



# SECTION 20. Previous Mitigation Actions

## Contents

Contents .....	20-1
Federal Emergency Management Agency Programs .....	20-1
Previous Planning Efforts .....	20-2
Building Codes .....	20-3
Fire Codes .....	20-5
Inspections and Permits.....	20-5
Building Code Effectiveness Grading Schedule and Fire Ratings.....	20-7
Floodplain Management Ordinance .....	20-7
National Flood Insurance Program Participation.....	20-8
U.S. Army Corps of Engineers Studies and Projects.....	20-9

## Federal Emergency Management Agency Programs

The City of Plano has a strong tradition of comprehensive planning and an advanced emergency management program. As part of the planning process, an inventory was conducted of previously implemented programs and policies that may impact hazard mitigation activities. These programs and policies were examined based on their impact on overall risk to life and property.

A total of 4 Presidential and 6 Small Business Administration Disaster Declarations have been issued since 1966 for Collin and Denton counties, paving the way for assistance by the Federal Emergency Management Agency (FEMA) and other Federal agencies. FEMA’s Individual Assistance Program helps disaster victims secure temporary housing, low-interest loans, unemployment assistance, and legal aid; makes grants to low-income individuals; conducts crisis counseling; and assists victims with income tax, Social Security and Veteran’s benefits issues.

FEMA Public Assistance is aid to state or local governments and certain private non-profit entities to pay part of the approved costs (generally 75 percent) of rebuilding a community’s damaged infrastructure. Public Assistance may include debris removal; emergency protective measures; repair, replacement, or restoration of damaged public property; loans needed by communities to restore essential government functions; and grants for public schools. Plano received Public





Assistance funding as a result of the Shuttle Disaster in 2003. Plano is also receiving funding as a result of Hurricanes Katrina and Rita.

Through the Hazard Mitigation Grant Program (HMGP), FEMA provides financial assistance to a state to permanently reduce or eliminate future damages and losses due to natural hazards. HMGP funds promote safer building practices that improve existing structures and supporting infrastructure. The HMGP currently provides post-disaster funds, which can be used anywhere in a state. The amount of HMPG funding equals 7.5 percent of obligations<sup>1</sup> for individual and public assistance. Grants are made for planning and projects, including acquisition of real property, relocation and demolition of structures, seismic retrofitting, strengthening of existing structures, initial implementation of vegetative management programs, elevation of residential structures, elevation or dry flood-proofing of non-residential structures, and other activities that bring a structure into compliance with the floodplain management requirements of the National Flood Insurance Program. A review of HMGP records for Texas reveals no hazard mitigation projects conducted within the City of Plano. There were also no Project Impact, Pre-Disaster Mitigation, Flood Mitigation Assistance, Section 406 or Hurricane Property Protection Mitigation Projects in the City of Plano.

## Previous Planning Efforts

The City of Plano has undertaken a number of previous planning efforts that have helped to lay a strong foundation for this Plan. The City has developed long-range growth plans, a FEMA Community Rating System Plan, master drainage and stormwater plans, comprehensive plans and capital improvement plans. The City of Plano has not completed a Flood Mitigation Assistance plan.

FEMA's Emergency Management Performance Grants (EMPG's) are intended to help develop comprehensive, all-hazards emergency management and improve local capabilities for emergency planning, preparedness, mitigation, response, and recovery. Assistance includes grant funding covering 13 key functional areas, including laws and authorities; hazard identification and risk assessment; hazard management; resource management; planning; direction, control, and coordination; communications and warning; operations and procedures; logistics and facilities; training; exercises; public education and information; and finance and administration. The City of Plano does not currently receive Emergency Management Performance Grants from FEMA.

The City has completed its Basic Emergency Management Plan and functional annexes and submitted them to the Governor's Division of Emergency Management (DEM). Completed Annexes include:

---

<sup>1</sup> Prior to Fiscal Year 2003, the HMGP provided funding equal to 15 percent of obligations for individual and public assistance.



