documents constituting the record upon which the appeal action was taken. The board of construction appeals shall fix a reasonable time for the hearing of the appeal, give public notice thereof, as well as due notice to parties in interest and decide the same within a reasonable time, which shall not be more than 35 days from the date of the hearing; provided, however, that the party bringing the appeal may consent to an

extension of time for the board's decision. At the hearing, any person or party may appear and be heard in person or by agent or by attorney.

(b) *Fees.* In all cases where an appeal or request for variance is made by a property owner or other interested party, a fee of $100.00 dollars shall be paid by the appellant. Such fee shall be refundable if the board of building construction appeals rules in the appellant's favor in an administrative review case. No refund shall be issued to a party who has requested a variance.

(c) *Meetings*. Meetings of the board of building construction appeals to consider appeals and variances in regard to this article shall be held in accordance with the board's adopted meeting schedule, or at such other times as the board shall determine, and shall be conducted in accordance with the board's adopted rules of procedure. All meetings of the board of building construction appeals shall be open to the public. The administrator shall keep records of applications for appeals and variances and determinations made by the board of building construction appeals, which shall be a public record. Upon request by FEMA, the administrator shall report any variances granted.
(Ord. No. 2009-13, § 3, 1-25-2010)

Sec. 56-93. Conditions for variances.

(a) In reviewing applications for variances, the board of building construction appeals shall consider all technical evaluations, all relevant factors, and all standards specified in other sections of this division. Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result. Variances from the provisions of this article may be granted by the board of building construction appeals only upon:

(1) A showing of good and sufficient cause; and

(2) A determination that:

a. The variance is the minimum relief necessary, considering the flood hazard and each of the factors listed in subsection (b) of this section;

b. Failure to grant the variance would result in exceptional hardship; and

c. The granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense; create nuisance; cause fraud on or victimization of the public; or conflict with existing local laws or divisions.

(b) In addition to the general determinations set forth in subsection (a) above, the board of building construction appeals shall consider each of the following factors in

considering a request for a variance from the provisions of this article:

(1) The danger that materials may be swept onto other property to the injury of others;

(2) The danger to life and property due to flooding or erosion;

(3) The susceptibility of the proposed facility and its contents to flood damage;

(4) The importance of the services provided by the proposed facility to the community;

(5) The necessity of the facility to a waterfront location, in the case of a functionally dependent use;

(6) The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use;

(7) The relationship of the proposed use to the comprehensive plan and floodplain management program for that area;

(8) The safety of access to the property in times of flood for ordinary and emergency vehicles;

(9) The expected heights, velocity, duration, rate of rise and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site; and

(10) The costs of providing governmental services during and after flood conditions including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, water systems, and streets and bridges.

(c) When a variance is requested for the repair or rehabilitation of a historic structure as defined herein, each of the requirements set forth above shall apply. In addition, prior to granting a variance for the repair or rehabilitation of a historic structure, the board of building construction appeals shall determine that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure, and that the variance is the minimum necessary deviation from the requirements of this article to preserve the historic character and design of the structure. Each request for a variance for the repair or rehabilitation of a historic structure shall be referred to the city's historic commission for a recommendation prior to consideration by the board of building construction appeals.

(d) Upon consideration of the factors listed above, and the purposes of this division, the board of building construction appeals may attach such additional conditions

to the granting of variances as it deems necessary to effectuate the purposes of this division.

(e) Any applicant to whom a variance is granted shall be given written notice that the issuance of a variance to construct a structure below the base flood elevation will result in increased premium rates for flood insurance coverage, and that such construction below the base flood elevation increases risks to life and property.
(Ord. No. 2009-13, § 3, 1-25-2010)

City of Franklin

STORMWATER MANAGEMENT PLAN

(For POST-CONSTRUCTION)

see example starting on page 8

Whenever an applicant seeks city approval of a concept plan (or any document submitted to Franklin Planning Commission) a **Stormwater Management Plan** is required to be developed. The applicant shall demonstrate that the project meets the standards set forth in the city's Stormwater Ordinance for water quantity and quality, stream buffer, floodplain and all other aspects.

- **The site is *required* to be developed according to Treatment Train *http://www.franklin-gov.com/pdf/bmp/intro/Section%201-Introduction.pdf*** concepts and we strongly encourage developing the site with the **Better Site Design:** http://www.cwp.org/45-Intro_to_Better_Site_Design.pdf and **Low Impact Development** concepts. ***http://www.lowimpactdevelopment.org***

**** A stormwater management plan relying solely on structural practices has a number of weaknesses.***

**** The only structural stormwater management practices that attempt to mimic predevelopment site hydrology are infiltration practices.***

1) Use Stormwater Better Site Design Practices

Site design should be done in unison with the design and layout of stormwater infrastructure in attaining stormwater management goals.

- The first step involves identifying significant natural features and resources on a site such as undisturbed forest areas, stream buffers, wetlands, springs, floodplains, and steep slopes that should be preserved to retain some of the original hydrologic function of the site.
- Next, the site layout is designed such that these conservation areas are preserved and the impact of the development is minimized. A number of techniques can then be used to reduce the overall imperviousness of the development site. Plan streets and roads that reduce surface area by shortening lengths and reducing widths.
- Natural features and conservation areas can be utilized to serve for stormwater quantity and quality management purposes. Clearing limits should be identified to prevent disturbances during construction.
- Design the site so it will infiltrate stormwater onsite with practices open space (undisturbed as possible) such as swales, vegetative strips, infiltration channels, bioretention areas, rain gardens, etc. utilizing the natural drainage system wherever possible.
- Plan streets and roads that reduce surface area and shorten lengths and widths.
- Integrate water quality and water quantity aspects of the site during the development of the concept plan: required landscape areas/open space can be incorporated into the **Treatment-Train.**
- Wherever possible, use native vegetation. It grows better and may require less water and has deeper roots to hold soil in place. (see TVA Benefits of Riparian Zones http://www.tva.com/river/landandshore/stabilization/benefits.htm

2) BMP Choices

Developing an effective **Stormwater Management Plan** depends on making effective BMP choices. It should include reviewing the full suite of BMPs that are available and identifying the dominant site factors that should go into the decision making process. Assessment of the **regional area, specific site conditions**, **site constraints**, **site hydrology** and **project type** are central to successful planning to minimize pollutants during development as well as during life of the project. The basic steps in the stormwater management plan process are to:

- Assess site and watershed conditions
- Understand hydrologic conditions of concern
- Evaluate pollutants of concern
- Identify candidate BMPs
- Develop plan for BMP Maintenance

The following information shall be required in a Stormwater Management Plan:

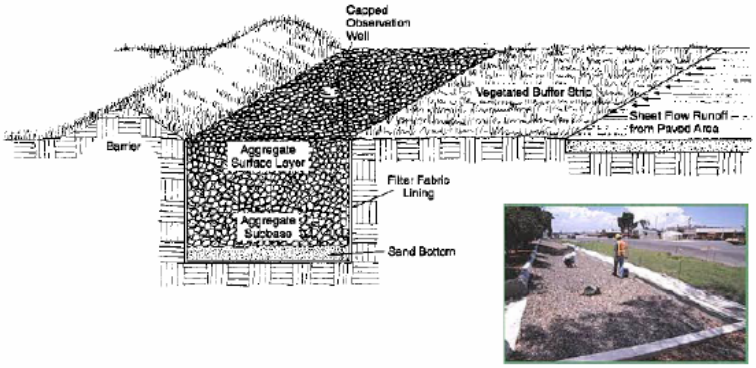
1) **MAP**: Include a map with the overall design of the site showing the locations of streams, floodplain extent, wetlands or sink holes that are potentially to be affected by this project (show 200 feet beyond the limits of the proposed development at a scale of 1"- 200' or greater). The map should show all the buildings, roads, parking areas, utilities, structural facilities for stormwater management and sediment control and other permanent structures. It should also clearly show areas where alterations occur in the natural terrain and cover, including lawns and other landscaping and seasonal high ground water elevations, and floodplains.
2) A written description of natural or man made features of the site such as stream (perennial or intermittent stream); delineate the streamside buffer to be left undisturbed on the plans; what soils are found. The project description should clearly describe all **stormwater management practices**, methods, and BMPs that will be used on the site to meet the 90% TSS goal. Describe your effort to **disconnect impervious areas across the site.**
3) Any significant site constraints affecting the selection of stormwater management practices must be identified.
4) Leave large undisturbed buffers along streams--we recommend 50 ft. on each side of the stream measured from top of bank: **The City now requires 25 ft. of "undisturbed streamside buffer" to be left on both sides of a the stream.** Show the buffer area on the map and also mark the buffer area with fencing that reach out **beyond the drip line** of any trees and set aside the streamside buffer as a conservation easement and recoded with the deed.
5) A Drainage Area Map showing the total drainage areas and sub-drainage areas shall be provided.
6) Develop the post construction Best Management Practices, BMPs, that the site needs to mitigate water quality and quantity per requirements of the City of Franklin.
7) Technical feasibility - of BMPs including sizing, location, hydraulic and environmental impacts. Alternatives which were considered but determined not to be feasible should also be discussed.
8) Integrate Low Impact Development water quality and water quantity aspects of the site during the development of the concept plan: swales, bioretention, detention, vegetative strips, infiltration channels, rain gardens, and biofilters, etc. see: http://.franklin-gov.com/pdf/bmp/ptp/PTP_5.pdfand Multiple Systems: detention, retention, grass waterways, infiltration, oil grit separators, etc.:*http://www.franklin-gov.com/pdf/bmp/ptp/PTP-08.pdf*) should be used in combination.
9) Review concepts in these documents: **Conservation Design for Stormwater Management: *http://www.psat.wa.gov/Programs/LID/lid_cd/pdf_docs/DEL_MAN.PDF*; Natural Resource Defense Council: Low Impact: *http://www.nrdc.org/water/pollution/storm/chap12.asp*; Center for Watershed Protection: An Introduction to Better Site Design: *http://www.cwp.org/45-Intro_to_Better_Site_Design.pdf*; California Stormwater BMP Handbook: Stormwater Quality Planning For New Development and Redevelopment: *http://www.cabmphandbooks.com/Documents/Development/Section_2.pdf***.
10) Detention ponds should be designed with **forebay** and to the required specs of city of Franklin BMP Manual.
11) Include an estimate of the square footage of imperviousness of the site.

Profile of Parking Lot Bioretention Facilities
Bioretention areas can be designed for parking lots or on-site residential stormwater treatment, and can be an attractive landscaping feature in all seasons.

Grass Paver Surface Used for Parking

Address the 6 concepts on pages 1-9 through 1-11 in Franklin's BMP Manual Introduction section: ***http://www.franklin-gov.com/pdf/bmp/intro/Section%201-Introduction.pdf***
Low Impact Development:*http://www.lowimpactdevelopment.org*

The standard techniques of construction in the past 25 years have deprived the **ground of rainwater** that it needs to recharge the water table and to which it was accustomed. The result of this could be streams and rivers drying up in the dry months because the water table has not been replenished.
For residential areas: cluster mixed use development with large formal and informal open space and development that follows the contours of the site.



