SHADY SHORES TOWN COUNCIL
SPECIAL CALLED MEETING
JANUARY 27, 2016 7:00 PM
SHADY SHORES COMMUNITY CENTER
101 S. SHADY SHORES ROAD

1. CALL TO ORDER

2. PLEDGE ALLEGIANCE TO THE UNITED STATES FLAG AND THE TEXAS FLAG. (HONOR THE TEXAS FLAG; I PLEDGE ALLEGIANCE TO THEE, TEXAS, ONE STATE UNDER GOD, ONE AND INDIVISIBLE.)

3. ROLL CALL
   Establish a quorum.

4. HAZARD MITIGATION
   Consider and approve a resolution approving the Denton County Hazard Mitigation plan.

   Documents: AGENDA MEMO HAZARD MITIGATION 01.22.2016.PDF, DENTON MUNICIPALITIES HAZMAP RESOLUTION EX (2).PDF, DENTON COUNTY TDEM APA NOTICE .PDF, SHADY SHORES ANNEX HAZARD MITIGATION PLAN.PDF

5. ADJOURN

I, Wendy Withers, Town Secretary of the Town of Shady Shores do hereby certify that the above notice of the Regular Council Meeting was posted on the bulletin board at the Community Center, 101 S. Shady Shores Road, Shady Shores, Texas on _____DAY OF _____, AT _____ P.M.

_____
Wendy Withers, Town Secretary

IN ADDITION, A QUORUM OF PLANNING AND ZONING MEMBERS MAY CHOOSE TO ATTEND THE COUNCIL MEETING POSTED ABOVE. THEREFORE, THIS IS A NOTICE OF A PLANNING AND ZONING MEETING AT THE SAME TIME AND PLACE, WITH THE SAME AGENDA AS THE COUNCIL. IN THE EVENT A QUORUM OF P&Z

MEMBERS IS PRESENT AT THIS MEETING, NO ACTION OF THE MEMBERS WILL BE TAKEN. THIS NOTICE IS POSTED AT THE TIME STATED ABOVE.

EXECUTIVE SESSION: Pursuant to the provisions of Chapter 551, Texas Government Code, Vernon's Texas Codes Annotated, the Town Council may hold a closed meeting.

To: Mayor Pro-Tem Cindy Aughinbaugh and Town Council Members

From: Wendy Withers, Town Secretary

CC: Jim Shepherd, Town Attorney

Date: 01/22/2016

Re: Hazard Mitigation

ACTION REQUESTED: Consider and take action relative to approval of a resolution adopting the January 2016 Hazard Mitigation Plan.

BACKGROUND INFORMATION: Assistant Chief Chad Thiessen will be present information on the January 2016 Hazard Mitigation plan. FEMA has approved the plan and the Council will need to adopt a resolution affirming participation.

The Hazard Mitigation Action Plan (HazMAP) is a plan that identifies mitigation efforts to reduce the loss of life and property by lessening the impact of disasters. The local government engages in hazard mitigation planning to identify natural hazards that impact them, identity strategies and activities to reduce any losses from those hazards, and establish a coordinated approach to implementing the plan, taking advantage of a wide range of resources. Mitigation plans are key to local governments' efforts to break the cycle of disaster damage, reconstruction, and repeated damage.

Developing hazard mitigation plans enables the local government to:

- Increase education and awareness around threats, hazards, and vulnerabilities;
- Build partnerships for risk reduction involving government, organizations, businesses, and the public;
- Identify long-term strategies for risk reduction that are agreed upon by stakeholders and the public;
- Identity cost-effective mitigation actions, focusing resources on the greatest risks and vulnerabilities;

- Align risk reduction with other state, tribal, or community objectives;
- Communicate priorities to potential sources of funding; and
- FEMA requires local governments to develop and adopt hazard mitigation plans as a condition for receiving certain types of non-emergency disaster assistance, including funding for mitigation projects which includes:
    - Public Assistance (Categories C-G)
    - Fire Management Assistance Grants
    - Hazard Mitigation Assistance (HMA) program that includes the Hazard Mitigation Grant Program (HMPG), Pre- Disaster Mitigation (PDM) Program, and Flood Mitigation (FMA) Program

Ultimately, hazard mitigation planning enables action to reduce loss of life and property, lessening the impact of disasters.