- Annex A Warning
- Annex B Communications
- Annex C Shelter and Mass Care
- Annex D Radiological Protection
- Annex E Evacuation
- Annex F Firefighting and Fire/Rescue
- Annex G Law Enforcement
- Annex H Health and Medical Services
- Annex I Emergency Public Information
- Annex J Damage Assessment/Recovery
- Annex K Public Works and Engineering
- Annex L Utilities
- Annex M Resource Management
- Annex N Direction and Control
- Annex O Human Services
- Annex P Hazard Mitigation (forthcoming with this plan)
- Annex Q Hazardous Materials and Oil Spill Response
- Annex R Search and Rescue
- Annex S Transport
- Annex T Donations Management
- Annex U Legal
- Annex V Terrorist Incident Response

## Building Codes

Building codes are laws, ordinances, or government regulations that set forth standards and requirements for construction, maintenance, operation, occupancy, use, and appearance of buildings, premises, and dwelling units. Building codes are an effective way to ensure that structures are built to withstand natural hazards. Building codes apply primarily to new construction

Adherence to existing building codes and standards is essential to maintain public safety and promote an effective local mitigation program—so much so that the insurance industry has moved to rate communities according to their ability to enforce the building code and by the qualifications and training of their staff. In the past, there have been four principal types of building codes, promulgated by various code organizations:



- Uniform Building Code, promulgated by the International Conference of Building Officials (ICBO),
- National Building Code, promulgated by the Building Officials and Code Administrators International, Inc. (BOCA),
- Standard Building Code, promulgated by the Southern Building Code Congress, International (SBCCI), and
- International Building Codes, promulgated by the International Code Council (ICC).

These code bodies have now been combined and are now known as the ICC International Code Council.

The building codes are periodically reviewed by the respective organizations and revised, as appropriate, when new requirements and materials are introduced. In the past, local governments have adopted these codes either in their entirety or as amended to adapt them to their local conditions. Legislation passed by the Texas Legislature in 2001, however, now requires communities to adopt the International Building Code.

The City of Plano has adopted the following building codes which went into effect on September 1, 2004:

- International Building Code
- International Residential Code
- International Mechanical Code
- International Plumbing Code
- International Fuel and Gas Code
- International Fire Code
- International Energy Code

As they were adopted, all codes had amendments adopted from the North Central Texas Council of Governments concerning life safety. All amendments are available on-line at [www.buildinginspections.org](http://www.buildinginspections.org).



## Fire Codes

The City of Plano has a fire code. Fire codes are laws, ordinances, or government regulations that set forth standards and requirements for the construction, maintenance, operation, occupancy, use, or appearance of buildings, premises, and dwelling units in order to prevent damage and loss of life from fire hazards.

There are three principal types of fire codes, promulgated by various code organizations. They are:

- ◆ Uniform Fire Code (UFC), published by the International Fire Code Institute,
- ◆ International Fire Code (IFC), published by the International Code Council, and
- ◆ Standard Fire Code (SFC), published by the SBCC.

The fire codes are periodically reviewed and revised by the relevant organizations, as appropriate, when new requirements and materials are introduced. Local governments have adopted these codes either in their entirety or amended them as appropriate to their local conditions.

The City of Plano has adopted the 2003 International Fire Code, published by the International Code Council. The City fire code went into effect August 9, 2004. The City maintains an active fire inspection and permitting program.

## Inspections and Permits

Adherence to existing building and fire codes and standards is essential to maintaining public safety and promoting an effective local mitigation program. New buildings can fail in a disaster if builders or inspectors do not adequately observe the code. Studies of the damage caused by Hurricane Andrew in 1992 attributed one-quarter of the storm's total damages to "shoddy workmanship and poor enforcement of building codes."

### Building Inspections

Well-trained inspectors are more likely to recognize building practices that are suspect with regard to hazard resilience than are poorly trained or untrained inspectors. Training is critical to the inspection and permitting process.

The City of Plano has 22 building inspectors, all of whom are certified. On average, each inspector has 20 years of experience. In the last twelve months, the City had 760 residential and 600 commercial building starts and conducted 90,146 inspections.