Infiltration Trench Example

1.4.6 BMP Selection for Structural Treatment Controls
The developer proposes most permanent BMPs during the early planning process of a project. Typically, there is not a single BMP that addresses all long-term stormwater quality problems. Instead, a **multi level strategy** will be worked out with the City of Franklin, which incorporates source controls, a series of on-site treatment controls, and community-wide treatment controls.

This concept is presented in section 1.4.2, which discusses the **BMP Treatment Train**.
In most cases permanent BMPs are implemented most effectively when they are tied in with the **actual project design.** When stormwater controls are considered as part of the design they are conceptually planned out and consequently, more effective.

The following should be considered in the design process.
1. Is a detention/retention facility required for flood control? Often, facilities are required to maintain peak runoff at predevelopment levels to reduce downstream conveyance system damage and other costs associated with flooding. Most permanent BMPs can be incorporated into flood control detention/retention facilities with modest design refinements and limited increase in land area and cost.

2. Planned open spaces that have slopes less than 5% may be merged with stormwater quality/quantity facilities. Such integrated, multi-use areas may achieve several objectives at a modest cost.

3. Infiltration BMPs may serve as **groundwater recharge facilities** although soil conditions are critical to their success. **Detention/retention areas may be created in landscaped areas** of the project, and vegetated swales/filters may be used as roadside/median or parking lot median vegetated areas.

1.4 BMP Selections

(taken from Franklin BMP Manual: **http://www.franklin-gov.com/bpm.aspx**)

1.4.1 Define BMP Objectives

BMP objectives must address development and construction as well as existing industry, businesses, and private parties whose activities may contribute to overall water quality. These activities are all unique and require specific knowledge of pollution risks associated with each specific activity. This knowledge is essential in selecting BMPs effectively. Each unique project has specific risks that be addressed through the BMPs selected for use. In order to reach this goal specific project risks are identified, BMP objectives are developed, and BMPs are selected. The following BMP objectives supplement the standards set forth by the City's Stormwater Management Ordinance:

1. **Practice Good Housekeeping**: Proper management of pollutant sources and modification of construction activities can prevent pollutants from draining or being transported off-site.
2. **Contain Waste**: Dispose of all construction waste in designated areas, and keep stormwater from flowing on to or off of these areas.
3. **Minimize Disturbed Areas**: Land clearing should take place only in areas that will be under active construction within a few months of the time of clearing. Phasing clearing of a large development is recommended. Land clearing during the rainy season should be avoided if at all possible Sensitive areas such as steep slopes, buffers, and natural watercourse should never be disturbed is at all possible.
4. **Stabilize Disturbed Areas**: Temporary stabilization techniques should be utilized in areas where there are disturbed soils that are not undergoing active construction. Upon final completion of a construction activity, permanent landscaping and stabilization should be applied.
5. **Protect Slopes and Channels**: Steep and unstable slopes should not be disturbed if they are outside of the approved grading plan area. Runoff should be conveyed from the top of the slope in a safe manner ensuring that the slope is stabilized as soon as possible. Natural Channels should not be disturbed if at all possible. Temporary and permanent channel crossings require stabilizing as quickly as possible to ensure that increases in runoff velocity caused by the project do not erode the channel.
6. **Control Site Perimeter**: Upstream runoff should be diverted either around or through the construction project in a safe manner. These diversions should be designed to ensure that downstream property would not be damaged. In addition, all runoff exiting the construction site should be free of excessive sediment, and other pollutants.
7. **Control Internal Erosion**: Sediment laden water should be detained or otherwise treated within the site to avoid potential pollution to external waterways. Site characteristics and specific contractor activities affect the potential for erosion and pollution by other constituents used on the construction site. While determining BMP objectives site conditions and climatic factors should be considered.

1. Site conditions include the following:
   - ❖ Soil type, including underlying soil strata that are likely to be exposed to stormwater.
   - ❖ Natural terrain and slope.
   - ❖ Final slopes and grades
   - ❖ Location of concentrated flows, storm drains, and streams.
   - ❖ Existing vegetation and ground cover.
2. Climatic factors include the following:
   - ❖ Seasonal rainfall patterns.
   - ❖ Appropriate design storm, which takes into account quantity, intensity, and duration of rainfall.
3. Type of Construction activity.
4. Construction schedules, construction sequencing and phasing of construction.
5. Size of construction project and areas to be graded.
6. Location of the construction activity relative to adjacent uses and public improvements.
7. Cost-effectiveness considerations.
8. Types of construction materials and potential pollutants present or that will be brought on-site.
9. Floodplain, Floodway, and buffer requirements.

1.4.2 Determine BMP Categories

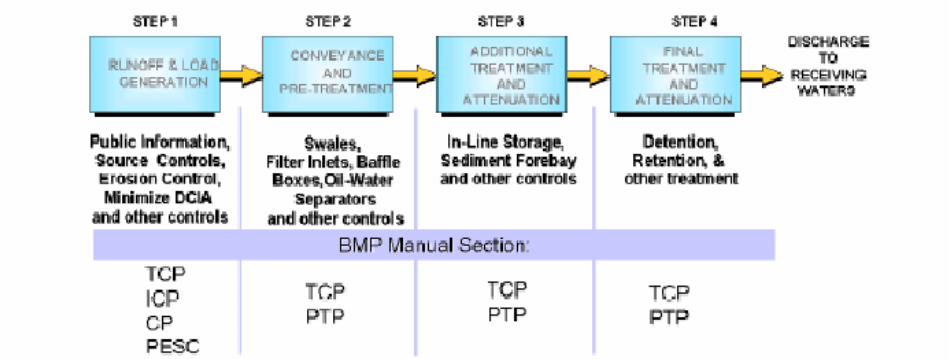
Once the BMP objectives are defined, BMP categories must be determined. In order to determine the BMP categories, a plan for the project will be needed. This plan should contain enough detail that draining patterns, topography, existing and **permanent stormwater control structures** can be located with ease. The Stormwater Management Plan will be required in order to obtain a **Stormwater Management Permit**, which is required for all development and redevelopment as identified in Sections 2, and 6 of the Ordinance. The plan should identify all of the following information in addition to any requirements set forth by the ordinance regarding this matter:

1. Stormwater entrance and exiting locations. Sheet and Channel flow for the existing and final grading contours should be included. This should be in accordance with the master stormwater management plan for the specific watershed. (See section 6.2.3, and 6.2.4 of the Ordinance)
2. Identify locations of steep slopes and unlined channels that are subject to high rates of erosion. Long, steep slopes over 100 feet in length are considered as areas of moderate to high erosion potential. Soil bioengineering is preferred for stabilization over riprap, and other hard armoring techniques. (See section 6 of Ordinance)
3. Categorize slopes as:
   - Low Erosion Potential (0 to 5 percent slope)
   - Moderate Erosion Potential (5 to 10 percent slope)
   - High Erosion Potential (slope greater than 10 percent)
   - (Section 1 of the Ordinance discusses variables that may change the rate and volume of runoff.)
4. Identification of sensitive areas that should not be disturbed such as wetlands, springs, sinkholes, floodplains, floodways, sensitive areas or buffers, including other areas where site improvements will not be constructed. Clearing limits should be identified to prevent and disturbance during construction activities. (see section 6 of Ordinance)
5. Identification of tributary areas for each outfall location should be included. The approximate area of each tributary should be calculated.
6. Identification of locations where contractor activities may have a risk of causing a runoff or polluted discharge. (See section 6 for specific regulation regarding this matter) This plan will allow easy identification of BMP categories that need to be considered on a particular construction project. **Planning before construction, and phasing construction activities always proves to be more cost effective than treatment of stormwater after the fact**. Preventative maintenance is simpler, and less costly, than correcting a problem that has occurred.

Once BMP objectives have been determined, the **BMP Treatment Train** illustrated in Figure 1-1 can be utilized.

The BMP treatment train is used to determine BMP objectives that will be met by various BMPs. Many BMPs can achieve more than one objective, which should be taken into account when selecting BMPs. This allows for selecting the most cost-effective BMP. For example, it is not always necessary to install extensive sediment trapping controls during construction. In fact, sediment trapping should be used only as a short-term measure for active construction areas, and replaced by permanent stabilization measures as soon as possible. However, it should be noted that perimeter/outfall control in the form of permanent detention ponds should be built first and used as temporary sediment control during construction. After construction is complete and tributary area is stabilized, the permanent outlet configuration can be reestablished.

Figure 1-1



BMP treatment Train

Minimization of Directly Connected Impervious Areas (DCIA)

DCIA is any impervious surface that drains directly into a storm drain or other conveyance structure without filtration.

- Have you *limited the overall impervious land coverage* of your site?
- Have you *directed runoff from impervious areas to pervious areas* and/or small depressions (especially from the first 1/3 to ½ inch of rain*)?
- Have you considered incorporating any of these techniques into your site plan: - paving with permeable pavement materials (e.g. unit paver-on-sand patio),
- clustered buildings or shared driveways
- reduced land coverage by building taller and narrower building footprints, - installation of parking bays or pull-outs?

Minimizing directly connected impervious areas can be achieved in two ways:

1. ***Limiting overall impervious land coverage***
2. ***Directing runoff from impervious areas to pervious areas for infiltration, retention/detention, or filtration***

Strategies for reducing impervious land coverage include:

- Cluster rather than sprawl development
- Taller narrower buildings rather than lower spreading ones
- Sod or vegetative **"green roofs"** rather than conventional roofing materials
- Narrower streets rather than wider ones
- Pervious pavement for light duty roads, parking lots and pathways

Example strategies for infiltration, retention/detention, and bio-filtration include:

- Vegetated swales
- Vegetated basins (ephemeral- seasonally wet)
- Constructed ponds and lakes (permanent- always wet)
- Crushed stone reservoir base rock under pavements or in sumps
- Cisterns and tanks
- Infiltration basins
- Drainage trenches
- Dry wells
- Others

Unlike conveyance storm drain systems that convey water beneath the surface and work independently of surface topography, a drainage system for stormwater infiltration can work with **natural landforms** and **land uses** to become a major design element of a site plan. Solutions that reduce DCIA prevent runoff, detain or retain surface water, attenuate peak runoff rates, benefit water quality and convey stormwater. Site plans that apply stormwater management techniques use the **natural topography** to suggest the drainage system, pathway alignments, optimum locations for parks and play areas, and the most advantageous locations for building sites. In this way, the natural landforms help to generate an aesthetically pleasing urban form **integrated with the natural features of the site.**

***Vegetated Swales:**

This management practice is likely to provide a significant reduction in sediment, heavy metals, toxic materials, oil and grease and partial reductions in nutrients, floatable materials, and oxygen demanding substances.