This agenda item was tabled at the January 11, 2016 Town Council meeting in order to gain more clarification. Town Attorney Jim Shepherd; Town Secretary Wendy Withers and Councilmembers Paula Woolworth and Tom Newell met with representatives from Denton County Emergency Management. The Hazard Mitigation Plan is not a binding document and should be approved at this time. The document can be amended in 2020.

RECOMMENDATION: It has been proposed that the Council approve the Resolution approving the plan so that Shady Shores may be included in the Hazard Mitigation Plan, and a redline copy with our proposed changes will be submitted with the resolution for future revisions.

TOWN OF SHADY SHORES
SHADY SHORES, TEXAS
RESOLUTION NO._____

A RESOLUTION OF THE TOWN OF SHADY SHORES ADOPTING THE DENTON COUNTY HAZARD MITIGATION ACTION PLAN, JANUARY 2016

WHEREAS the **Shady Shores Town Council** recognizes the threat that natural hazards pose to people and property within Denton County; and

WHEREAS the County of Denton has prepared a multi-hazard mitigation plan, hereby known as Denton County Hazard Mitigation Action Plan, January 2016 in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS Denton County Hazard Mitigation Action Plan, January 2016 identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the **Town of Shady Shores** from the impacts of future hazards and disasters; and

WHEREAS adoption by **Town of Shady Shores** demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Denton County Hazard Mitigation Action Plan, January 2016.

NOW THEREFORE, BE IT RESOLVED BY THE **TOWN OF SHADY SHORES,** TEXAS, THAT:

Section 1. The Town of Shady Shores adopts the Denton County Hazard Mitigation Action Plan, January 2016.

ADOPTED by a vote of__in favor and____against, and___abstaining,
this_____day of_____,_____.

By: _____ Cindy Aughinbaugh, Mayor Pro-Tem

ATTEST:

By: _____ Wendy Withers, Town Secretary

APPROVED AS TO FORM:

By: _____ Jim Shepherd, Town Attorney

TEXAS DEPARTMENT OF PUBLIC SAFETY

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January 4, 2016

The Honorable Mary Horn
Denton County Judge
110 West Hickory Street
2nd Floor
Denton, TX 76201-4168

RE: Approvable Pending Adoption of the County of Denton Local Mitigation Plan

Dear Judge Horn,

Congratulations! FEMA has concluded the review of the Denton County, Texas, local mitigation action plan, and the plan is found to be approvable pending adoption. In order for this plan to receive final FEMA approval, the jurisdiction(s) must adopt this plan and submit the complete adoption package to the state within 90 days. The plan update timeline will begin on the date of the FEMA approval letter. Please mail us the complete adoption package in the form of a CD containing the following:

- The final plan formatted as a single document
    - Plan must be dated to match the date of the first adoption
    - Remove track changes, strikethroughs and highlights
- All signed resolutions as a separate single document

The previous review tool may contain recommendations to be applied to your next update. DO NOT make any further changes to your plan until it has been approved.

The following participating governments are included in **Attachment A**.

If you have any questions concerning this procedure, please do not hesitate to contact me at Mitchell.Osburn@dps.texas.gov or 512-337-0043. We commend you for your commitment to mitigation.

