

2002-001-034

part 2

RECEIVED

JUL 10 2003

TWEL
GRANTS MANA

Travis County

Texas

Hazard Mitigation Plan



June 2003



- Reviewed the additional data gathered relative to properties at risk within the County. The data were broken down by Precinct and by watershed.
- The team was reminded of the relevant flood insurance policy data within the County.
 1. Structural damage – 420 claims for \$9.1 million (1978 – 2001)
 2. Contents damage – 182 claims for \$1.3 million (1978 – 2001)
 3. 56 properties filed 123 losses (as of 1999)
 4. The location of 68 HAZMAT sites and one fire station (#1108, 1600 Citation Drive) have been identified and geocoded as in of near the floodplain – the map showing these locations was reviewed.

Discussion: Notes from Agency Interviews

Participants indicated that they have not yet had an opportunity to review the interview notes. It was agreed that a reminder email would be sent requesting review and comment of these notes.

Discussion: Review draft goal statement

In committee meeting number two, the committee provided comments and recommendations for a mitigation goal statement. It was decided that the comments would be collated and a draft goal statement would be provided for review and comment prior to committee meeting #3. There was open discussion of this draft mitigation goal statement sent to the committee members. The committee made minor changes to the goal statement. It was agreed that the revised goal statement would be emailed to the committee members by mid-November for review and comment.

Discussion: Mitigation actions

In committee meeting # 2 the committee members had open discussion about possible mitigation actions. It was agreed that all comments would be collated and draft mitigation actions would be provided for review and comment prior to committee meeting #3. There was open discussion about these draft mitigation actions. The committee reviewed each possible mitigation action with the intent of agreeing that it should be kept as stated, modifying the action, or eliminating the action from the list. One draft mitigation action was eliminated as it was felt it was encompassed under another action; two were merged together, two were added, and several were slightly modified.

It was agreed that the revised mitigation actions would be emailed to the committee members in mid-November for review, comment, and prioritization. All committee members will be asked to rate each action as: High priority, Low priority, Don't know, or should be deleted. Once all committee members provide their comments and prioritization, the list will be prioritized and submitted back to the committee for review and comment.

The date for Committee meeting # 4 was not finalized. It was agreed that a draft timeline would be provided to Melinda Mallia indicating the steps and timing necessary for completion of the draft plan. Melinda will then add the plan approval timeframe and the plan timeline will be finalized.

The next step is the submittal of a draft plan to the committee members for review and comments. The committee members will have ample time to review and comment on this draft plan. At committee meeting # 4, the committee will approve the draft plan for public review and submittal to the County Council for consideration and approval.

Mitigation Planning Committee Meeting #4 (May 29, 2003)

The Committee convened to review and address the following agenda items:

- Review May 28th Public meeting and comments
- Review Preliminary comments from Texas Division of Emergency Management
- Review Actions: Priorities, lead agency, notes, funding
- Confirm linking actions to elements of the mitigation goal statement
- Approve draft resolution forwarding to Commissioners Court for adoption

The following members of the Committee were in attendance:

- Melinda Mallia, TNR
- Pete Baldwin, OEM
- Jerry Raisch, Purchasing
- Ben Avedikian, OEM
- Stacey Scheffel, TNR
- Anna Bowlin, TNR
- Don Wheeler, TNR
- Kevin Connally, TNR
- Rebecca Quinn, RCQuinn Consulting, Inc.
- Jeff Ward, Donald R. Ward & Associates.
- Don Ward, Donald R. Ward & Associates.

- The following committee participants attended the meeting: Ed Schaffer, LCRA

Meeting Discussions

- Review May 28th Public meeting and comments – the committee was informed that, although well advertised, no one from the public showed for this meeting.
- Review Preliminary comments from Texas Division of Emergency Management – the committee was informed that Pete Baldwin, Stacey Scheffel, Melinda Mallia, Rebecca Quinn, and Jeff Ward met with Mike Harman, Regional Liaison Officer, and Mary Evan both from DEM. The purpose of the meeting was to do a preliminary review of the Draft Plan against the Texas Crosswalk and Annex P requirements. In general, the plan was deemed to be “headed in the right direction” and there were minimal suggestions for improvements and clarification.

Mary Evan made a couple of comments at the beginning of the meeting that were shared with the committee.

- a. The Travis Plan will be only the second comprehensive plan submitted to DEM/FEMA in the State of Texas. The first has yet to be approved. DEM and FEMA are going to hold these first couple of plans “under a microscope” as they want to get them to a point that they can be used as the model for other communities to follow.
- b. FEMA knows that the deadline to have Plans approved is November 2004, therefore, they are in no hurry to approve these first couple of plans. They would rather spend extra time in the review process getting them perfect.

In general, the comments that were made during the review meeting were as follows:

1. When the crosswalk and annex P ask that the plan identify or describe something in particular, the plan must address this item even if it is not relevant within the County.
2. Suggested the plan be expanded to include specific data about what is at risk from each hazard type. At-risk data for all hazard types must include; number of people, number of housing units, dollar value of housing units, critical facilities, special facilities, infrastructure, hazmat facilities, and commercial facilities.
3. Suggested that we add information specific to the effectiveness of prior mitigation actions taken using federal funds. Specifically, including the dollar value of prior HMGP grants and the mitigation cost savings resulting from these mitigation actions.
4. List all sources the committee used to encourage public involvement.
5. Add information regarding public involvement in the plan maintenance process.



-
- **Review Actions: Priorities, lead agency, notes, funding** – The committee reviewed all high priority actions to confirm priorities. All high priority mitigation actions remained high priority and the committee recommended moving one medium priority mitigation action to high priority. For each high priority action, the committee discussed the appropriate agency for lead (and support) and characterized acceptance (political and community). The matter of funding for each item was discussed, whether it could be performed within current budget or might require a new request. The “cost effectiveness” of each action was discussed and determined qualitatively. It was noted that some actions are difficult to quantify, such as the benefits of public information.
 - **Confirm linking actions to elements of the mitigation goal statement** – The committee completed the exercise of linking the each mitigation action to one of three elements of the goal statement.
 - **Approve draft resolution forwarding to Commissioners Court for adoption** – the committee formally approved the draft plan for submittal to the Court for adoption. It was agreed that Joe and Melinda would revise the draft resolution as required

Appendix C

Interviews With County Officials

These notes are based on interviews with identified County staff.

TRANSPORTATION & NATURAL RESOURCES DEPARTMENT

TNR: Environmental Coordination (Melinda Mallia):

- Identify funding sources, write grant applications, obtain funding.
- Manage grants and some projects for disaster assistance, parks, and solid waste (multiple programs in TNR, with exception of transportation).
- Oversee grant-funded projects.
- Develop county environmental policies.
- Coordinate environmental compliance reviews for county projects (primarily new roads and bridges).
- Coordinate with State and Federal environmental programs, e.g., wetlands.
- Manage coordinated intra-departmental review of development proposals by the private sector (subdivision, single lot, residential, non-residential)
- Seldom involved with private utilities (private water supply, private wastewater treatment).
- County participates in a state program to help with wastewater treatment problems in colonias areas.
- County currently does not operate any active landfills; closed landfills are monitored for groundwater quality impacts.
- One City of Austin landfill is active and located in Travis County.

TNR: Development Services (Anna Bowlin, Stacey Sheffel):

- Processes development permits; two types of permits are issued: Class A (basic development permit for no 100-year floodplain on the property) and Class B (with 100-year floodplain anywhere on the property).
- Other permits:
 - Utility permits: review for impact of installation under streets; ensure installations will be installed to be reasonably safe from flooding.
 - Driveway permits (about 2,500 per year).
 - Septic permits for on-site sewerage (LCRA issues for proposals within 2,250 feet of Lake Travis).
- Citizens are aware of the requirement to obtain a permit based on general knowledge, being informed by county inspectors, and contractor awareness (no business license requirement).
- All permitting is recorded by legal description, not address, and permanent records are retained.
- Applications for subdivisions that have designated floodplain areas typically are accompanied by a full engineering study; boundaries of the floodplain (and drainage easements) are recorded on the plat and referenced when subsequent permits to build individual buildings are obtained.
- Site plans for all subdivisions (and proposals that exceed 20% impervious cover area) must include existing and proposed ground contours. Serious discrepancies with the SFHA that are revealed by better topographic mapping must be resolved with FEMA by the Letter of Map Revision process.
- Permitting requires that all floodplain land in a subdivision be dedicated as drainage easement
- Plat notes include a statement that “no construction in drainage easement without prior approval of Travis County.” As part of the approval process, applicants are encouraged to keep development out of the flood plain.
- Statistics on permit activity do not identify whether a B permit authorized placement of a building in the floodplain.
- All B permits are flagged for site inspection, especially those permits that include activities within the floodplain.
- Typical elevation method is on block piers, increased use of stem wall (filled foundation walls).
- If fill is used, residential owner is advised of FEMA’s compaction requirement; non-residential owner usually has an engineered design.
- Substantial Improvement: the ordinance has a cumulative provision for determining substantial damage; this is administered by checking the database of all permits issued since 1995. Applicants for improvements are notified when they get permits. As of mid-2002, no application has been subject to the cumulative requirement.
- Substantial Improvement: For initial review, “fair market value” is determined using tax records and applying a 15% multiplier; owner may obtain an independent appraisal.