*Easy to design---and incorporated into a site drainage plan
*They are most effective when used with other BMPs: wet ponds, infiltration strips, etc;
*Reduce peak flow
*Promote infiltration
*Removal of pollution: suspended solids and trace metals.
*Fine, close growing grass such as reed canary grass, grass-legume mixture and red fescue.
*Design for 24 hour storm event
*Landscaped swales can be used around parking lots, houses, and other structures.
*The swales will provide pretreatment and also provide conveyance to larger secondary or primary stormwater management systems

Structural BMP Expected Pollutant Removal Efficiency
Source Adapted form US EPA 1993c

BMP Type	Typical Pollutant Removal (percent)				
	Suspended Solids	Nitrogen	Phosphorus	Pathogens	Metals
Retention Basins	50 - 80	30 – 45	30 - 45	<30	50 - 80
Constructed Wetlands	50 - 80	<30	15 - 45	<30	50 - 80
Infiltration Basins	50 - 80	50 – 80	50 - 80	65 - 100	50 - 80
Infiltration Trenches/Dry Wells	50 - 80	50 – 80	15 - 45	65 - 100	50 - 80
Porous Pavement	65 - 100	65 – 100	30 - 65	65 - 100	65 - 100
Grasses Swales	30 - 65	15 – 45	15 - 45	<30	15 - 45
Vegetated Filter Strips	50 - 80	50 – 80	50 - 80	<30	30 - 65
Surface Sand Filters	50 - 80	<30	50 - 80	<30	50 - 80
Other Median filters	65 - 100	15 – 45	<30	<30	50 - 80

Design Process

1) Design Planning and Site Design	*2) Source Control*	*3) Treatment Control*
* *Minimize impervious land coverage*	* Infiltrate * Retain/Detain * Biofilter	* Treat and remove Pollutants

Minimize Creation of Runoff | Infiltrate, Retain Polish Runoff | Treat Runoff

Conventional dry detention basins do not provide a permanent pool and are **not recommended** for general application use to meet **water quality criteria,** as they fail to demonstrate an ability to meet the majority of the water quality goals. In addition, dry detention basins are prone to clogging and resuspension of previously settled solids and require a higher frequency of maintenance than wet ponds if used for untreated stormwater flows. These facilities can be used in combination with appropriate water quality controls to provide channel protection, and overbank and extreme flood storage.

"Reinforced" Grassy Swales

Grassy swales (minor channels that are lined with grass) are used to transport runoff from less developed areas. They can also provide a small, but significant, amount of pollutant removal. This ability to remove pollutants can be increased with modifications such as turf reinforcement matting, small check dams, and a shallow underground treatment layer of soil beneath the base of the swale.

The primary reason to not use a grassy swale is high water flows and velocities. When water reaches a velocity of over 4 feet per second, grassy swales tend to erode. Traditionally, when high velocities are present, it is necessary to line the swale or channel with concrete or rip-rap in lieu of grass. Under very high velocities either of these two channel linings (concrete or rip-rap) are still required; however, some studies show it is now possible to reinforce grass under high flows with turf reinforcement mats. The mat gives the grass additional support, holding it in place during heavy storms. The use of mats now allows for grass swales in some steeply sloped or high-flow areas that once were unable to support the growth of grass. While the use of mats is costlier than simply seeding the swale, the cost of mats plus grass, in place of rip-rap or concrete is often very favorable.

Check dams similar to those for sediment and erosion control can be built across grassy swales, creating temporary reservoirs of water during storms. The detained water can eventually seep into the groundwater. Some pollutant removal can occur in the root zone of these mini-detention areas. But the use of check dams is relegated to areas of rolling topography, such as areas of the upper coastal plain, piedmont, sandhills, and mountains of North Carolina.

Swales can also have a filter region along the bottom that is similar to that of bio-retention areas. The filter region introduces the surface water to groundwater. The effectiveness of these BMPs is relatively marginal, with 15 percent nutrient removal possible. TSS removal rates average around 30 percent. If the swales are improperly maintained, such as if grass clippings are not removed from the swale, swales may even be a contributor of nutrients.

Bio-Retention Areas and Rain Gardens

Another infiltration device that is becoming prevalent is the rain garden, or bio-retention area. This BMP marries stormwater treatment with landscaping, which has led many homeowners to adopt this practice. Unlike ponds and wetlands, which retain–or keep–stormwater, rain gardens detain water for short lengths of time. Bioretention areas are typically designed to drain down within 48 hours of a large storm. This lessens stress on plants caused by having submerged roots, meaning a number of plants can be grown in rain gardens that typically do not survive in wetlands and that have higher community acceptance than their wetland counterparts (such as phragmites and cattails). Some of the suggested bio-retention species include redbuds, dogwoods, cherry bark oaks, and irises.

On the surface of the area is a layer of soil suitable for growing plants and trees. Under the top layer of soil is a sandy to sandy-loam mixture that is very porous and permeable. The designer then has the option of putting drain pipes in the bottom of the rain garden or simply allowing the water to infiltrate into the surrounding soil. As with infiltration trenches and wells, the surrounding soil is very important. Sandy soils work best. Any soil tighter than a sandy loam will probably require drains, or the system will fail.

Level Spreaders and Riparian Buffers

In Franklin and Williamson County riparian buffers (forested or grassed areas alongside streams or rivers) are mandatory along all streams. They have been shown to remove all types of pollutants, including sediment, phosphorus, and nitrate. Sediment and phosphorus are trapped as surface flow slows down as it passes through the buffer. Nitrate, found in groundwater, is converted to nitrogen gas by microbes found in underlying media by the same processes mentioned in the section on wetlands.

Riparian buffers are often short-circuited by ditches or pipes, which pass through them directly to the creek or stream. This short-circuiting substantially limits the effectiveness of buffers' ability to treat stormwater runoff. Instead of allowing the ditches or pipes to bypass the buffer, level spreaders can be used to spread the flow out, creating a thin sheet of flow to pass through the buffer. Level spreaders can be constructed as shallow rock-lined trenches, which are level from end to end, parallel to the stream. Other level spreaders may be a series of 2-inch-by-6-inch boards that are placed end to end along a similar contour. Special design considerations need to be made when sizing the level spreaders–they can easily be overwhelmed by flow if underestimated. The purpose of the level spreader is to produce sheet flow; if one part of the level spreader is not level then the whole spreader will be ineffective.

FRANKLIN STORMWATER MANAGEMENT PLAN
PROJECT DESIGN CHECK LIST

Check each with short explanations with examples.

☐ 1) BMPs have been identified. Water quality and water quantity aspects of the site are integrated during the development of the concept plan: required landscape areas/open space can be incorporated into the **REQUIRED Treatment-Train concepts**.
Explain:

☐ 2) Natural features and resources are identified on a site such as undisturbed forest areas, stream buffers, wetlands, springs, floodplains, and steep slopes that should be preserved to retain some of the original hydrologic function of the site.
Explain:

☐ 3) Site layout is designed with natural flow of the area and conservation areas are preserved and the impact of the development is minimized.
Explain:

☐ 4) Streets, parking lots and roads and other impervious surfaces are planned to reduce surface area and shorten lengths and widths.
Explain:

☐ 5) Natural features and conservation areas are utilized to serve for stormwater quantity and quality management purposes.
Explain:

☐ 6) Site is designed so it will infiltrate stormwater onsite with practices: open space (undisturbed as possible) such as swales, vegetative strips, infiltration channels, bioretention areas, rain gardens, etc. utilizing the natural drainage system wherever possible. **Define BMP Objectives**.
Explain:

☐ 7) Use native vegetation. It grows better and may require less water and has deeper roots to hold soil in place. **Explain:**

Example Detention Sizing Using the Volume-Time Method

The Volume-Time method is demonstrated in the following steps. It should be noted that the following numbers are characteristic of conditions in Franklin to demonstrate the method and that the tables presented in the narrative provide data only for the critical time, hours 11 through 18 (critical time discussed later).

Step 1) Establish hydrologic parameters:

The following land use conditions, soil groups, and hydrologic parameters were assigned to the contributing area:

- The contributing area to the pond is 100 acres (typical of a medium to large development),
- Pre-development land use - 100 percent forest/open land for a total of 0.5 percent directly connected impervious area (DCIA),
- Post-development land use - 25 low density residential, 50 percent high density residential, 15 percent medium density residential and 10 percent office/institution for a total of 37.0 percent DCIA,
- Hydrologic soil Group A (30%), Group B (50%), Group C (15%), Group D (5%).
- Average area weighted flow length – 1500 ft,
- Overland slope - 0.018 ft/ft,
- Manning n for overland flow – 0.4 (PRE), 0.15 (POST)
- SCS Type II rainfall distribution with rainfall depths of 3.5 inches for 2-year, 5.2 inches for the 10-year, 6.2 inches for the 25-year, and 7.5 inches for the 100-year, 24 hour storm.

Step 2) Calculate runoff hydrographs under pre- and post-development conditions:

The development of the runoff hydrographs can be accomplished through a variety of different methods and programs. Programs that may be utilized to accomplish this task include TR-20, HEC-1, HEC-HMS, SWMM (used in this example), and others that develop peer accepted flow versus time hydrographs. In designing a pond using the Volume Time methodology, development of the runoff inflow hydrograph will not be different than any other detention design criteria.

In the City of Franklin, hour 11 through hour 18 will be utilized as the critical time for detention pond designs. The critical time is the time during which a waterway and/or location will be impacted the most during a rainfall event. During the critical hours, post-development runoff volume should be less than or equal to the pre-development runoff volume from hour 11 to hour 18 of the 24-hour design storm for the 2-, 10-, 25-, and 100-year return periods.

The 15-min interval pre- and post-development pond inflow hydrographs between hour 11 and hour 18 for the area is shown in **Table 1** and **Figure 1** for the 100-year return period event. With the

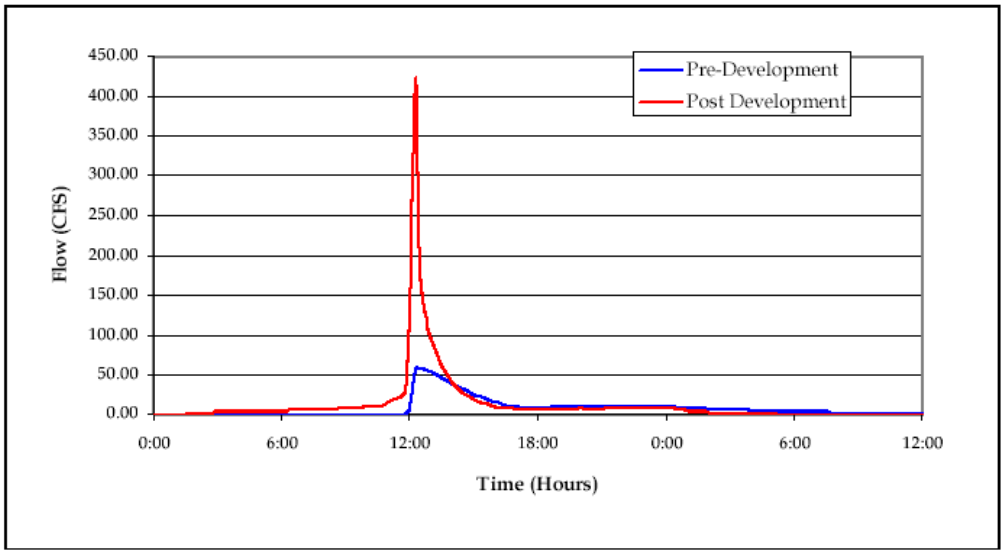
inflow information the volume over the critical time can be calculated for each 15-minute increment. Summing the volumes of each increment provides the total volume over the critical time.