Respectfully,

Mitchell A. Osburn
Mitigation Plans Administrator
Texas Division of Emergency Management
Texas Homeland Security
Texas Department of Public Safety

Enclosures: Attachment A

Attachment A

Denton County, Texas
Multi-Jurisdictional
Hazard Mitigation Plan Participants

Below is the list of participating governments included in the December 1, 2015 review of the referenced Hazard Mitigation plan:

1. Denton County
2. Town of Argyle
3. City of Aubrey
4. City of Corinth
5. Town of Cross Roads
6. City of Denton
7. Town of Double Oak
8. Town of Flower Mound
9. Town of Hickory Creek
10. City of Highland Village
11. City of Justin
12. City of Krugerville
13. City of Krum
14. City of Lake Dallas
15. City of Lewisville
16. Town of Little Elm
17. City of Pilot Point
18. Town of Ponder
19. City of Roanoke
20. City of Sanger
21. Town of Shady Shores
22. City of The Colony

MO/kg

Annex U: Town of Shady Shores

1. Introduction

This annex was prepared in 2014 as part of an update to the Denton County Multi-Jurisdictional Hazard Mitigation Action Plan. The Town of Shady Shores participated in the Countywide Denton County HazMAP Working Group. This is a new hazard mitigation plan and the first to be submitted to FEMA for The Town of Shady Shores. In addition to the countywide hazards and strategies discussed in the previous section, this annex serves as a complete hazard mitigation planning tool for The Town of Shady Shores. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex is explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While The Town of Shady Shores has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped Shady Shores officials to recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. Denton County's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and the local newspaper.

In accordance with Part 201.6(c)(5) of the Disaster Mitigation Act of 2000 (DMA 2000), Denton County developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten Denton County and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data were gathered through numerous sources. The table below outlines the sources of data for the plan:

Source	Data
Town and County Appraisal Data 2012	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences
National Climatic Data Center (NCDC)	Hazard occurrences

Source	Data
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Urban Interface
National Inventory of Dams	Dam information
Lake Cities Municipal Water Utility	Demographics
Denton County HazMAP 2010	Ray Roberts Dam Assessment
Lake Dallas and Denton ISD	Flooding and Shelter data
Local Incidents Statistics	Heat and Cold related Injuries

Planning Committee

This Hazard Mitigation Action Plan was developed by the Lake Cites Hazard Mitigation Planning Team, with support of the North Central Texas Council of Governments. The efforts of the Planning Committee were led by the Lake Cities Emergency Management Coordinator.

The Planning Committee was assembled in Shady Shores with representatives from all jurisdictions including mayors, police chiefs, fire chiefs, and the general public. Denton County acted as the plan development consultant providing hazard mitigation planning services. The table below provides a list of the primary entity representative for each jurisdiction on the planning team.

Hazard Mitigation Team – Primary Representatives

Representing	Representative/ Position	Role
Fire Department	Deputy Fire Chief/ Emergency Management Coordinator	Deputy Chief
Planning and Development	Director	Department Chief/SME
Office Of Emergency	Assistant Emergency Management	Planning Coordinator/SME
Police Department	Assistant Chief	Coordinator

Denton County served as the coordinator and lead agency for all jurisdictions, including the unincorporated areas of Denton County, by accomplishing the following activities through the planning process:

1. Assigned the County's Emergency Management Coordinator to provide technical assistance and necessary data to the Planning Committee.
2. Scheduled, coordinated, and facilitated community meetings with the assistance of the Planning Committee.
3. Provided any necessary materials, handouts, etc. for public planning meetings.
4. Worked with the Planning Committee to collect and analyze data and develop goals and implementation strategies.
5. Prepared, based on community input and Planning Committee direction, the first draft of the plan and provided technical writing assistance for review, editing and formatting.

6. Coordinated with the stakeholders within the cities and the unincorporated areas of Denton County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

1. Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County Planning Committee.
2. Attended regular meetings of the planning team as coordinated by Denton County.
3. Assisted Denton County staff with identifying hazards and estimating potential losses from future hazard events.
4. Assisted Denton County in developing and prioritizing mitigation actions to address the identified risks.
5. Assisted Denton County in coordinating public meetings to develop the plan.
6. Identified the community resources available to support the planning effort.
7. Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.
8. Submitted the proposed plan to all appropriate departments for review and comment and worked with Denton County to incorporate the resulting comments into the proposed plan.