- **Manufactured Housing:** engineered foundations are required if elevated more than 5'; dry-stacked block is not allowed by the regulations, but difficult to control.
- Houseboats on Lake Travis are controlled by LCRA. They are powered and therefore are not considered "structures."
- Agricultural uses are unrestricted, but subject to permit requirements, and include uses such as "construction stock ponds, terraces, dikes, ditches and levees and other soil conservation actions to the standards of the Soil Conservation Service and/or under the direction of the Travis Soil Conservation Districts."
- Elevation Certificates are required on new or substantially improved buildings in the floodplain, and a database of the Lowest Floor Elevation and Base Flood Elevation is maintained.
- Development in SFHA: Since January 1999, 124 permits have been issued for buildings in the FEMA floodplain.
- Additions to SFHA buildings: Since January 1999, 3 permits have been issued for additions. Additions to post-FIRM buildings must be elevated. Additions to pre-FIRM buildings are allowed if not substantial improvements.
- Variances: Variance requests go before the Commissioners Court with a staff report that includes recommendations. Although some difficulties occurred in the early '90s, only one variance has been granted since 1992. It allowed a building to be 0.3' below the required elevation (with freeboard), thus it is 0.7' above the BFE and not a variance to the NFIP minimums. This situation was discovered after construction.
- Subdivisions begin with submitting a subdivision plan or final plat and must meet floodplain requirements set forth in the regulations.
- Applicants that disagree with flood plain boundaries outlined on the FIRMs must complete an engineering study and submit for a CLOMR. Approval is withheld until FEMA approval is received.
- Travis County's only authority for subdivision regulation is with respect to streets and drainage.
- The county works with developers to avoid putting roads in flood hazard areas. One requirement is that new access roads should have no more than 9" of water during the a 100-year flood event. This also applies to the joint use private driveways serving 3 or more houses.
- Subdivision developers are responsible for runoff and many are putting in retention ponds. Homeowner associations or local Municipal Utility Districts (MUDs) typically own the ponds as common areas and are responsible for their maintenance (no formal requirement).
- The subdivision standards require tornado shelters in all new mobile home parks (Sec. 232 Local Government Code).
- The county requires developers to place permanent survey monuments in all new subdivisions, recorded on plats but not maintained as separate database.
- Especially given recent flood experience, most developers and engineering firms understand flood hazards and are receptive to reasonably keeping buildings on higher ground.
- Permit applications within the Extra-Territorial Jurisdiction (ETJ) areas (around all 22 cities located within Travis County) are subject to joint requirements.
- Recently passed House Bill 1445 requires the county and cities to work cooperatively for consistency in regulating development in the ETJs.
- Interlocal agreements for joint reviews of permits are executed with the City of Austin, Pflugerville, and Lakeway. Similar agreements are in development with Cedar Park and Bee Cave.
- The county has begun to keep records of reported drainage problems (water in yards, ditches) and anticipates developing criteria to determine priorities for resolving certain problems.
- Stormwater management provisions, included in drainage and subdivisions regulations, require stormwater management systems to handle the increased runoff associated with a 100-year storm event.

TNR: Road & Bridge Maintenance (Don Wheeler):

- Functions include rebuilding and maintaining county roads, including drainage ditch clean-out and mowing
- Approximate length of roads (1,200 miles county-owned miles; 500 miles State-owned; 3,000 miles owned by cities and others).
- Number of waterway crossings in Travis County (144 bridges, 10,000 culverts; 110 low water crossings).
- Maintenance of bridges and culverts, including debris removal within the county's right-of-way (ROW) This may go outside of ROW if debris above a stream crossing appears to pose an imminent threat.

- Many roads have low-water crossings and are designed to flood even under minor high water conditions. Some of these roads however no longer have low traffic volumes.
- There has been minimal damage to roads and bridges from flooding (mostly shifted asphalt), attributed to relatively low velocity of flood flows when roads are overtopped.
- Debris removal is the biggest disaster-related expense. Debris at bridges and culverts and downed trees are moved to the ROW for disposal.
- After heavy rains, maintenance crews inspect those areas that have historically had problems to check for debris and damage.
- When floods are predicted, emergency teams are organized from the four satellite offices.
- Flooded roads are closed; some are closed early due to knowledge of likelihood of flooding.
- When ice storms are predicted, bridges are sanded to improve road safety.
- County equipment has been used to assist with forest firefighting efforts.
- Sand is stockpiled for spreading on bridges when icy conditions occur and county trucks have spreaders.

TNR: Engineering & Planning (Roger Schuck, David Fowler):

- Developers must build roads to county standards before the county will take ownership and maintenance.
- The County uses engineering standards and guidelines to determine the appropriate size for bridges and culvert crossings. The size also depends on the traffic/classification of the road and the availability of funds.
- In general, for new construction the intent is to size waterway openings so as to:
 - Minimize Floodway impacts consistent with the county's floodplain management objectives to have keep structures out of the Floodway,
 - Have no more than 6-inch depth of water under the 100-year flood discharge,
 - Minimize backwater, typically 3-4 inches, but not more than a 1-foot increase, and
 - Protect piers and abutments against erosion (using HEC-RAS for scour analyses).
- Most waterway crossings and road projects are funded entirely by the county. Federal standards are effective when state/federal funds are involved.
- TXDOT periodically looks at every bridge (clear span of +20-feet). Several factors are examined, including structural integrity and evidence of scour. A rating score is assigned and a report provided to the county; used in ranking replacements and upgrades.
- TNR Road Maintenance performs routine, cursory inspections to observe structural conditions and scour.
- The county's survey staff includes three Registered Licensed Surveyors.
- Since 1982, the County has not operated any landfills, but continues to monitor and address various conditions such as groundwater, erosion, etc..
- The "Highway 183 Landfill" is inactive; now located in the City and owned by the YMCA; large part is affected by floodplain of Walnut Creek; a 1995 project by the County stabilized about 350' of streambank with gabions to address erosion problem.
- The "Highway 290 East Landfill" includes floodplain of Walnut Creek but has been inactive for over 20 years; the County has implemented erosion control measures.
- A City-owned landfill is across Onion Creek from Moya Park; currently accepts only Type IV construction debris; in early 1990s a "mass movement of material" was caused by saturated conditions and slumped into the creek causing flooding. To address some erosion problems the County installed about 200' of gabions along the streambank in the park..
- Five major commercial landfills are active. Two have performed work in floodplain areas: Waste Management and BFI (both are located immediately upstream of the City's Highway 290 E Landfill); TCEQ regulates private landfills.
- County's floodplain ordinance was modified in 2002 to establish a requirement for solid waste facilities to delineate a 500-foot buffer extending from the landward boundary of the 100-year floodplain.

TNR: Inspections (Dennis Case):

- Six inspectors operate in four service areas.
- Inspectors are charged with performing inspections of permitted activities. A database is shared with the Permits Department.



- Part of their responsibilities is to check for unpermitted activities (including buildings and fill/dumping) and to investigate complaints. If a permit cannot be produced for work in progress, a "red tag" is issued and work is suspended until a permit is provided or obtained.
- The county recently adopted a formal enforcement policy; it sets forth procedures to inform property owners who undertake unpermitted activities, to encourage compliance, and to make referrals for legal action.
- Inspectors become familiar with their assigned areas, including familiarity with the waterways and floodplains.
- TNR Development Services provides copies of all "B" permits (those that include floodplain/drainage easements). A visual check of the slab/foundation is made but the location of the footprint with respect to the waterway/floodplain is not done (site plans not provided).

TNR: Park Planning (Wendy Scaperotta):

- Maintain a comprehensive 5-year Master Plan for Travis County Parks; beginning revision cycle this year; prepared according to State guidelines; evaluates population and trends and projects usage and demand for parks.
- Travis County has recently issued bonds for parkland acquisition and development of new facilities (as opposed to maintenance of existing facilities).
- The county manages seven Lake Travis park areas owned by the LCRA. The budget includes the maintenance of facilities and capital improvements in these areas.
- Some county parks include areas mapped as floodplain. For the most part such areas are retained as open space.
- Due to flood damage in Richard Moya Park on Onion Creek, a previous policy allowing development of recreational facilities in floodplains has been altered to avoid any active recreational development.
- Identified in the June 2002 update of the Master Plan, Richard Moya Park will include the county's only designated greenway, largely based on acquisition of land from which flood-prone homes are removed.
- New or replacement park improvements are undertaken in ways that minimize future damage, for example restrooms are built to flood and be cleaned out easily.