Table 1
100-Year Flows for Critical Hours with No Controls

	Post-Development		Pre-Development	
Time	Discharge (CFS)	Volume (CF)	Discharge (CFS)	Volume (CF)
11:00	15	13569	0	203
11:15	18	16562	0	244
11:30	22	19720	0	285
11:45	27	24365	0	354
12:00	115	103221	6	5216
12:15	424	381485	57	51425
12:30	175	157451	57	51132
12:45	122	109674	55	49942
13:00	96	86116	53	47900
13:15	76	68259	50	44920
13:30	61	54950	46	41619
13:45	50	44834	43	38259
14:00	40	36420	39	34843
14:15	33	30040	35	31613
14:30	28	24836	32	28543
14:45	23	20413	28	25617
15:00	18	16565	25	22827
15:15	15	13911	23	20347
15:30	13	11961	20	18126
15:45	11	9782	18	15966
16:00	9	8299	16	14040
16:15	8	7255	14	12310
16:30	7	6532	12	10755
16:45	7	6086	10	9353
17:00	6	5424	9	7961
17:15	6	5171	7	6725
17:30	6	5049	8	6918
17:45	6	4989	8	7179
18:00	6	5007	8	7434
TOTAL VOL (CF)		1,297,945		612,054
TOTAL VOL (AC-FT)		29.8		14.1
PEAK DISCH. (CFS)		424		57

Note: 100 acre area
100 year, 24-hour, Type II storm of 7.5 inches
Numerical calculations have been rounded to the nearest whole number

Figure 1
100-Year Runoff for First 36 Hours, No Controls



Step 3) Estimate the initial minimum pond storage requirement:

Calculate the difference between the pre- and post-development runoff volumes from the 100-year event between the critical hours of 11 to 18. Use 1.5 times this difference in volumes as the first estimate of the detention pond size at the 100-year peak pond depth. The estimate for this example is calculated as follows:

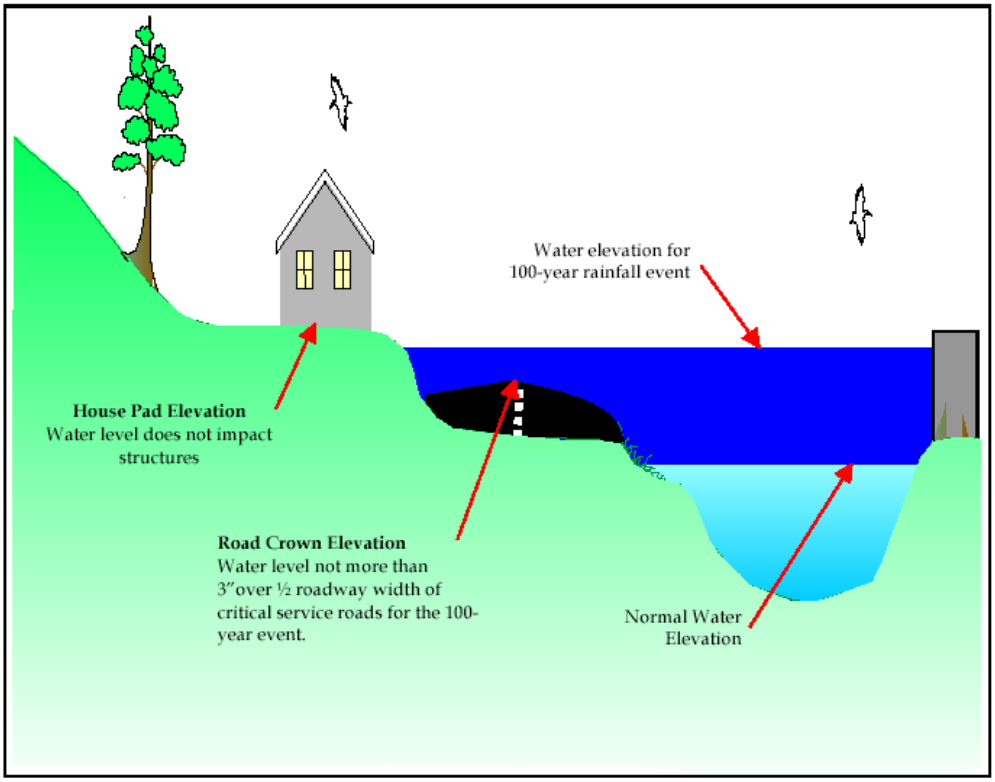
$$(29.8 - 14.1) * 1.5 = 23.55 \text{ ac-ft}$$

Step 4) Determine the allowable depth in the detention pond for the 100-year event:

The maximum water surface elevation during the 100-year, 24-hour design storm will be determined based on specific site constraints and requirements under Franklin's Stormwater Ordinance. Things to consider include:

- Maximum water surface elevation is not more than 3" over ½ the roadway width for the 100-year design storm for critical service roads per Section 6.2.8.1 of Franklin's Stormwater Ordinance (see **Figure 2**),
- Additional considerations and requirements can be referenced in Section 6 of Franklin's Stormwater Ordinance.

Figure 2



For this example, a 100-year peak pond depth of 3-feet is used. This number was selected randomly to demonstrate the Volume Time methodology. The allowable depth will vary on a case-by-case basis, depending on site constraints and design requirements.

Step 5) Determine outlet structure size and pond volume:

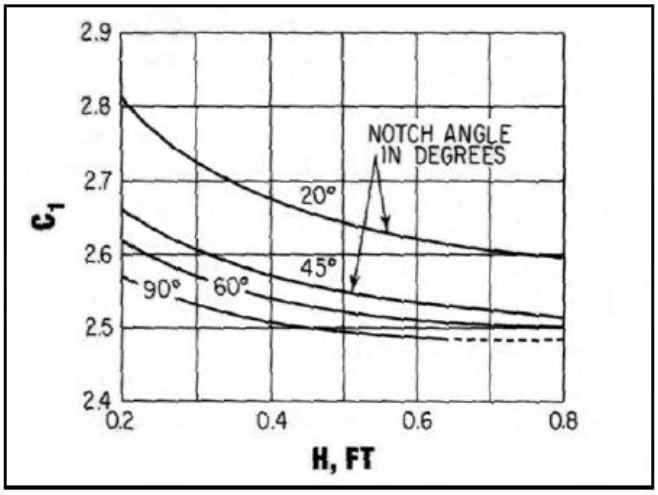
1. Route the inflow hydrograph through the detention pond (initial volume = 23.55 ac-ft at a pond depth of 3 feet, as determined in Step 3) to generate an outflow hydrograph. This can be accomplished utilizing many different methods, generating the outflow based on the specific outlet structure used. In this example, the inflow hydrograph was routed using the EXTRAN block of SWMM, with a V-notch weir as the outlet structure. Flow through the V-Notch weir can be calculated using the following equation:

Where:

$$Q = C_1 H^{\frac{5}{2}} \tan\left(\frac{\theta}{2}\right)$$

θ = notch angle
H = head or elevation of water over the weir, ft
C_1 = discharge coefficient (see **Figure 3**)

Figure 3
Sharp Crested V-Notch Weir Discharge Coefficients
(From Franklin BMP Manual, Figure PTP-02-8)



For this example, the initial estimate of the V-notch angle was estimated at 111 degrees. This is done through back calculations, setting Q equal to the pre-development peak discharge rate (57 cfs) at a height of three feet. C_1 is approximated at 2.5, noting that as H increases, the graphs converge at approximately 2.5. The calculations are as follows:

$$57 = 2.5 * 3^{\left(\frac{5}{2}\right)} \tan\left(\frac{\theta}{2}\right)$$

Solving for θ, the initial angle of the V-notch weir equals 111 degrees.

2. Based on the calculated outflow, the maximum height at the peak stage must be determined. This can be calculated as flow is routed through the pond for each time increment and is dependent on the routing method and outlet structure used. For this example, peak stages were verified through model output.

3. Vary the pond size and outlet structure size until the Volume-Time criteria are met for the 100-year event. For this example, the following goals have been established:

   Goals:
   Pond Depth ≤ 3 feet (for this example only)

   Critical outflow volume ≤ 14.1 ac-ft (for this example only)

   100-year peak discharge ≤ 57 cfs (for this example only)

Figure 4 – *V-notch outlet structures are recommended because they offer a wide range of control for large, medium, and small storms, and they are used in this example.*

The iterations for successive pond sizes and outlet capacities are summarized in **Table 2** for the 100-year, 24-hour design storm. Full data sets for the iterations, including the discharge hydrograph are included in **Appendix A**.

Table 2 Iterations for Pond Sizes and Outlet Capacities, 100-Year, 24-Hour Design Storm						
Iteration (Model ID)	Volume at 3-ft (ac-ft)	V-Notch Weir Angle (degrees)	Calculated Peak Depth (ft)	Pond Outflow Volume Over Critical Hours (ac-ft)	Peak Outflow (cfs)	Comments
VTFE0001	23.55	111	2.9	18.0	52.4	Outflow volume too large with more allowable depth available. Decrease weir angle.
VTFE0002	23.55	90	3.1	15.4	41.8	Outflow volume too large, pond too deep. Increase volume by [1.5*(15.4-14.1)=1.95 ac-ft].
VTFE0003	25.5	85	3.0	13.4	35.0	Pond and structure meet criteria for 100-year, 24-hour design storm.

Step 6) Route the 2-, 10-, and 25-year post-development hydrographs through the detention pond.

Route the 2-, 10-, 25-year, 24-hour design storms through the pond and critical outlet structure. Adjust the outlet structure for lower flow control as shown in Step 5 if the post-development volume during the critical time period and/or peak discharge is greater than the pre-development volume during the critical time period and/or peak discharge.

Model output for the verifications of the 2-, 10-, and 25-year design storms are presented in **Appendix B.** Pre- and post-development flows for the 2-, 10-, 25-, and 100-year design storms with no controls over the critical time, including volumes and peak discharges, are presented in **Appendix C**.

The verification of volume and peak discharge for the 2-year design storm revealed that the post-development conditions did not meet the pre-development conditions. Returning to Step 5, the outlet structure was modified to meet the criteria for the 2-year event. **Table 3** presents the iterations for successive pond sizes and outlet capacities for the 2-year, 24-hour design storm.

Table 3 Iterations for Pond Sizes and Outlet Capacities, 2-Year, 24-Hour Design Storm						
Iteration (Model ID)	Volume at 3-ft (ac-ft)	V-Notch Weir Angle (degrees)	Calculated Peak Depth (ft)	Pond Outflow Volume Over Critical Hours (ac-ft)	Peak Outflow (cfs)	Comments
VTFE0201	25.5	85	1.0	1.0	2.4	Outflow volume too large with more allowable depth available. Decrease weir angle.
VTFE0202	25.5	25	1.2	0.3	0.8	Pond and structure meet criteria for 2-year, 24-hour design storm.