Within the City of Plano, as outlined in the code, any construction, alteration, enlargement, replacement, repair, equipment, use, occupancy, location and maintenance or removal or demolition of any building or structure requires a permit. Permits are processed after application by permit technicians for data entry and correctness of submittal and fees. Plans Examiners are then required to review all plans for code compliance. If corrections are required, changes are communicated to the applicant. After plans are revised, as necessary, the Plans Examiner will issue the permit to the applicant and the project may begin construction. During construction the observance of the installation and assembly of all building elements requiring code compliance must come under the review of our inspectors. When an inspection of a specific item is requested, permit software will print the request and within 24 hours the City will perform the inspection. This process will repeat itself until the project is complete and all inspections have passed. Upon final inspection, the Building Official will issue a Certificate of Occupancy. This provides sufficient confirmation that the structure is safe, code compliant, and ready for business or use by the public.

## Fire Inspections

A vigorous fire inspection process and well-trained inspectors are critical to saving lives and property from fire hazards. Fire inspection is a formal examination of occupancy and its associated uses or processes to determine its compliance with fire and life safety codes and standards.

The Plano Fire Department conducts fire inspections for all 4,200 existing buildings in the city. The inspections are split between the Fire Prevention Division and in service fire companies. Each month, a list of existing buildings to be inspected is generated by the automated inspection program. A history of each property is maintained in the department's electronic data base.

New construction is permitted through the Building Inspections Department. All buildings requiring built-in fire detection or suppression must be reviewed and inspected by the Fire Department prior to obtaining a certificate of occupancy.

Fire protection plans are reviewed by the Fire Prevention division. After plans are reviewed and the systems installed, field inspections for the systems are conducted by the Fire Prevention Division. A record of each plan is placed in the department's microfilm files. Each plan review and subsequent field inspection is entered into the Building Inspection's electronic data base. This allows for the coordination of inspections and final approvals for the issuance of certificates of occupancy.

The City of Plano has seven fire inspectors, all of whom have completed the Texas State Certification course and are certified. On average, the City's fire inspectors have 18 years of experience. They conducted 4,200 fire inspections in the last twelve months.



# Building Code Effectiveness Grading Schedule and Fire Ratings

The Insurance Services Office, a private entity operated by the insurance industry, maintains Building Code Effectiveness Grading (BCEG) ratings and Public Protection Classification (PPC) ratings. The latter gauge the capacity of the local fire department to respond if flames engulf a property. PPC ratings are recorded for each individual street address in Texas.

The Building Code Effectiveness Grading Schedule (BCEGS) assesses the building codes in effect in a particular community and how the community enforces its building codes, with special emphasis on mitigation of losses from natural hazards. The concept is simple: municipalities with well-enforced, up-to-date codes should demonstrate better loss experience and insurance rates can reflect that. The prospect of lessening catastrophe-related damage and ultimately lowering insurance costs provides an incentive for communities to enforce their building codes rigorously – especially as they relate to windstorm and earthquake damage.

There are 10 classes of ratings in BCEG schedule. Class 1 is the best rating, i.e., strongest program of building code enforcement, and 10 is the lowest rating. In 2000, the City of Plano received a fire rating of 1 and a BCEGS rating of 5 for personal property and 5 for commercial property.

## Floodplain Management Ordinance

The City of Plano has a strong floodplain management ordinance that was adopted in July 1984. The City has a designated Floodplain Administrator and a total staff of four devoted to floodplain administration. On average, the staff has over 10 years of experience but are not currently Nationally Certified. No floodplain management inspections have been conducted in the last twelve months. No variances have been allowed in the last twelve months.

Many other cities look to Plano's strong floodplain management ordinance. According to the ordinance, the City of Plano requires that floodplains be developed using fully developed conditions. Finished floors must be 2 feet above that elevation. Generally no portion of a typical residential lot is allowed to be within the boundaries of the floodplain. Non-residential properties may be within the floodplain. As projects go through the development review process the staff engineer reviews the plans and plat to ensure these requirements are met. Any residential building adjacent to a flood plain has a minimum floor elevation note on the final plat. That elevation must be 2 feet above the fully developed floodplain elevation. As building inspection issues a permit and elevation certificate is required to be completed to verify the minimum finished floor elevation.