TNR: Balcones Canyonlands Preserve (Kevin Connally):

- The Balcones Canyonlands Preserve (BCP) currently consists of 26,361 of the proposed 30,428 acres owned or managed by several property owners, including Travis County. The Preserve system was established to meet the terms and conditions of a regional permit issued in 1996 by the US Fish & Wildlife Service under Sec. 10(a)(1)(B) of the Endangered Species Act.
- Ice storms that result in tree damage and limbfalls increase fire risks for many years due to build-up of woody materials on the ground.
- Some in-holdings of private property remain.
- The BCP exists to protect habitats for and populations of eight species listed by the USFWS as endangered, and an additional 27 considered "species of concern."
- Significant portions of the preserve are uplands or steep canyons; the land is steeply sloped so that stream channels run in narrow valleys with little or no flood plain in the Preserve.
- There is a fair amount of urban/wildland interface due to private development that backs up to Preserve boundaries, raising increased concerns about fire hazards.
- The county has memoranda of understanding with state and federal agencies, adjacent counties, and all Emergency Services Districts in the area to provide fire response.
- County efforts have focused on education and public outreach to encourage private property owners to reduce the risk of damage from wildfires, and on fostering planning and cooperation between the BCP Partners and emergency responders
- West of IH-35, the hilly terrain results in more condensed development in those areas that have buildable land, increasing the risk of wildfire and consequently increasing risks to buildings.
- The City of Austin has been awarded FEMA Project Impact funding and is developing fire risk assessments, fire hazard mapping, ignition sources, vegetation types and density in order to preplan and focus resources in cooperation with the BCCP Partners

TRAVIS OFFICE OF EMERGENCY MANAGEMENT (Pete Baldwin, Ben Avedikian):

- Founded in 1992 to be in compliance with State and Federal regulations.
- Maintains the County's Emergency Operations Plan (covers the county and 10 cities). The primary purpose of the EOP is to prepare jurisdictions to handle disasters by coordinating emergency planning and response, defining responsibilities and establishing protocols.
- Operates a combined emergency communications center with the City of Austin and Pflugerville; facility will also house staff from TXDOT and Capital Metro.
- PSAP – Public Safety Answering Program is a system that receives emergency calls and routes the call the appropriate dispatch for police, fire, and EMS.
- Outside of the City of Austin, there are 13 Emergency Service Districts serving the county. They provide fire and emergency medical services. The ESD's coordinate through the county if incidents require additional resources.
- Natural disasters within Travis County that have caused loss of live include floods, windstorms, tornadoes, ice storms and drought.
- Flood warning is closely coordinated with the City of Austin and LCRA:
 - Generally issued through public media;
 - City of Austin maintains the Flood Early Warning System (FEWS) for some watersheds (rain and stream gauges) [*contact made with City to ID which streams*];
 - Warning in Onion Creek is problematic because most of the creek's watershed is in Hays County and the only USGS gauge washed away, so very little pre-flood data is available.
 - The LCRA gives about 6-hours warning to the county prior to opening gates on Lake Travis/Mansfield Dam.
- Through a partnership with Austin's Project Impact and a matching grant from JP Morgan, facilitated procurement of NOAA weather radios for all schools in Travis County.
- The LCRA has an extensive dam safety program, including inspections, maintenance and repair.
- Dams not on the Colorado River are regulated by TCEQ (formerly known as the TNRCC).
- There are some high hazard, privately-owned dams within and upstream of Travis County.
- Wildfire has been a problem, but the list of past activations does not include wildfire incidents. A multi-jurisdictions/ESD response will be coordinated for large incidents.
- A Travis County Resource Coordinator is always on duty. Staffing is on a rotating schedule by county managers:
 - ESD's contact the County Resource Coordinator if assistance is needed;
 - Additional support can be drawn from other ESDs so as not to strip all resources from any part of the county in case another activation is required.
- There are no critical facilities (e.g., hospitals, EOCs) in Travis County.
- There is a Local Emergency Preparedness Committee (LEPC). The LEPC is federally-mandated, meets every two months and the primary focus is public awareness and hazardous materials.
- Most reported hazardous materials fixed sites (handlers, storage) are located in the City of Austin. A database of user addresses is available (may not be physical location of the materials).
- In the county, concern is due to transport incidents and chlorine used at the 95 water treatment companies throughout the county, some of which are likely to be in floodplain areas.
- There have been no reported HazMat incidences related to flooding
- The EOC has been activated for civil unrest.
- OEM has participated in Department of Justice training exercises for technological threats, including terrorism, and is seeking funding for training and equipment.
- Terrorism and weapons of mass destruction threats and vulnerability assessment is on-going. Although not publicly available, it is characterized as including dams, pipelines, water treatment facilities, sewer treatment facilities, and other public facilities.
- Texas A&M, coordinating with the American Red Cross, conducted a shelter evaluation in Travis County.
- Ice from winter storms can cause problems for up to 3 days, less than 48 hours is more common. The State has an ice response plan to address major roads.



COUNTY FACILITIES (Dan Mansour, Risk Management):

- Among other responsibilities, the Risk Management office manages property insurance. The County's property insurance coverage for buildings and improvements has a \$500,000 deductible.

AGRICULTURAL COOPERATIVE EXTENSION (Jeff Ripley):

- The Cooperative Extension is a partnership, supported by state funding (60%) and federal funding (10%).
- This serves everyone in Travis County and incorporated cities, although have "limited resources"; services are defined by the state.
- The focus is on the assistance and education of the public on a variety of questions and issues, especially related to horticulture, agriculture, water quality (but not on-site septic), erosion; wildlife concerns (e.g., chronic wasting disease), tree maintenance (such as trimming trees damaged by ice).
- In 2002, there has been considerable interest about West Nile virus.
- Public awareness is generated via news releases to newspapers, radio and television.
- Some information related to flood is kept, but mostly about mosquito and fire ant control, and recommendations for drying to minimize mold problems.
- During the past couple of floods there were no special agricultural related issues or projects:
 - Not aware of any agricultural buildings that were damaged,
 - Flooding is seen as a normal part of the cycle by most farmers.
- Maintain, and expect to expand, a website (www.travis-co.tamu.edu).

DAMAGE AND IMPACTS DUE TO FLOODING HAZARDS

- Carlos & Charlie's, a Lake Travis restaurant, was destroyed in the 1997 flood (was at-grade, below the BFE by 24"); it was reconstructed as a "dry dock barge" with restrictions for operations during flooding.
- One non-residential property near Bluff Springs (a carpet store) flooded in 1998 and 2001.
- An address file of some of the flood-prone property owners is maintained (primarily Lake Travis property, Onion Creek property, and the NFIP repetitive loss list). Some direct notification has been done.
- After floods, inspectors monitor areas where buildings were damaged (especially near Lake Travis and Onion Creek).
- In flooded areas, it is usually several weeks before rebuilding is started, which allows time to inform owners of permit requirements, and ensure that FEMA materials have been handed out.
- Manufactured homes have washed off of foundations by floodwaters, attributed to lack of tie-downs rather than foundation failure.
- A City landfill that is in the floodplain of Onion Creek across from Moya Park accepts only type IV debris (construction waste). A portion of the site slid into Onion Creek during a flood; the banks have been shored up to minimize recurrence.
- One closed landfill is located in the floodplain
- Some private landfills may have floodplain impacts, e.g., IBM Rolm on Walnut Creek.
- County parks that include flood-prone areas have sustained damage of facilities and improvements such as the fee booth, picnic tables and pavilions, restrooms, playscapes, fences, electrical and irrigation systems, and trails. Most damage is associated with heavy debris loads.
- Moya Park has sustained the most damage in the past decade (total cost for recovery was about \$280,000); some improvements relocated to higher ground where velocities are expected to be lower.
- The Moya Park Ranger residence has experienced repetitive flooding, most recently in October 1998 and November 2001. It was not re-occupied after the 2001 event and has been demolished and will not be rebuilt.
- At Hamilton Pool, extensive sections of fencing were damaged due to debris loading.
- Lake Travis parks are known to experience flood damage including: damage to docks due to rapid rise; inundation of restrooms causes damage only if roofs go under and shingles are damaged. *[Estimate dollar value of repair, restoration and clean up from last two floods]*
- The Northeast Metro Park low water crossing has been damaged by floodwaters eroding its base. Repairs to the crossing will include additional concrete.
- County parks with streams have sustained some bank erosion damage. In Moya Park repairs were made with riprap and gabions.