To accommodate the flows for the larger design storms, a second weir was added at an invert elevation of 1.2 feet (At peak stage of 2-year design storm). The iterations for the new outlet structure for the 100-year event are presented in **Table 4**.

Table 4
Iterations for Pond Sizes and Outlet Capacities, 100-Year, 24-Hour Design Storm

Iteration (Model ID)	Volume at 3-ft (ac-ft)	V-Notch Weir Angle (degrees)	Calculated Peak Depth (ft)	Pond Outflow Volume Over Critical Hours (ac-ft)	Peak Outflow (cfs)	Comments
VTFE0004	25.5	Weir 1: 25 Weir 2: 140	3.0	13.1	38.3	Pond and structure meet criteria for 100-year, 24-hour design storm.

Calculations for the 2-year, 10-year, and 25-year design storms were performed based on the new structure. Since the post development volumes over the critical time and the peak discharges are less than the pre-development conditions, no further adjustment is necessary. The pre- and post-development (with controls) peak discharges and volumes are presented in **Table 5.**

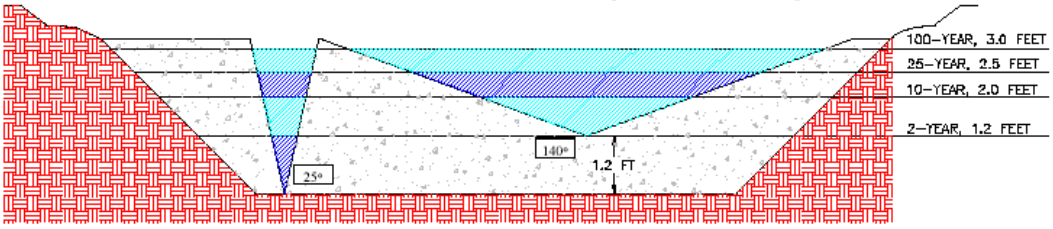
Table 5
2-Year, 10-Year and 25-Year Critical Outflow Volumes and Peak Flows

Critical Pre-Development Outflow Volume (ac-ft)	Critical Volume-Controlled Post-Development Outflow Volume (ac-ft)	Pre-Development Peak Flow (cfs)	Volume-Controlled Post-Development Peak Flow (cfs)
2-Year Storm			
0.3	0.3	5	0.8
10-Year Storm			
4.3	3.0	22	7.7
25-Year Storm			
8	6.5	35	17.8

The final 100-year pond volume and 100-year pond surface area for the example to meet the volume-time criteria are presented in **Table 6** with a schematic of the outlet structure in **Figure 5**.

Table 6 Pond Size and Outlet Capacity to Meet Volume-Time Criteria			
Pond Volume at 3-ft Depth (ac-ft)	**Pond Surface Area at 3-ft Depth (ac)**	**V-Notch Weir Angle (degrees)**	**Percent of Land Area**
25.5	8.8	Weir 1: 25 @ 0.01 ft Elev. Weir 2: 140 @ 1.2 ft Elev.	8.8%

Figure 5
Outlet Structure Schematic and Design Storm Peak Stages



Appendices Not Attached

Nolensville

Town of Nolensville Storm Water
MS4 Requirements

The Town of Nolensville has submitted a Phase II Storm Water Permit Notice of Intent (NOI) to the State of Tennessee that lists specific storm water requirements the Town must implement over the next few years. The Town of Nolensville was added to the list of entities on the Phase II Municipal Separate Storm Sewer Systems, otherwise known as MS4s, because the majority of Nolensville's storm water drains into Mill Creek which is on the 303d list. The 303d list is a list of waterways that have been declared to be impaired by pollutants to a point that they may not sustain some forms of aquatic life. Some of the requirements the Town is in the process of implementing for this permit is forming a Storm Water Committee, drafting and the implementation of a separate storm water ordinance, public education pertaining to storm water issues, erosion prevention and sediment control training and construction site run-off controls. Nolensville is working with our surrounding MS4 participants (Williamson County, Franklin, Brentwood) to try and make our regulations as homogenous as possible and we are pooling our finances to help defray some of the costs incurred with some of the requirements.

The Storm Water Committee is compromised of the Board of Mayor and Alderman. The committee's main purpose is to help draft the storm water ordinance so that it will be an effective tool for the Town to use to help keep our streams clean and to help prevent any further damage to Mill Creek.

We are in the process of drafting a Storm Water Ordinance for the Town that will delineate the process to receive a land disturbance permit, previously called a grading permit, for a project. Prior to receiving a land disturbance permit the applicant may have to show the type of erosion control and storm water best management practices(BMP's) proposed to be used on the project. The ordinance will also give Town employees the tools to make sure applicants maintain their erosion control to where it functions properly and if it is not functioning properly the ability to access fees until the issue is corrected and functioning properly.

Nolensville is helping to fund television and radio commercials to help educate the community and make them aware of storm water issues. We are also working with Williamson County on advertising Hazardous Waste Disposal days when citizens can bring certain hazardous materials to designated locations to dispose of them properly.

We will be updating this site to keep you informed on where we are in our permit process and what we are planning in the future. If you would like to get involved with the Storm Water Committee, please contact Rich Woodroof at 776-6683.

Appendix G
Reserved for Local County/City/Town Zoning Ordinances

Appendix H
County/City/Town Subdivision Regulations

City of Brentwood – Brentwood Planning Commission – Subdivision Regulations, Public Hearing (Per Tennessee Code Annotated 13-4-303) 7 December 2009, Official implementation date 1 January 2010.

Appendix I

State of Tennessee
Hazard Mitigation Plan
References

Table of Contents

- Information from TEMA Mitigation Plan, Section VIII. Appendices

A. Appendix C – Flood, Tab 4 Major Floods in Tennessee

B. Appendix C – Flood, Tab 6 HAZUS-MH: Flood Event Report – TN

   a. Table 1: Flood Loss Estimation For the State of Tennessee

   b. Map 1: Residential Flood Loss

   c. Map 2: Commercial Flood Loss

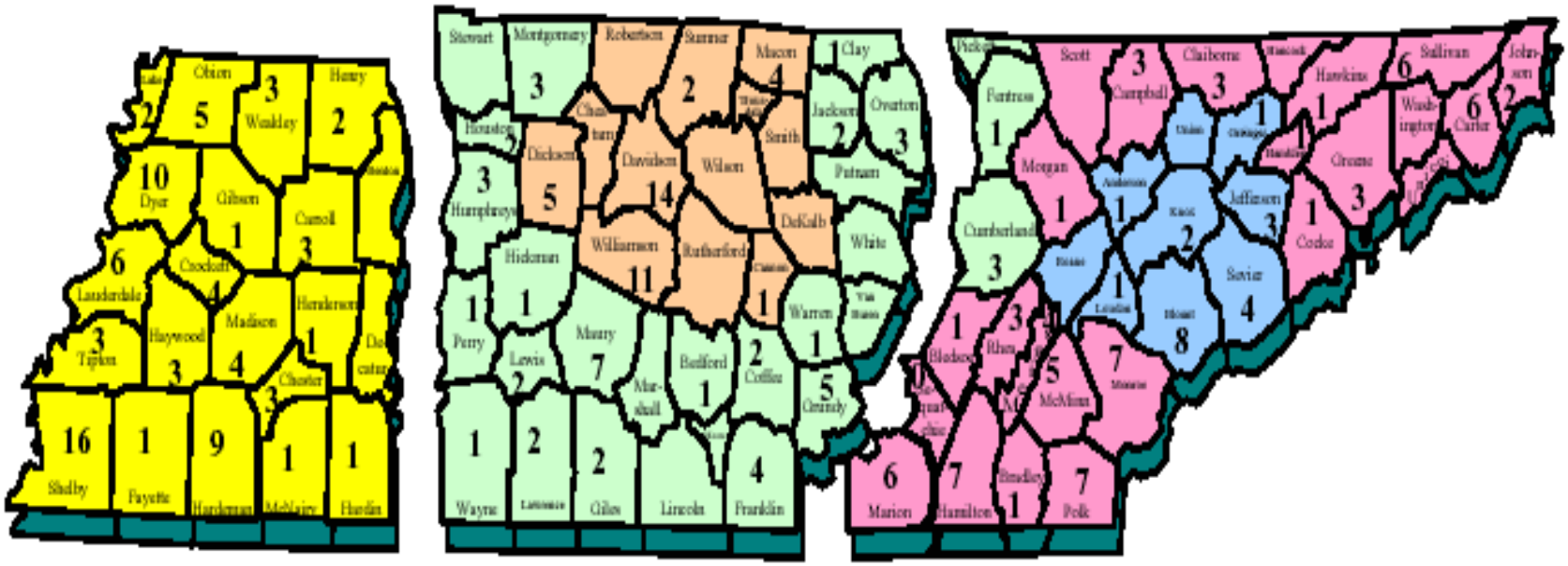
   d. Map 3: Governmental Flood Loss

   e. Map 4: Total Flood Loss

C. Appendix D – Tornado, Tab 1 Tornados in Tennessee

D. Appendix D – Tornado, Incidences/Fatalities in Tennessee

Appendix C, Tab 4 – Major Floods of Tennessee (1950-2000)