# National Flood Insurance Program Participation

Flood insurance offered through the National Flood Insurance Program (NFIP) is the best way for home and business owners to protect themselves financially against the ravages of flooding. The City of Plano participates in the NFIP. There are currently 390 flood insurance policies in force in the city with over \$98 million in property covered. There have been 44 losses to date with \$159,693 in NFIP claims payments since 1969. The City of Plano has six repetitive loss properties under the NFIP. The latest Flood Insurance Rate Map for the City of Plano is dated December 19, 1997.

The City of Plano has an advanced floodplain management program and participates in the federal Community Rating System (CRS) Program. Under the CRS, flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community activities that meet the three goals of the CRS: (1) reduce flood losses; (2) facilitate accurate insurance rating; and (3) promote the awareness of flood insurance. Ten CRS classes exist. Class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction. The CRS recognizes 18 creditable activities in the areas of Public Information, Mapping and Regulations, Flood Damage Reduction, and Flood Preparedness that go well beyond the minimum NFIP requirements. Plano currently is a Class 6 CRS community, enabling residents living in Special Flood Hazard Areas (SFHAs) to obtain a 20 percent reduction in flood insurance premiums, and non-SHFA residents to obtain a 10 percent reduction in flood insurance premiums.

FEMA's Community Assistance Program (CAP) is a financial assistance program directly related to the flood loss reduction objectives of the NFIP. States and communities that are participating in the NFIP are eligible for this assistance. The CAP is intended to identify, prevent, and resolve floodplain management issues in participating communities before they develop into problems requiring enforcement action. The program involves Community Assistance Contacts (CACs) and Community Assistance Visits (CAVs). During CACs and CAVs, Federal and local officials discuss current local ordinances, the number of floodplain insurance policies in the community, floodplain administration, permitting, and annexation issues.

To date, the City of Plano has had one Community Assistance Contact from FEMA, on September 12, 1995. During this Community Assistance contact, FEMA or the State made an inquiry about the status of floodplain management in the City. To date, no FEMA Community Assistance Visits have been made to the City of Plano.



# U.S. Army Corps of Engineers Studies and Projects

Plano is located in the upper reaches of the Trinity River Basin. For most of the past 150 years, the dream for the Trinity River was that of a navigation canal with barges transporting goods more than 300 miles to and from the Gulf. An 1898 promotional button proclaimed the dream: “Dallas – The Inland Seaport of Texas.”

When that dream died in 1981 because of changing federal priorities, it was replaced by unrelated requests for federal permits to reclaim portions of the Trinity floodplain for commercial and residential development. These requests led to studies by the U.S. Army Corps of Engineers (USACE) that showed that the cumulative effects of the various development scenarios would bring massive new flooding. In response, officials from affected jurisdictions, working under the auspices of the NCTCOG, came together in 1989 to declare their support for a cooperative, regional approach to manage the Trinity River Corridor, one that aimed to create a safe, clean, enjoyable, natural, and diverse river corridor for the benefit of all North Central Texas. And thus began the Trinity River COMMON VISION program.

While the U.S. Army Corps of Engineers has not conducted any studies of the City of Plano in particular, it has conducted a number of studies of the Trinity River Corridor, beginning in the 1980's with development of a *Regional Environmental Impact Statement* (EIS). The *Regional EIS* found that these moderate development scenarios would not only result in the Dallas Floodway levees still being overtopped with catastrophic results, but that properties in upstream cities would also sustain considerable flood damages. Thus no city could assure adequate flood protection for itself by itself—only a common approach could be successful.

Although no proof was required, Mother Nature stepped in anyway. Major floods occurred in May/June 1989 in the Upper Trinity River. Over a dozen lives were lost as a result of the floods within the Metroplex and hundreds of millions of dollars of damages were sustained.