- The Vehicle Services building was flooded in November 2001. Costs to clean up the building and vehicles was approximately \$8,000.
- Damage sustained by county buildings as a result of federally declared disasters has not been covered by FEMA because they were determined to be not eligible or were "below the \$500,000 deductible."
- Since at least the mid-1980s, bridge piers have not been undermined by flooding.
- Floods seldom cause structural damage or failure although earthen embankments behind abutments wash out.
- Jones Road was flooded, scouring the embankment behind the abutment. No structural damage was sustained because the abutment is founded on deep piers.
- Parsons Road experienced erosion at the bridge due to flow alignment. Upstream channel work with gabions were installed divert flow more efficiently through the bridge.
- County maintenance records indicate that little road, bridge and culvert damage resulted from the November 2001 flood.
- The Christmas 1991 flood caused some road damage.
- Parsons Road is impacted when Wilbarger Creek floods with water depths over 2-feet for long periods (24-48 hours) resulting from 3 - 4" of rain. As development expands in that direction, this road is experiencing an increase in traffic. Although not flood-related, improvement of this road is already in the planning phases.
- After the December 2001 flood, woody debris was ground for mulch and stockpiled in county parks for use in maintaining the park. However, due to the large volumes, some had to be hauled to landfills for disposal.
- TNR Road & Bridge Maintenance maintains records of road flooding, indicating 44 points of frequent flooding (by district: 11 flood-prone roads in District 1; 10 in District 2; 11 in District 3; and 12 in District 4).
- The state corrections facility is likely subject to flooding, at least grounds.
- [Have any private non-profit water companies (supply or treatment) submitted project worksheets for damage due to declared disasters?]

DAMAGE AND IMPACTS DUE TO OTHER NATURAL HAZARDS

- Lightning and high winds have damaged trees and sport field light poles in county parks.
- The Exposition and Heritage Center in East Austin sustained damaged windows due to wind; was covered by insurance.
- Lightning struck a county chilling tower in 2000. The cost for repairs was covered by insurance.
- A major ice storm in 2000 caused widespread tree damage in the Balcones Preserve, increasing fire threats for years due to the length of time it takes for fallen trees to deteriorate.
- In 1995, a tornado caused damage in the Hazy Hills subdivision (east of the Pedernales River at Highway 71). There was tree damage, a dozen roofs blown off, and several overturned mobile homes.
- The last wildfire in the area occurred in the mid-60s and affected 400-500 acres.

Appendix D Public Outreach Materials

Published Notice for First Public Meetings

H12 Sunday, January 2, 2003

Austin American-Statesman ■ statesman.com

Public Hearing Notice

Two public hearings will be held February 28 and March 11, 2003. The purpose of these hearings is to provide an opportunity for the public to comment on the draft Hazard Mitigation Plan (HMP) for Travis County, Texas. The HMP is a document that will be used to guide the County's efforts to reduce the risk of damage to life and property from natural hazards. The HMP will be presented to the County Board of Commissioners for adoption later this year. Additional public meetings will be scheduled before then to present the draft recommendations and request additional comment from interested citizens.

Questions about the plan should be directed to THM's Mitigation Plan Coordinator, Jeff Ward at 855-465-7105 (toll free number). You can also contact Schaefer Walker with Travis County THM at 512-854-9430 for more information.



Organizations, Agencies and Elected Officials (received Notice of first public meetings)

In addition to 409 notices mailed directly to individuals and citizens who have filed flood insurance claims, the following received public notices:

Austin Metropolitan Trails Council	Texas Parks & Wildlife
Austin Neighborhoods Council	Texas General Land Office
Austin Parks Foundation	Texas Council on Environmental Quality, NFIP State Coordinator
Barton Springs Edwards Aquifer Conservn Dist	FEMA Region VI
Capital Area Planning Council	TX Division of Emergency Management, Mitigation
Clean Water Action	Texas Water Development Board
Environmental Defense	
Groups United Against Rural Destruction	Senator Kay Baily Hutchinson
Hill Country Conservancy	Senator John Cornyn
Real Estate Council of Austin	Congressman Lamar Smith
Save Our Springs Alliance	Congressman Lloyd Doggett
Sierra Club - Austin Club	Congressman Ron Paul
Sierra Club - Lone Star Chapter	State Senator Jeff Wentworth
Texas Community Project	State Senator Gonzalo Barrientos
Trust for Public Lands	Representative Todd Baxter
TX Campaign for the Environment	Representative Dawna Dukes
TX Colorado River Floodplain Coalition	Representative Eliot Naishtat
TX Homebuilders Association	Representative Eddie Rodriguez
Travis Audubon Society	
Liveable City	

Hazard Mitigation Plan: Public Meetings – 2/11-12/03

Western Travis County Meeting Tuesday, February 11, 2003 6:30 – 8:00 p.m. Wild Basin Wilderness Preserve 805 North Capitol Texas Highway	Eastern Travis County Meeting Wednesday, February 12, 2003 6:30 – 8:00 p.m. Travis County Satellite One Town Hall 9301 Johnny Morris Road
---	--

Approximately eight homeowners attended the Western Travis County public meeting (estimated to represent five properties in Western Travis County). Approximately twelve homeowners attended the Eastern Travis County public meetings (estimated to represent nine properties in Eastern Travis County).

Presentations were made to explain the requirements for the development of a hazard mitigation plan and asking for public input on historical hazards within Travis County and recommended mitigation actions to help alleviate future property damage and loss of life. Attendees noted a number of concerns and raised several questions (summarized below). A questionnaire, available on the Internet, was handed out at the public meetings (summarized below).

Questions and Concerns Raised at the Public Meetings

- **Concern:** The Lower Colorado River Authority's actions on Lake Travis. Homeowners suggested that the LCRA had failed to move swiftly enough in anticipating storms and mitigating the possible damage to homes on the lake.
- **Response:** The County's floodplain manager said the LCRA must consider the entire watershed-not just Lake Travis-when it makes decisions to open and close dam gates. Decisions on lake levels are complicated by the many factors that need to be considered, including the needs of water users downstream.
- **Question:** How accurate are FEMA's Flood Insurance Rate Maps used in Travis County?
- **Response:** In many cases the maps are twenty years old, but the best available data was used to develop the maps at that time. Further, there is clearly better technology and data available today and eventually the maps will be updated to reflect this more accurate data.
- **Question:** How often are FEMA's Flood Insurance Rate Maps revised?
- **Response:** Although for many years constrained by budget limits, FEMA revises maps when there is significant evidence that maps need to be revised. Travis County reports map needs to the State; Congress has begun to appropriate additional funds to support revising maps.
- **Question:** Why did I receive a mailing informing me of this public meeting? Has Travis targeted my for acquisition?
- **Answer:** Along with multiple other communication channels, Travis mailed notices to about 500 property owners throughout the County that are on a list as having received disaster assistance or flood insurance claims. It is possible a previous owner filed a claim.
- **Question:** How far along in the planning process are you?
- **Answer:** The Planning Committee has held three meetings. The focus of these meetings and data gathering has been on understanding the historical hazards that have affected the County and to get ideas on possible mitigation actions. This phase of the planning process is to get public input on historical hazards and possible mitigation actions prior to preparing the draft plan. Public comments from these public meetings and public questionnaire responses will be incorporated into the draft plan for Planning Committee review prior to submittal to Commissioners Court.



- Question: Will the plan identify the feasibility of specific mitigation projects?
- Answer: The plan will not provide in-depth analysis of the feasibility of specific mitigation projects. Rather, the plan will identify general mitigation actions the County believes may prevent future property damage and loss of life. If any of these general mitigation actions require further feasibility and/or engineering studies prior to implementation, the County may prepare such studies as required and appropriate.

- Question: Why have we seen two 100-year floods in the past 10 years?
- Answer: The term "100-year flood" is a misleading name for the base flood that is used to define the area subject to regulations. It means that there is a 1% chance every year that the County will receive enough rain in a set period of time to cause water levels in river and stream valleys to rise to the base flood elevation.

- Question: Is FEMA looking to update the maps due to upstream development?
- Answer: This is one factor that FEMA considers when deciding whether to revise the flood maps. In part to anticipate watershed development, which causes more rainfall to run off rather than soak into the ground, Travis requires new buildings to be elevated one-foot above the base flood elevations.

- Question: What funds is Travis looking to be eligible for by completing this plan?
- Answer: Currently, there are two primary sources of funds available from FEMA for flood mitigation measures: Flood Mitigation Assistance (FMA) Program funds (available pre-disaster); and Hazard Mitigation Grant Program (HMGP) funds (available post-disaster).

- Question: Why is my flood insurance so high?
- Response: Some specific questions were asked of this homeowner to better be able to answer this question. It was pointed out that the best person to talk to about this concern is an insurance agent who is experienced with selling FEMA flood insurance. On the surface, it did appear that this homeowner was paying a higher rate than he should and he was given a phone number to call to get additional assistance.

- Question: Are you coordinating with local municipalities while developing the Travis plan?
- Response: LCRA, and the City of Austin attend planning committee meetings. The plan will be for the unincorporated areas of Travis County only. Once complete, the plan will be made available to all incorporated areas within the County. Many of the incorporated areas within Travis are participated in a multi-jurisdictional plan that is being facilitated by LCRA. Municipalities interested in being eligible for future FMA and HMGP funds will need an adopted and FEMA approved plan or appendix to a plan. The Travis plan can be used as a template for the development of an adoptable appendix for those municipalities not participating in the LCRA multi-jurisdictional plan.