Tennessee Hazard Mitigation Plan

November 1, 2004

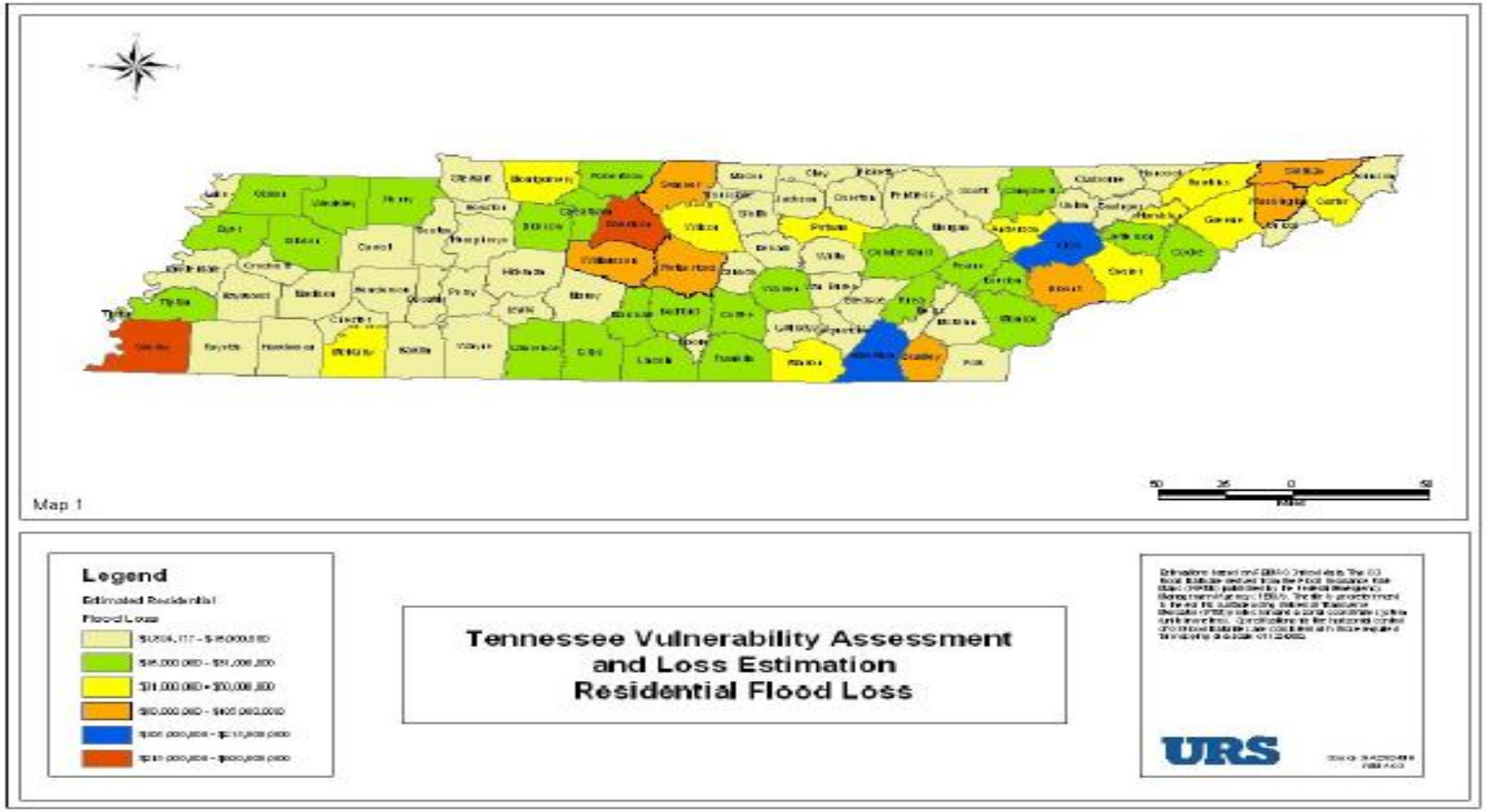
Table 1: Flood Loss Estimation for the State of Tennessee

County	Average Residential Value	Pre-FIRM Residential Units	Total Residential Units	Commercial Units	Governmental Units	Residential Loss Estimation	Commercial Loss Estimation	Governmental Loss Estimation	County Total
Sumner	$124,899	31,781	50,958	297	13	$92,936,919	$1,649,568	$100,314	$94,686,801
Tipton	$88,728	13,269	18,873	84	7	$28,397,399	$384,992	$43,326	$28,825,717
Trousdale	$74,768	2,064	2,998	19	2	$3,742,636	$77,405	$10,941	$3,830,982
Unicoi	$80,115	6,126	7,979	31	3	$11,764,235	$150,334	$21,025	$11,935,594
Union	$80,588	4,032	7,532	13	0	$7,709,252	$41,182	$0	$7,750,434
Van Buren	$53,646	1,443	2,367	1	1	$1,894,177	$2,673	$3,564	$1,900,414
Warren	$75,625	12,343	16,294	116	3	$22,490,884	$473,893	$16,179	$22,980,956
Washington	$94,208	30,536	46,907	421	9	$70,424,224	$2,211,447	$52,091	$72,687,762
Wayne	$55,789	4,069	6,224	32	0	$5,464,686	$87,654	$0	$5,552,340
Weakley	$63,892	10,263	14,300	61	4	$17,262,900	$241,087	$17,469	$17,521,456
White	$74,863	6,662	9,966	64	7	$12,061,168	$268,332	$40,719	$12,370,219
Williamson	$212,707	18,499	46,420	622	44	$89,647,643	$4,431,287	$435,539	$94,514,469
Wilson	$129,826	19,568	34,361	258	5	$59,179,032	$1,280,256	$32,278	$60,491,566
	Totals	1,591,708	2,395,465	20,583	744	$3,576,763,784	$110,031,531	$5,109,309	$3,691,904,624

Note: Flood estimates by county for residential, commercial, and governmental structures based on pre-FIRM date, average census block residential structure value (multiplied by three for commercial structures and four for governmental structures), and 2-foot flood depth.

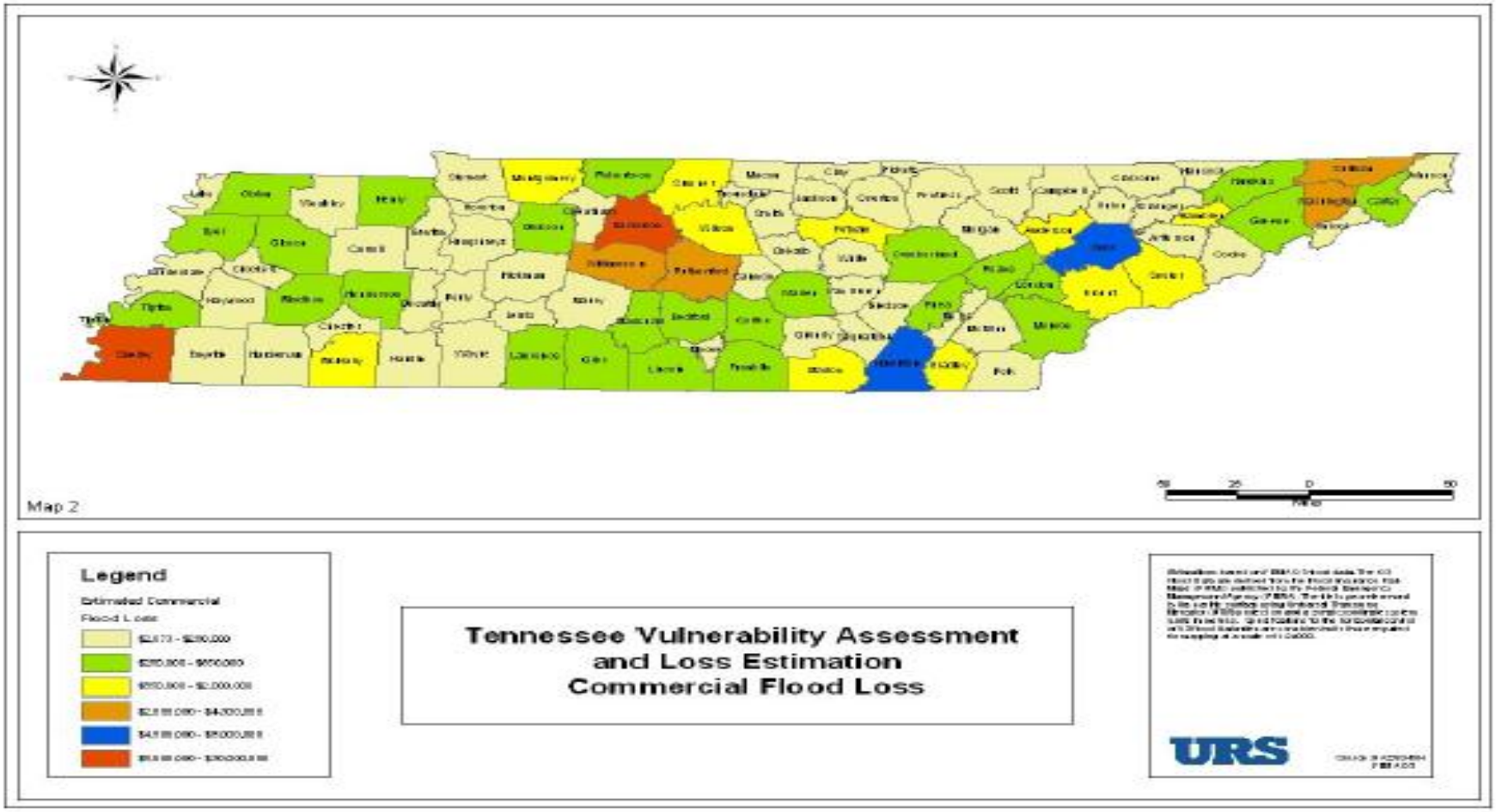
Tennessee Hazard Mitigation Plan

Map 1: Residential Flood Loss



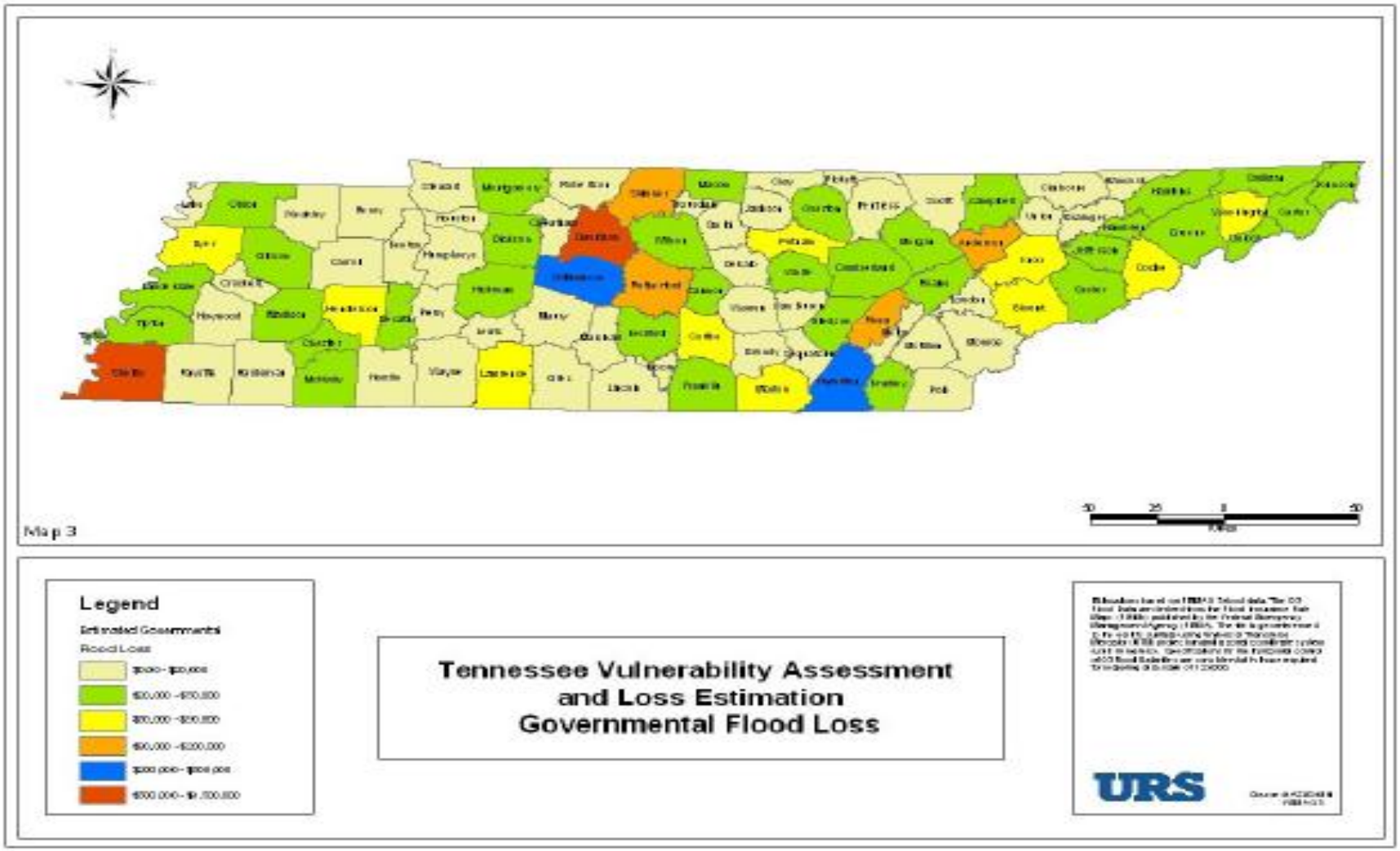
Tennessee Hazard Mitigation Plan VIII-28-