External stakeholders emailed and involved in reviewing the Denton County Hazard Mitigation Action Plan:

Representing	Position	Role
Denton ISD	Operations Director	Review of plan
Lake Dallas Municipal Water Authority	Director	Review of plan
Denton County Emergency Services	Emergency Management Coordinator	Review of plan
NCTCOG	Preparedness	Review of plan
Lake Dallas ISD	Deputy Superintendent	Review of plan

Subsequent to the State of Texas and FEMA approval of the plan, each organization above is committed to accomplishing the following activities:

1. Appoint members to a Coordinating Committee to monitor and work toward plan implementation.
2. Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
3. Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the Planning Committee met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were held by Denton County or the Lake Cities and included all jurisdiction's participation:

- County HazMAP Kickoff Meeting – June 25, 2014
- Shady Shores HazMAP Hazard Mitigation Team Meeting – July 3, 2014
- Shady Shores HazMAP Hazard Mitigation Team Meeting – July 10, 2014
- Denton County Workshop Meeting –July 29, 2014
- Shady Shores HazMAP Hazard Team Meeting – August 12, 2014
- Denton County Workshop Meeting –September 25, 2014
- Shady Shores HazMAP Discussion/Update – October 10, 2014

****Please see Appendix A for all planning documentation****

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The Planning Committee provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on July 24, 2014and advertised in the Denton Journal inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to comment.
- A second public meeting was held on October 8, 2014. An advertisement was posted in the Denton Journal inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments received from the citizens, non-profits, businesses, academia, or interested parties. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.

This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The Hazard Mitigation Planning Team (HMPT) for The Town of Shady Shores identified several natural hazards and man-made hazards that could affect the Town. The HMPT decided to focus on the natural hazards identified in Section 5 of this update. This was done after reviewing the 2010 HazMAP, the Denton County Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked by each jurisdiction using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for The Town of Shady Shores and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Denton County jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Denton County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Denton County based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1)*. Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Denton County, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.1*. A table breaking down the value of each category is below.

Assigned Weighing Factor	PRI Category	Degree of Risk		
		Level	Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3
35%	Life Impact	Minor	Very few injuries, if at all none	0
		Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.1 Priority Risk Index for the Town of Shady Shores

Hazard	Category/Degree of Risk				
	Probability Index Value	Life Impact Index Value	Property Impact Index Value	Spatial Extent Index Value	PRI Value
Dam Failure	0	1	0	1	**.65**
Drought	3	0	0	3	**1.2**
Earthquake	0	0	0	0	**0**
Expansive Soils	1	0	0	0	**0.3**
Extreme Heat	3	2	1	3	**2.15**
Flooding	1	1	1	1	**1**
Hail	3	1	1	2	**1.7**
High Winds	3	1	1	3	**1.8**
Lightning	3	1	0	2	**1.45**
Tornado	2	2	3	1	**2.15**
Wildfire	1	0	1	1	**0.65**
Winter Storms	3	1	1	3	**1.8**

The conclusions drawn from the hazard profiling process for The Town of Shady Shores jurisdiction, resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.2)*. For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in Shady Shores.

Table 3.2 Hazard Rankings

High Risk (PRI 2 - 3)	Tornado Extreme Heat
Moderate Risk (PRI 1.05 -1.9)	Drought Winter Storm Hail Lightning High Winds
Low Risk (PRI 0.50 – 1)	Flooding Wildfire Dam Failure
Negligible to No Risk (PRI 0 – 0.49)	Expansive Soil Earthquake

Vulnerability Narratives

This annex focuses on specific areas of vulnerability Shady Shores faces with each hazard. Any natural hazards identified that were rated of negligible to no risk are included; therefore all hazards identified earlier in the plan are addressed in this annex.

Dam Failure

According to the town of Shady Shores, all populations and properties are have the potential to be affected by dam failure.