- Question: Travis considering anything other than buyouts for the Timber Creek subdivision?
- Response: The U.S. Army Corps of Engineering is currently studying Onion Creek for possible mitigation projects. Any mitigation action that may eventually be taken as a result of this Corps study is at least five years out. The County is continuing to look for federal grants to assist with additional buyouts for flood damaged properties in Timber Creek. At this point Travis believes that acquisition is the best mitigation action for Timber Creek.

- Question: Why didn't Travis County buyout homes flooded in November 2001 in Timber Creek?
- Response: As bad as this flood was for homes in Timber Creek, it did not receive a Presidential Disaster declaration. Therefore, there were no federal funds made available for buyouts.

-
- **Question:** Is the plan going to augment the Emergency Response Plan (ERP) or is it going to stand alone?
 - **Response:** The plan will meet many of the State's ERP Annex P requirements and as such will augment the ERP.

 - **Can I buy insurance from NFIP directly?**
 - **Response:** Yes. County staff took contact information for this homeowner and will provide a number for NFIP.

 - **Concern:** Homes in Walnut Place, along Walnut Creek continue to lose land into the creek. It is felt that this is due to prior projects within and along the creek. The homeowner was at the meeting to continue to express concern over what is happening to these homes.
 - **Response:** The County is well aware of this concern. Staff listened to the property owner's concerns after the meeting concluded. This property within Travis County unincorporated and it is the County's position that they have no jurisdiction or responsibility for any potential cause of this problem or any potential solution.



Summary of Questionnaires

Questionnaires were submitted by twelve citizens who attended the public meeting or downloaded the document from the County's webpage. The following is a summary of the comments and recommendations from these submittals:



TELL US WHAT YOU KNOW ABOUT FLOODING IN TRAVIS COUNTY and SHARE YOUR IDEAS ABOUT REDUCING FLOOD DAMAGE

This questionnaire is to collect information about flooding in your community. Travis County has started to prepare a plan to help reduce flood damage and other safety risks. An important part of the planning process is hearing from our citizens. We will hold a public meeting to present the draft plan sometime in the spring. At that time you will learn about mitigation planning and proposals to reduce damage.

You can help us now. We would like to learn about any flooding problems you may have had at your home or business. Please take a few minutes and answer the following questions. Please use additional paper if your answers will not fit in the spaces provided. Questions? Call Scheleen Walker, Travis County, 854-9430.

Question	Summary of Answers Submitted
Is your home in the floodplain?	<ul style="list-style-type: none"> ■ All but one respondent answered yes
What is the source of flooding?	<ul style="list-style-type: none"> ■ Poor drainage ■ Lake Travis ■ Slaughter Creek ■ Walnut Creek ■ Onion Creek ■ Mahia Creek
Do you own or rent?	<ul style="list-style-type: none"> ■ All but one respondent "own the property"
How would you describe your home?	<ul style="list-style-type: none"> ■ Crawlspace ■ Slab ■ Wood pilings or block pier ■ Pier and beam
If your home has actually flooded, when did it happen?	<ul style="list-style-type: none"> ■ 1952, 1973, 1974, 1991, 1992, 1997, 1998, 2001, 2002, and 2003
Describe the damage.	<ul style="list-style-type: none"> ■ Water damage to building and contents. As much as five feet of water some homes. ■ Damage to fences, barns, and road grade. ■ Loss of trees along Walnut Creek ■ Erosion of land along Walnut Creek ■ Damage to bridge and road on Springdale Rd.

Question	Summary of Answers Submitted
Have you done anything to your home to reduce future damage?	<ul style="list-style-type: none"> ■ Please describe: ■ Installed ceramic tile floors ■ Contouring, planting grass and mowing the drainage ditch. Reported that Precinct 4 dug out all of homeowners' work with bulldozer at least three times. ■ Reinforced the structure ■ Nothing that can be done ■ Would like to elevate guest house
In the last flood, did you have flood insurance?	<ul style="list-style-type: none"> ■ All but two respondents had flood insurance
Do you now have flood insurance?	<ul style="list-style-type: none"> ■ All but one respondent had flood insurance still maintains it
If you don't have flood insurance, why not?	<ul style="list-style-type: none"> ■ The one homeowner that has chosen not to maintain their flood insurance stated they, "Cannot afford to pay for something that is useless"
Is your business or place of work in the floodplain?	<ul style="list-style-type: none"> ■ Five respondents answered yes
If it has actually flooded, describe the damage.	<ul style="list-style-type: none"> ■ Two foot of water in the lower level ■ Marina, so it floats ■ Sewage came up from the bathroom – the whole store flooded
Please list roads where you've seen flooding.	<ul style="list-style-type: none"> ■ 1431 between Lago Vista and Marble Falls ■ Around the Hudson Bend area of Lake Travis ■ FM 973 ■ Man O War Ave ■ Citation Ave ■ FM 812 from Bastrop County line to Elroy Rd ■ Graveyard Point Rd ■ Bluecat ■ Center Point Rd ■ FM 973 ■ Burleson ■ Springdale Rd North of 290 ■ Bridges over Buttercup and Walnut Creek ■ Brandt Rd ■ Bluff Springs Rd
Describe other flooding problems you know about (such as flooded septic fields, water wells, etc.)	<ul style="list-style-type: none"> ■ Houses toward the rear of Citation Ave with effluent floating through them due to the subdivision sewer holding ponds and plant overflowing ■ Septic fields flooding out in neighborhood of Walnut Creek ■ Sheet water from Slaughter Lane
Please give us your ideas to reduce the impacts of flooding.	<ul style="list-style-type: none"> ■ Fix and add more cement drainage ditches ■ Clean and maintain current drainage ditches ■ Open Mansfield Dam flood gates earlier ■ Stop boat traffic on Lake Travis as soon as levels rise to avoid wave damage ■ In Walnut Creek; Improve bypass channel, scrap out rock and sediment buildup, install new rock gabions, and remove fallen trees
<p>Do you know about County permits? A permit is required if you want to:</p> <ul style="list-style-type: none"> ■ Build a new building (even a garage or shed), ■ Build and addition to an existing building, or ■ Make major renovations or repairs. 	<ul style="list-style-type: none"> ■ All respondents answered yes and several requested that Travis them more information about County permit requirements



Article published online by *In Fact Daily* (www.infactnews.com) after the February 11, 2003 public meeting:

2-12-03

County works on plan to mitigate flood problems

FEMA flood plain maps 20 years old

A team of Travis County officials and consultants should have a much better handle on the county's flood-prone areas in the next two months with the completion of a Hazards Mitigation Plan requested by the Federal Emergency Management Agency (FEMA).

Last night, consultants led the first of two public meetings on the planning process at Wild Basin. While FEMA has requested a mitigation plan that also includes the risk of winter storms and tornado winds, the real focus of the meeting was flooding. As consultant Rebecca Quinn explained to the handful of residents in attendance, the 20-year-old FEMA floodplain maps help, but they don't go far enough in describing the risk that 6,800 buildings face in Travis County's hundred-year floodplain.

That is about nine percent of the county's structures. Anecdotal evidence would suggest most of those are residential. Yet only 12 percent of the homes in the Travis County floodplain carry flood insurance, Quinn said.

"The best mitigation is to do it right the first time. If you can stay out of the flood plain, you should," said Quinn. "If you can't stay out of the flood plain, then you need to build it so it resists future damage."

Travis County has faced five disaster declarations since 1990, all of them related to flooding: the Christmas flood of 1991, the Lake Travis flood of June 1997, the Hurricane Georges flood of October 1998, the flooding of November 2001 and the flooding of Onion and Barton Creeks in July 2002.

The goal of the Hazards Mitigation Plan is to both recognize disaster-prone areas and address those areas with mitigation measures before disasters happen, Quinn said. The data gathered by the plan will also be used to provide more accurate information to justify a swifter response to disaster grant applications, according to consultant Jeff Ward. It will also help the county make a decision on whether to pursue more grant money for a buyout of homes on flood-prone Onion Creek.

Two major grants are offered by the state, Ward said. The Flood Mitigation Assistance Program, offered by the Texas Water Development Board, offers pre-disaster assistance to mitigate flooding problems. The Hazardous Mitigation Grant, offered by the state's Division of Emergency Management, gives post-disaster assistance.

The Hazards Mitigation Plan could provide more complete floodplain information, to tell a homeowner whether the risk from a flood would be six inches or six feet. It could also expand flood-warning systems or provide more public education on the location of the county's floodplain, so buyers can make educated decisions. The plan may suggest the need for engineering studies, but it will not suggest specific structural remedies for flooding problems, Ward said.

Homeowners Chris Corniere and Trent Chastain were both concerned about the Lower Colorado River Authority's actions on Lake Travis, where their homes are located. Both indicated that the LCRA had failed to move swiftly enough in anticipating storms and mitigating the possible damage to homes on the lake.