Map 2: Commercial Flood Loss

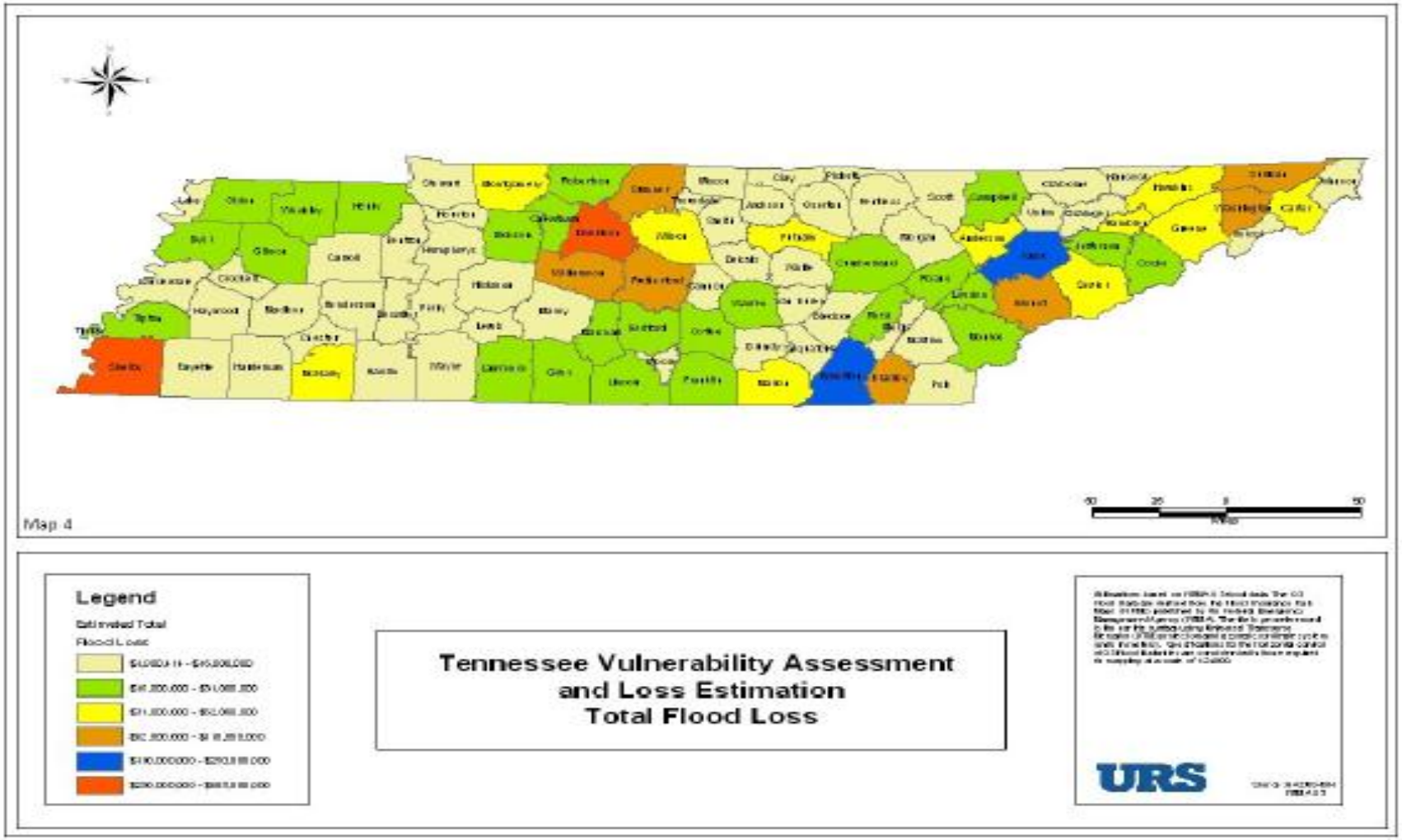


Tennessee Hazard Mitigation Plan VIII-29-

Map 3: Governmental Flood Loss



Tennessee Hazard Mitigation Plan VIII-30-



Map 4: Total Flood Loss

Tennessee Hazard Mitigation Plan VIII-31-

Appendix D, Tab 1 – Tornado – Tornadoes in Tennessee

Some Destructive and Killer Tornadoes in Tennessee[1]

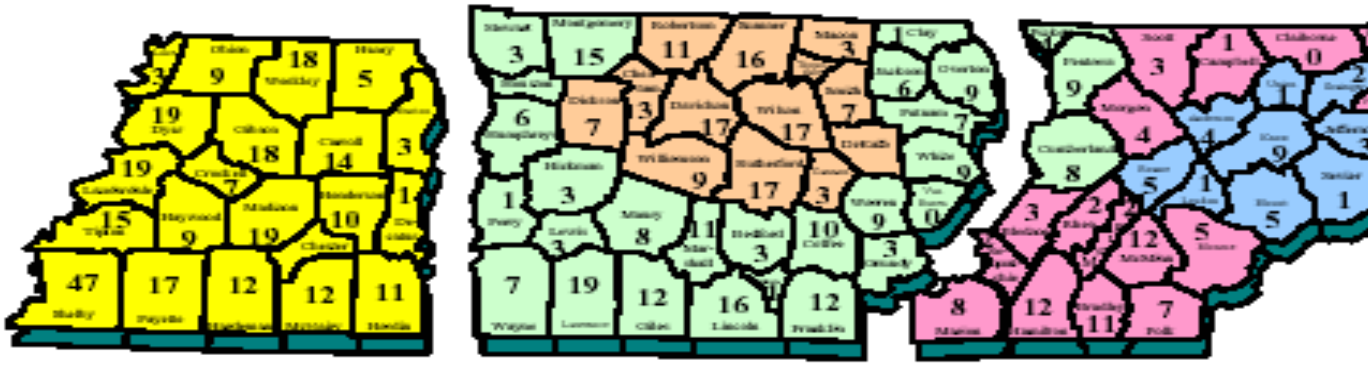
Locale	Date	Deaths	Injuries
Putnam, Cumberland, Loudon counties	March 31, 1993	3	15
Brentwood, Williamson County	December 24, 1989	2	12
Gibson, Haywood, Fayette counties	January 20, 1988	3	30
Jackson County	June 30, 1979	2	1
Multiple occurrences	April 3-4, 1974	45	600
Gibson, Carroll, Benton & Humphreys counties	May 7, 1971	3	137
Multiple occurrences	February 21, 1971	0	36
Montgomery & Cheatham county lines, E. to New Zion (Madison County)	April 27, 1970	2	85
Millington (Shelby County) to Gift (Tipton County)	April 3, 1968	4	32
Maury City (Crockett County)	April 29, 1963	3	6
Lexington area (Henderson County)	April 3, 1956	3	60
Meigs and McMinn counties	May 2, 1953	4	8
Multiple occurrences	March 21-22, 1952	67	282
Marshall and Lincoln counties	February 29, 1952	3	150
East Giles and Grundy County	February 13, 1952	3	48
Ripley (Lauderdale County)	February 13, 1950	9	1
Carroll, Stewart, McNairy, Chester, Decatur, Humphreys, Cheatham, Robertson, & Giles counties	March 16, 1942	25	272
Robertson County	March 11, 1942	2	10
Silerton (Hardeman County) NE to Henderson County	January 4, 1939	4	20
Multiple occurrences	April 2-6, 1936	10	51
Rutherford and Cannon counties	March 25, 1935	2	10
Overton County	May 10, 1933	21	20
Tipton County	May 7, 1933	6	20
Multiple occurrences	March 14, 1933	52	550
Locke-Rosemark area (Shelby County)	April 25, 1932	6	28
Multiple occurrences	March 21-22, 1932	22	101
Gibson County	January 14, 1932	10	3
DeKalb County	January 24, 1928	4	6
Multiple occurrences	March 18, 1925	27	49
Chester and Madison counties	March 11, 1923	19	60
SE Maury County NE to near Murfreesboro (Rutherford County)	March 24, 1921	4	Several
Multiple occurrences	May 27, 1917	25	247
Benton County NE into Stewart County	March 13, 1913	Several	Several
Shiloh Battlefield (Hardin County)	Fall 1909	0	0
Multiple occurrences	April 30, 1909	?	?
Fayetteville (Fayette County)	February 24, 1851	3	50
Tipton County	March 21, 1835	8	Several
Shelbyville (Bedford County)	May 31, 1830	5	Several
Multiple occurrences	May 24, 1807	?	?

[1]References: American Red Cross 1933, Cornell 1976, Eldridge and Eldridge 1976, Nash 1976, National Weather Service 1990, Vaiksnoras 1971.

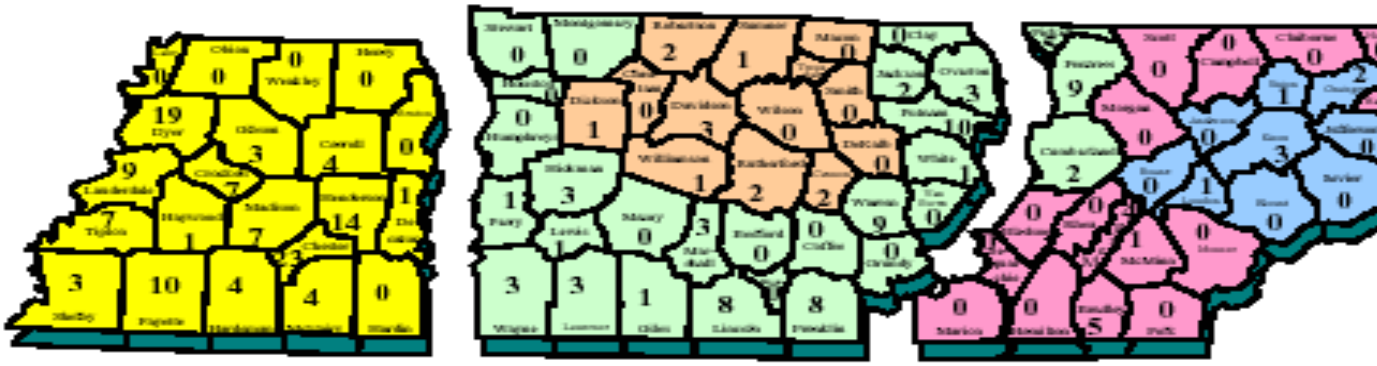
Tennessee Hazard Mitigation Plan VIII-32-