In 1989 NCTCOG adopted a *Regional Policy Position on Trinity River Corridor* that affirmed, among other key points, that local governments must be the stewards of the Trinity River Corridor because individual goals can only be achieved through cooperative management and a comprehensive approach addressing flood damage reduction, recreation and environmental quality must be pursued.

Upon request of the affected local governments, Congress authorized the USACE to undertake a *Reconnaissance Study* to determine if a feasible flood protection plan(s) could be identified to reduce the risk of flooding, as well as address water quality, recreation, environmental enhancements and other allied purposes. The USACE studied a variety of flood control options and found at least a dozen with positive benefit-cost ratios that merited further attention in the *Feasibility Study* phase.



In 1990, each of the nine cities (Arlington, Carrollton, Coppell, Dallas, Farmers Branch, Fort Worth, Grand Prairie, Irving, and Lewisville), three counties (Dallas, Denton, and Tarrant), and two special districts (Tarrant Regional Water District and Trinity River Authority) with development and regulatory authority for the Trinity River Corridor executed interlocal agreements with NCTCOG to establish a formal structure for cooperative planning. A Steering Committee of elected officials was formally appointed to provide policy guidance, along with a staff task force for technical support.

NCTCOG, on behalf of the local governments, was identified as the administrative agent to enter into a cost-sharing agreement with the USACE for the *Upper Trinity River Feasibility Study*. The purpose of the *Upper Trinity River Feasibility Study* was to seek potentially feasible alternatives for implementation by the participating local governments to address flood damage reduction, water quality, environmental enhancement, recreation, and other related needs throughout the Upper Trinity River Basin.

In 1990, the first phase of the *Upper Trinity River Feasibility Study* began as an \$8 million six-year effort, with NCTCOG responsible for providing the \$4 million non-federal match. In turn, NCTCOG negotiated and administered a \$2 million grant from the Texas Water Development Board and obtained the \$2 million of local funds on a pro-rata annual formula based on the jurisdiction's land area within the corridor.

The Phase I Information Paper released in early 1995 identified more than 100 potential projects, including cooperative and comprehensive watershed studies, that could justify federal cost-share participation. The second phase of the *Upper Trinity River Feasibility Study* is currently in progress. This phase identifies implementable projects through Project Management Plans to reduce flood risks, restore environmental values and meet other study purposes.

Since 1996, projects totaling more than \$12 million have been or are being implemented. Projects are currently underway, including the Arlington Johnson Creek Buyouts, the Dallas Floodway/Elm Fork Project (Trinity River Corridor Project), the Fort Worth Clear Fork/West Fork Project (Trinity River Vision), the Lake Worth Project, the Trinity Trails System, the Corridor Development Certificate Process, and the Big Fossil Creek Watershed Study Project.

A pioneering effort that will serve as a model for other communities in the Upper Trinity watershed is the Big Fossil Creek Watershed Study. In order to address flooding and other priorities in the Big Fossil Creek watershed, the nine local governments in the watershed--Fort Worth, Tarrant County, North Richland Hills, Richland Hills, Haltom City, Watauga, Saginaw, Haslet, and Keller--acting through NCTCOG, have partnered with the USACE to conduct the Big Fossil Creek Watershed Study, which was initiated in 2001. What has made this \$1.85 million study possible is a cost-sharing agreement between the entities as well as a generous grant awarded by the Texas Water Development Board that reduces the burden of the local costs by one-half.

The study area is one of the fastest growing urban areas in the country—a trend that is expected to continue. It is this explosive growth that makes the creek corridor increasingly vulnerable to



flooding problems. The southern, or downstream, half of the watershed is almost fully developed with similar growth anticipated for the upper watershed in the coming years. As the headwaters experience increasing development, downstream communities face a growing risk of damage to property and loss of life due to flooding. The Big Fossil Creek Watershed Interim Feasibility Study is comprehensively evaluating a range of flood damage reduction solutions to address safety aspects of Big Fossil Creek while identifying associated water quality, ecosystem restoration, and recreational opportunities.