Stacey Schefel, the county's flood plain manager, said the LCRA must consider the entire watershed-not just Lake Travis-when it makes decisions to open and close dam gates. Quinn said decisions on lake levels were complicated by the many factors that need to be considered, including the needs of water users downstream.

Schefel said she was hopeful the county's data on its portion of the Onion Creek Watershed could be utilized for regional planning. Onion Creek, a 356-square-mile watershed, crosses county lines and city boundaries. She said Travis County must do a better job of coordinating with the other counties on the watershed, especially with Hays County where impervious cover could have a direct impact on the watershed.

The last time FEMA's flood plain maps were updated was 1982, although case-by-case adjustments are made to the map, Quinn said. The federal fiscal year 2003 budget includes \$100 million toward the \$900 million needed to update the maps.

A second meeting on the county's Hazards Mitigation Plan will be held at 6:30pm tonight at the Travis County Satellite One Town Hall, 9301 Johnny Morris Road. Interested residents may also download a survey on flooding issues at <http://www.co.travis.tx.us>. Quinn estimated that a final plan for county commissioners' review should be completed within the next two months.



Notice for Final Public Meeting published May 25, 2003 issue of the *Austin American-Statesman*

**Notice of Public Meeting
Travis County Hazards Mitigation Plan**

A public meeting will be held May 28, 2003, at 5:30 p.m. until 7:00 p.m., in the Travis County Administration Building, West 11th Street, Austin, Texas, Commissioners Courtroom, first floor, to review the draft Hazards Mitigation Plan recently prepared by Travis County. The draft plan may be reviewed by downloading from http://www.co.travis.tx.us/tnr/news/mitigation_plan.asp. Copies are also available for review at the following locations: Travis County Executive Office Building (EOB), 8th Floor Permitting Counter (512-854-9383) and the following Austin Public Library Branches: Faulk Central Library, Terrazas Branch, Southeast Community Branch, Little Walnut Creek branch.

The plan provides an overview of natural hazards in the County, summarizes past hazard events, describes how the County recognizes and addresses hazards in the development process and other County functions, and sets for an action agenda. The actions are intended to reduce the long-term impacts of flooding and other hazards on the County and its citizens. Members of the public are encouraged to attend, especially those with property located in flood-prone areas.

Citizens have the opportunity to comment on the plan and the proposed action agenda. Comments should be faxed to Melinda Mallia at 512-854-6474, or mailed to her attention at the Travis County Department of Transportation & Natural Resources (TNR), P.O. Box 1748, Austin, TX, 78767-1748.

After consideration of comments and review by the Texas Division of Emergency Management, the final hazard mitigation plan will be presented to the Commissioners Court for adoption this summer.

Questions about the plan should be directed to TNR's Mitigation Plan Consultant, Jeff Ward at 866-465-7105 (toll free number) or jeffreysward@earthlink.net. You can also contact Scheleen Walker, Travis County Executive Liaison/Planner at 512-854-9430.

Text of email received in response to public notice of availability of the Draft Plan:

From: "Joellen Simmons" <Joellens@texas.net>
Sent: Friday, May 30, 2003 7:42 PM
Subject: Public Notice: Travis County Draft Mitigation Plan

Thank you for sharing the draft plan, which is located on the Web. Although the deadline for providing input was May 20, I hope you will share this with the Mitigation Committee.

I am a member of the neighborhood association at Onion Creek Meadows, which has landowners along the Onion Creek, of which is "part" of the plan, but not a targeted priority.

I was gratified to see so many agencies and organizations work together to form the "Mitigation Planning Committee- (B1), to develop this plan. It is sometimes very difficult to determine who is responsible for assisting landowners and the plan is a good first step. I understand that due to limited resources, priorities must be targeted for remediation of hazardous areas. I would however hope that the committee would consider assisting Neighborhood Associations to apply for and acquire Hazard Mitigation Grants that would prevent additional flooding and storm hazards that will prevent the eventual flooding in your targeted areas.

Prevention will of course target more than an individual, and should be provided to entities that will plan, implement and monitor structural additions that will focus on preventive measures within communities, thus preventing flooding at that location as well as downstream. Money provided for this will be more effective than short term fixes. Although you did not target our area as one of the priorities, it is crucial that you understand that the state of the land above your study, AT OUR LOCATION, substantially results in positive or negative, environmental situations downstream, resulting in the disasters you studied. Onion Creek Meadows, (along Onion Creek), at our location, upstream from Arroyo Doble, had limited homes flooded (three). However the erosion of the creek bed, and narrowing of its waters (upstream of the dam) located in our subdivision, has potentially and progressively set up precipitors for flooding. At our location, if the creek bed and the dam is not cleaned out, the sludge and gravel will continue to narrow the waterway here and downstream.

In the 25 years we have lived on the creek, the last five years have been unusual in that we have witnessed the creek narrow, due to storm and flood debris. Gravel has substantially re-aligned the creek from its original creek bed and will, in the future cause much flooding if it is not corrected. A large new tributary has begun to run (Garlic Creek) into Onion Creek as a result of gravel dump/re-alignment of the bed. Additionally, there is a neighborhood drainage ditch, that during storms, may cause further flooding, due to the narrowed creek, lacking room for the run-off flow into the creek.

It is very difficult to describe how destructive the creek is when we are in a dry spell, and I would further suggest that the committee get out and look for themselves how the creek flows DURING HEAVY FLOODING. I would be happy to sponsor such a site visit. I would hope the LCRA and TNRC will begin to plan proactively with Neighborhood Associations and substantially fund "Grants" to prevent environmental and flooding disasters.

joellen simmons, Manchaca, TX.

Appendix E

Additional Background

E-1 Austin/Travis EOC Activations

The EOC is activated in support of other events: hospital disaster drills, state hurricane drills, nuclear radiation exercises, airport exercises, chemical incident exercises. The following lists only activations associated with natural hazard events. The EOC is activated for civil unrest and terrorist incidents which have included the Gary Graham execution (2000), Fortune 500 protect (2000), World Trade Center attack (2001), anthrax threats (2001).

Date of Activation	Cause of Activation
12/1991	Christmas Floods (Presidential declaration)
2/9/1994	Ice storm
6/27/1996	Lake Travis Flooding
9/10/1995	Severe weather/wind storm
2/1-3/1996	Ice storm
9/20/1996	Severe weather
11/24/1996	Ice storm
1/7/1997	Ice storm
1/12-14/1997	Ice storm
2/21/1997	Lake Travis flooding
5/27/1997	Pedemales Valley, Jarrell, Cedar Park Tornado
6/10/1997	Southeast Travis County flooding
6/22/1997	Lake Travis flooding (Presidential declaration)
3/16/1998	Severe weather/flooding
5/5/1998	Train wrck/Williamson County -- shelter operations
5/27/1998	Texas Forest Service/wildfires (State Disaster declaration)
10/17-18/1998	Central Texas flooding (Presidential declaration)
12/23/1998	Ice storm
3/15/1999	Severe weather/tornado warning
3/16/2000	Tornado warning (Travis & Williamson)
6/9/2000	Severe weather/flooding
11/2-3/2000	Severe weather -- flooding
11/5/2000	Severe weather -- flooding
12/12-13/2000	Ice storm
5/21/2001	Severe weather -- high winds, Pflugerville
8/26-27/2001	Severe weather -- flooding
8/30-31/2001	Severe weather -- flooding
9/3/2001	Severe weather -- flooding
11/12/2001	Severe weather warning -- high winds
11/15-16/2001	Severe weather -- Onion Creek flooding
6/26/2002	Severe weather -- minor flooding & wind damage
7/1-5/2002	Severe weather -- Lake Travis flooding (Presidential declaration)



E-2 Complete List of Watersheds and Floodplain Buildings

Watershed #	Creek Name	# Bldgs in SFHA	
		Co + Cities	County Only
1	Barton Creek	313	207
2	Bear Creek	70	70
3	Bee Creek	6	6
4	Bee Creek (Westlake)	44	25
5	Big Sandy Creek	182	148
6	Blanco River	5	1
7	Blunn Creek	47	
8	Boggy Creek	489	
9	Bouldin Creek	442	
10	Bull Creek	157	42
11	Buttermilk Creek	35	
12	Carson Creek	128	
13	Cedar Creek	12	11
14	Collier Hollow	55	5
15	Cottonmouth Creek	54	54
16	Cottonwood Creek	55	55
17	Country Club Creek	150	
18	Cow Creek	8	8
19	Cypress Creek	0	
20	Decker Creek	146	138
21	Dry Creek	73	
22	Dry Creek (Northeast)	1	1
23	Dry Creek (Southeast)	84	84
24	Elm Creek	68	68
25	Fall Creek	1	1
26	Fort Creek	464	
27	Gilleland Creek	263	166
28	Hamilton Creek	3	3
29	Harpers Branch	0	
30	Harris Branch Creek	129	128
31	Harrison Hollow	2	2
32	Honey Creek	2	2
33	Hucks Slough	0	
34	Hurst Creek	38	4
35	Johnson Creek	100	
36	Lake Austin	1317	146
37	Lake Travis	3033	2242
38	Lick Creek	2	2
39	Lime Creek	32	31
40	Little Barton Creek	31	5