Appendix D, Tab 2 – Tornado – Incidence/Fatalities In Tennessee

Number of Tornadoes (1950 - 2000)



Tornado Fatalities (1916 - 2000)



Tennessee Hazard Mitigation Plan VIII-3

Appendix J

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C. Local

a. Approved Scope of Work for Williamson County under the Hazard Mitigation Grant Program (HMGP)

b. Williamson County Emergency Management Agency, Incident History Records

c. Middle Tennessee Electric Membership Corporation, 2004 Annual Report

d. City of Germantown, TN, Local Hazard Mitigation Plan

e. Des Moines County-Wide Multi-Hazard Mitigation Plan, Des Moines, IA

f. Wake County, NC (Town of Wendell) Hazard Mitigation Plan Draft

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h. Lincoln County, TN Hazard Mitigation Plan

i. New York City Comprehensive Mitigation Plan

j. City of Brentwood Zoning Ordinances

k. City of Brentwood Subdivision Regulations

l. City of Brentwood Storm Water Regulations

m. City of Fairview Zoning Ordinance, September 2002

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o. City of Franklin Subdivision Regulations, July 2000

p. City of Franklin Storm Water Management Plan, Post-Construction

q. City of Franklin, Detention Pond Sizing Document

r. City of Franklin Zoning Ordinance, June 2004

s. Town of Nolensville Subdivision Regulations, August 2003

t. Town of Nolensville Storm Water MS4 Requirements

u. Town of Nolensville Zoning Ordinance, March 2003

v. City of Spring Hill, TN Demographics 2004

w. City of Spring Hill Zoning Ordinance, March 2004

x. City of Spring Hill Subdivision Regulations, July 2003

y. City of Spring Hill Public Water System Emergency Response Plan, November 2004

z. Town of Thompson Station Subdivision Regulations

aa. Town of Thompson Station Zoning Ordinance

bb. Williamson County Subdivision Regulations, November 1994

cc. Williamson County Storm Water Regulations, August 2004

dd. Williamson County Zoning Ordinance, May 1998

D. Other

a. Palmer Drought Severity Index: Tennessee – Division 03; 1895 – 2003 (Monthly Averages)

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g. Flood Study and Hydraulic Report, Cartwright Creek Drainage Basin, Williamson County, TN; Neel-Schaffer, INC, August 1989

h. Hydraulic and Hydrologic Modeling, Lynwood Branch Basin, Williamson County, Tennessee; US Army Corps of Engineers Nashville District, November 1990

Appendix K

Adoption Resolutions and Update Resolutions

Williamson County

FILED 12/19/06
ENTERED 9:30 a.m.

RESOLUTION NO. 1-07-11
Requested by: Emergency Management Director

A RESOLUTION ADOPTING THE WILLIAMSON COUNTY MULTI-HAZARD MITIGATION PLAN

WHEREAS, the Williamson County Emergency Management Agency is the local agency established to coordinate mitigation, preparedness, response, and recovery activities for all emergency or disaster situations, and

WHEREAS, Williamson County recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, Williamson County participated jointly in the planning process with all the municipalities within the County to prepare the Multi-Hazard Mitigation Plan; and

NOW, THEREFORE, BE IT RESOLVED, that the Williamson County Commission, hereby adopts the Williamson County Mulit-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED, that the Williamson County Emergency Management Agency will submit on behalf of the county and participating municipalities the adopted Multi-Hazard Mitigation Plan to Federal Emergency Management Agency officials for final review and approval.

County Commissioner

COMMITTEES REFERRED TO AND ACTION TAKEN:
1) Law Enforcement and Public Safety For 6 Against 0
2) Budget For 5 Against 0

COMMISSION ACTION TAKEN: For 22 Against 0 Pass _____ Out _____

Elaine Anderson, County Clerk

Houston Naron, Jr
Commission Chairman

Rogers Anderson, County Mayor

City of Brentwood

RESOLUTION 2006-75

A RESOLUTION OF THE CITY OF BRENTWOOD, TENNESSEE TO ADOPT THE WILLIAMSON COUNTY MULTI HAZARD MITIGATION PLAN, A COPY OF SAID PLAN BEING ATTACHED HERETO AND MADE A PART OF THIS RESOLUTION BY REFERENCE

WHEREAS, the City of Brentwood recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, the City of Brentwood participated jointly in the planning process with the other local units of government within the County to prepare the Williamson County Multi Hazard Mitigation Plan; and

WHEREAS, the Williamson County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Hazard Mitigation Plan to the Federal Emergency Management Agency officials for final review and approval.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY OF BRENTWOOD, TENNESSEE, AS FOLLOWS:

SECTION 1. That the City of Brentwood hereby adopts the Williamson County Multi Hazard Mitigation Plan dated June 2006 as the official plan.

SECTION 2. That this resolution shall take effect from and after its passage, the general welfare of the City of Brentwood, Williamson County, Tennessee requiring it.

Brian J. Sweeney
MAYOR Brian J. Sweeney

ADOPTED: 12/11/2006

Approved as to form:

Deborah Hedgepath
RECORDER Deborah Hedgepath

Roger A. Horner
CITY ATTORNEY Roger A. Horner

City of Fairview

Resolution # 36-06

Adopting the Williamson County Multi Hazard Mitigation Plan

Whereas, the *City of Fairview* recognizes the threat that natural hazards pose to people and property; and

Whereas, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

Whereas, an adopted hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

Whereas, the City of Fairview participated jointly in the planning process with the other local units of government within the County to prepare the Williamson County Multi Hazard Mitigation Plan;

Now, therefore, be it resolved, that the *Fairview Board of Commissioners* hereby adopts the Williamson County Multi Hazard Mitigation Plan as an official plan; and

Be it further resolved, that the Williamson County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Hazard Mitigation Plan to the Federal Emergency Management Agency officials for final review and approval.

Adopted this 7th day of December, 2006

Ken Bryson
Mayor

Kathleen Dayley
Attest

Shirley needed original

City of Franklin

RESOLUTION 2006-78

A RESOLUTION FOR ADOPTION OF THE WILLIAMSON COUNTY MULTI- HAZARD MITIGATION PLAN

WHEREAS, the City of Franklin recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and thereby save taxpayer dollars; and

WHEREAS, an adopted hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the City of Franklin participated jointly in the planning process with the other local governments within the County to prepare the Williamson County Multi Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Mayor and Aldermen for the City of Franklin, Tennessee, hereby adopts the Williamson County Multi Hazard Mitigation Plan as its official hazard mitigation plan; and

BE IT FURTHER RESOLVED, that Board of Mayor and Aldermen request the Williamson County Emergency Management Agency to submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Federal Emergency Management Agency officials for final review and approval.

Approved this 14th day of November, 2006.

ATTEST:

By: _____
JAMES R. JOHNSON
CITY ADMINISTRATOR

CITY OF FRANKLIN, TENNESSEE

By: _____
THOMAS R. MILLER
MAYOR

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Town of Nolensville

BOARD OF MAYOR AND ALDERMEN
TOWN OF NOLENSVILLE
P. O. BOX 547, NOLENSVILLE, TENNESSEE 37135

Resolution #06-24

A RESOLUTION FOR THE BOARD OF MAYOR AND ALDERMEN TO ADOPT THE WILLIAMSON COUNTY MULTI HAZARD MTIIGATION PLAN

Whereas, the Town of Nolensville recognizes the threat that natural hazards pose to people and property; and

Whereas, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

Whereas, an adopted hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

Whereas, the Town of Nolensville Police Department participated jointly in the planning process with the other local units of government within Williamson County to prepare the Williamson County Multi Hazard Mitigation Plan;

Now, therefore, be it resolved, that the Board of Mayor and Aldermen of the Town of Nolensville, hereby adopts the Williamson County Multi Hazard Mitigation Plan as an official plan; and

Be it further resolved, that the Williamson County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Hazard Mitigation Plan to the Federal Emergency Management Agency officials for final review and approval.

Resolved this 7th day of December, 2006.

Walter T. Dugger, III, Mayor

Cindy Lancaster, Town Recorder

Passed: December 7, 2006

City of Spring Hill

RESOLUTION 06-62

A RESOLUTION TO ADOPT THE WILLIAMSON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, the State of Tennessee ordained that every county and incorporated municipality in the state was required to have a Hazard Mitigation Plan approved by the Tennessee Emergency Management Agency (TEMA); and

WHEREAS, the Federal Emergency Management Agency (FEMA) under the Disaster Mitigation Act of 2000 (DMA2K) ordained that every county and incorporated municipality in the county was required to have a Hazard Mitigation Plan approved by FEMA in order to be eligible for Hazard Mitigation Grant Program Funding after November 2004; and

WHEREAS, under the Disaster Mitigation Act of 2000, the Federal Emergency Management Agency (FEMA) has issued an Interim Final Rule that details the minimum criteria for local hazard mitigation plans; and

WHEREAS, the counties and municipalities agree with the concept of and necessity for Hazard Mitigation Planning; and

WHEREAS, The Williamson County Office of Emergency Management recommends the approval of the Hazard Mitigation Plan; and

WHEREAS, Both TEMA and FEMA have conducted a review of the Hazard Mitigation Plan and will approve the plan when it is formally adopted by the county and municipalities.

NOW THEREFORE, BE IT RESOLVED by the Board of Mayor and Aldermen of the City of Spring Hill, Tennessee, that this document shall hereby approve the Williamson County Hazard Mitigation Plan as submitted.

Passed and adopted by the Board of Mayor and Aldermen of the City of Spring Hill, Tennessee, on the 20th day of November, 2006.

Danny M. Leverette, Mayor

ATTEST:

April Goad, City Recorder

APPROVED AS TO FORM:

Tim Underwood, City Attorney

Town of Thompson Station

RESOLUTION NO. 06-011

A RESOLUTION BY THE BOARD OF MAYOR AND ALDERMEN OF THE TOWN OF THOMPSON'S STATION, TENNESSEE ADOPTING THE WILLIAMSON COUNTY MULTI-HAZARD MITIGATION PLAN AS THE HAZARD MITIGATION PLAN OF THE MUNICIPALITY.

WHEREAS, the Board of Mayor and Aldermen of Thompson's Station, Tennessee, recognize the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation action before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Board of Mayor and Aldermen by its duly designated Town representative have participated jointly in the planning process with the other local units of government within the County to prepare the Williamson County Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED that the Board of Mayor and Aldermen of the Town of Thompson's Station, Tennessee, hereby adopt by reference the Williamson County Multi-Hazard Mitigation Plan as an official plan for the Town of Thompson's Station, Tennessee; and

BE IT FURTHER RESOLVED that the Williamson County Emergency Management Agency shall be permitted to submit on behalf of the participating municipalities, including the Town of Thompson's Station, the adopted Hazard Mitigation Plan to the Federal Emergency Management Agency officials for final review and approval.

RESOLVED this 14th day of November, 2006.

Cherry Jackson

Cherry Jackson, Mayor

ATTEST:

Douglas Goetsch, Town Recorder

APPROVED AS TO FORM AND LEGALITY:

Larry D. Craig, Town Attorney