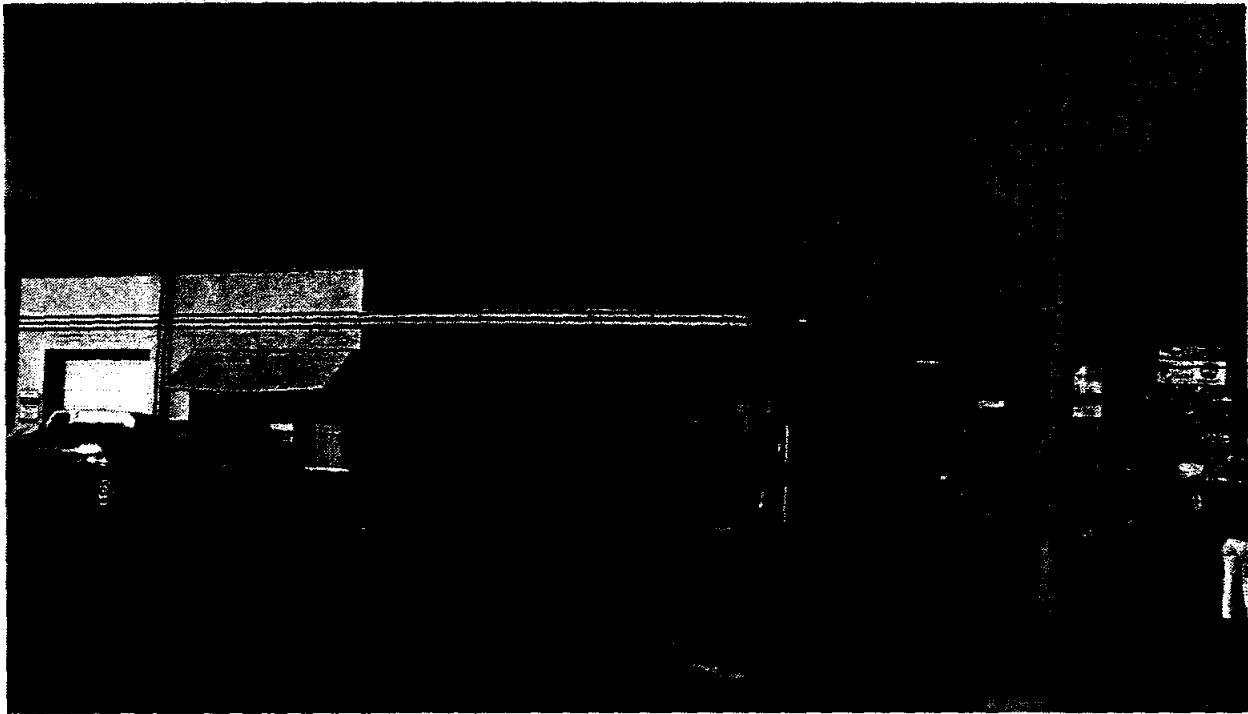
Watershed #	Creek Name	# Bldgs in SFHA	
		Co + Cities	County Only
41	Little Bear Creek	4	4
42	Little Bee Creek	1	1
43	Little Walnut Creek	880	
44	Lockwood Creek	9	9
45	Maha Creek	166	161
46	Marble Creek	13	12
47	North Fork Creek	22	22
48	Onion Creek	2436	1113
49	Pedernales River	327	327
50	Post Oak Creek	8	8
51	Rinard Creek	1	
52	Shoal Creek	955	
53	Slaughter Creek	308	263
54	South Boggy Creek	218	69
55	South Fork Creek	125	125
56	Tannehill Creek	1082	
57	Taylor Slough	5	
58	Town Lake	975	713
59	Waller Creek	781	
60	Walnut Creek	1010	148
61	Wilbarger Creek	97	71
62	Williamson Creek	1675	10
63	Willow Creek	15	15
64	Yaupon Creek	21	
	Totals	19,175	6,725



E-3 Public Facility Assessment

Public Facilities Determined to be "IN" the Mapped Floodplain
(using FEMA's Q3 digital flood data layer/GIS)

LABEL	DESCRIPTION	ADDRESS	Building Size (sq ft)
C1	Vehicle Services (<i>see below</i>)	1000 North Lamar	2100
C2	Hamilton Pool Park Maint Shed	24600 Hamilton Pool Road	350
C3	Bob Wentz Park Fee Booth	7144 Comanche Trail	80
C4	Bob Wentz Park Pavilion	7144 Comanche Trail	1256
C5	Moya Park Ranger House (<i>demolished</i>)	10001 Burleson Road	1800
C6	Moya Park Shelters (5 Total)	10001 Burleson Road	5696
C7	Moya Park Restrooms (3 Total)	10001 Burleson Road	2640
C8	Moya Park Office (<i>demolished</i>)	10001 Burleson Road	672
C9	Moya Park Maintenance Shed (<i>see below</i>)	10001 Burleson Road	1840
C10	Moya Park Concession/RR (<i>see below</i>)	10001 Burleson Road	1088
C11	Webberville Park Shelters (3)	2305 Park Ln	4800
C12	Webberville Park Restroom	2305 Park Ln	880
C13	Southeast Service Facility (<i>see below</i>)	5412 Lockhart Highway	
FS1	Fire Station #1108	1600 Citation Dr	
			Site Size (acres)
S1	Reilly Elementary	Austin IS District	10.768
S2	Ortega Elementary	Austin IS District	10.843



Name of Facility/Location: Vehicle Service Building, 1000 North Lamar (Map 5-4; Point C1)

Source of Flooding: Shoal Creek

Ground Elevation: 466'

Base Flood Elevation: 475"

Description: The Vehicle Service Building is a former gas and service station, continuing to provide mechanical services and fuel service for County vehicles. It is approximately 2,100 square feet in area with brick facing surrounding large display windows and doors, including 2 front bays and one side bay. Vehicles are parked adjacent to and behind the building.

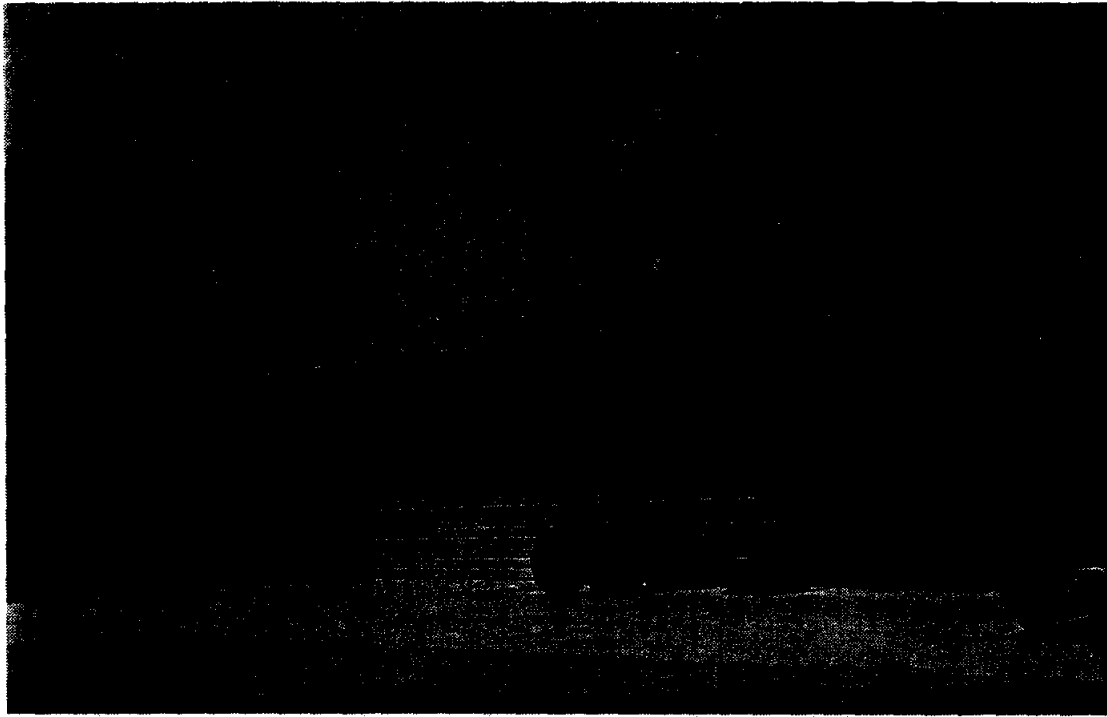
The interior of the building contains equipment and furniture common to a gas and service station, onsite waste oil storage.

Fuel fill and protection? Any leaks or water into it?

Narrative Assessment:

Max depth of water experienced: +6'

Based on the Austin FIRM, the water depth during the 100-year event is predicted to be 11 feet.



Name of Facility/Location: Maintenance Shed, Richard Moya Park (Map 5-4; Point C9)

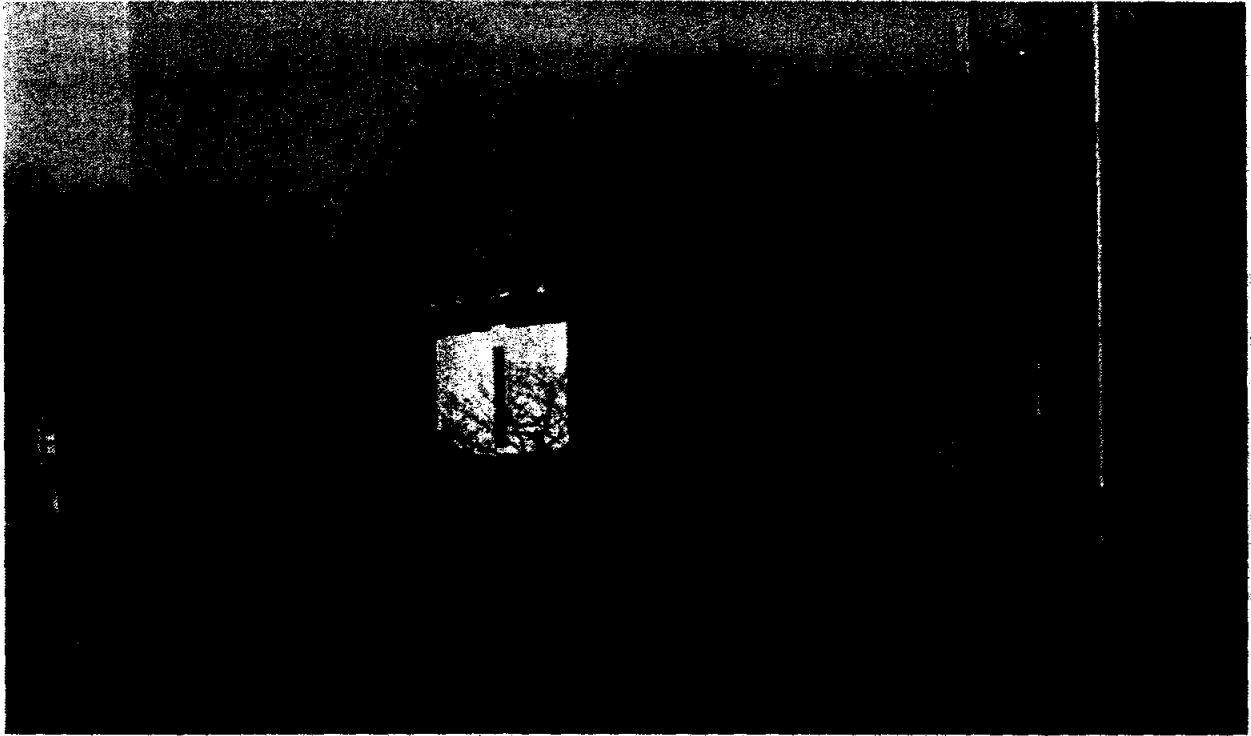
Source of Flooding: Onion Creek

Ground Elevation: 456'

Base Flood Elevation: 474' (mid-site)

Description: Corrugated metal single-story building, four double-wide vehicle bays, 1,840 sq ft.

Narrative Assessment: Based on the BFE selected mid-site, the predicted depth of water is on the order of 18 feet. Ground elevation is approximately 6' below the adjacent road level. No openings to allow inflow/outflow of rising/falling flood waters, but no evidence of damage (deflection of walls), suggesting no significant differential of hydrostatic pressure or forceful velocities.



Name of Facility/Location: Concession Building, Richard Moya Park (Map 5-4; Point C10)

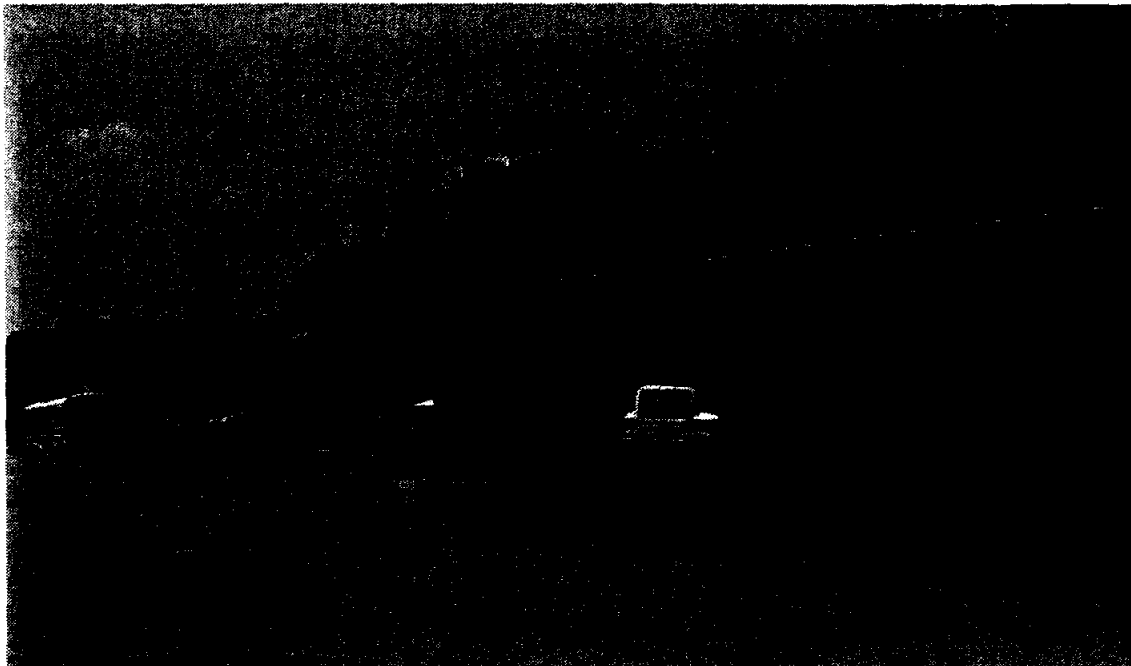
Source of Flooding: Onion Creek

Ground Elevation:

Base Flood Elevation: 474' (mid-site)

Description: Block one-story building, total footprint of 1,088 sq ft, restroom facilities, small enclosure with metal door.

Narrative Assessment: elevated



Low part of facility that has flooded (looking downstream)

Name of Facility/Location: Southeast Service Facility; 5412 Lockhart Hwy (Map 5-4; Point C13)

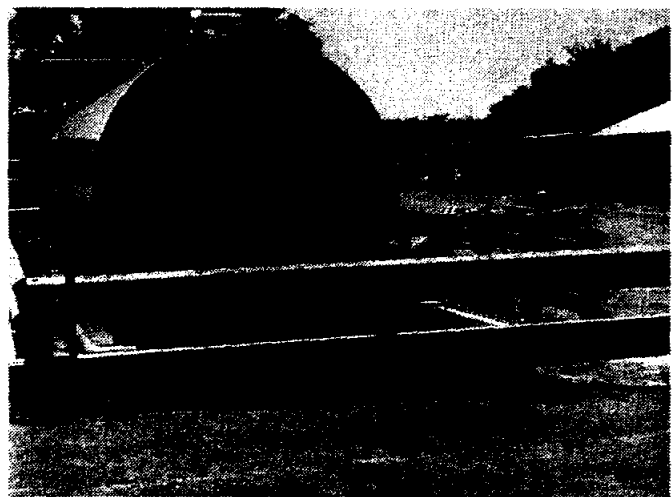
Source of Flooding: Onion Creek

Ground Elevation: 490'

Base Flood Elevation: 491' (mid-site)

Description: Located just downstream of the highway, this facility is adjacent to Onion Creek but fairly high above the stream. A large above-ground fuel tank is located in the middle of the site. The lower portion of the site, occupied by open vehicle sheds, has experienced flooding.

Narrative Assessment: Although a portion of the facility is within the mapped floodplain, the facilities that are subject to flooding are not exposed to significant damage due to the nature of the buildings.



Tank considerably above area that has flooded in past.

Appendix F

Periodic Progress Reports

Annual status reports will be prepared, reviewed by the appropriate County officials, and forwarded to the Texas Division of Management and the Texas Water Development Board. The reports will be noted below and copies will be inserted in this appendix.

Comprehensive review and revisions to the Travis County *Hazard Mitigation Plan* will be considered on a 5-year cycle.

Date of Progress Report	Summary of Progress Accomplished