Earthquake

According to the town of Shady Shores, all populations and properties are have the potential to be affected by earthquakes.

Expansive Soils

The entire Town of Shady Shores is equally exposed to expansive soils. However, the effects of expansive soils are minimal and due to its limited nature, it will not be discussed on in this plan. The risk potential of this hazard will however be re-evaluated as needed.

Extreme Heat

Extreme heat is a regional event that will impact the entire Town. Extreme heat occurs throughout the summer season but its severity may differ from one day to the next.

Extreme heat events have an impact on the entire Town of Shady Shores when they strike. In the humid subtropical climate of North Texas, the summer season frequently produces days of extremely high heat index that can be a danger to the community. The greatest risk associated with these events is illness and/or death. Common illnesses related to extreme heat are heat cramps, heat exhaustion, and heat stroke. Excessive heat is a threat to the entire population. However, a few distinct groups are at an elevated risk of experiencing health problems caused by extreme heat. These groups include those who are elderly, very young, poor, and those who have physical challenges, mental impairments and those prescribed certain medications. Sporting, musical, social and other types of outdoor events cause the most exposure to excessive heat during the summer time. The heat can also negatively impact attendance and revenue of these types of events. Every year we have medical emergencies related to excessive heat.

Flooding

Flooding can occur in any location that does not allow for positive drainage of storm water. The highest risk of significant flooding in Shady Shores occurs in areas that are located within the floodplain of the various streams within the Town. Floodplain areas are marked on FEMA's Flood Insurance Rate Maps (FIRMs) to identify areas that are subject to flooding from the 100-year and 500-year flood events. Residential and commercial properties along with roads are considered to be at risk of flooding if they are located within the 100-year or 500-year floodplains. Specifically, the Shady Shores Bridge and various creeks/tributaries running to Lake Lewisville are impacted by seasonal flooding requiring Town services.

Hail
Due to the rapidly changing climate in Texas, large-scale damaging hailstorms are especially prevalent and the entire Town of Shady Shores is at risk. The majority of the homes are constructed of brick and wood siding. There are a number of homes that are older and are constructed of lightweight materials making them are more vulnerable to hail. Hail is an event that occurs multiple times per year causing roof and vehicular damage.

High Winds
High winds do not have a specific geographic location in which they are probable to strike and can occur suddenly and without warning. Therefore, it must be assumed that the entire Town of Shady Shores is at risk of being impacted by this hazard. Above ground, electrical utilities are often damaged high winds and trees falling on them possibly causing fires and restricting access. Often, emergency services respond to reports of damage in residential and commercial structures.

Lightning
The entire Town of Shady Shores is vulnerable to thunderstorms and lightning. Overall, lightning is the most constant and widespread threat to people and property during the thunderstorm season. Every year the Town sustains residential damage from lightening often causing fires or the need for emergency services.

Tornado
Tornadoes do not have a specific geographic location in which they are probable to strike, and have the ability to occur with little warning and no predictable pattern. Therefore, it must be assumed that the entire Town of Shady Shores is at risk of being impacted by these hazards. Mobile home type structures are more vulnerable to tornados, which offer little to limited protection. There is a hospital, nursing home and assisted living facilities in the Town.

Shady Shores is geographically located in a part of the United States that has been historically subject to frequent tornado activity. This portion of the country is commonly referred to as "Tornado Alley". While Shady Shores has not historically been impacted by a large number of tornadoes, the frequency of tornadoes in the region indicates that future occurrences of destructive tornadoes in Shady Shores are highly likely. Therefore, it is important to have an understanding of the potential damages that could be caused by these hazard events.

Wildland Fire
Wildland fires in The Town of Shady Shores are a low risk due to urbanization and the well-managed and readily available resources for response. The Town's fire department has mutual aid agreements in place to respond to fires, and during times of drought, burn bans, and high fire threat, automatic mutual aid between the cities is enacted.

Winter Storms
The entire Town of Shady Shores is at risk of being impacted by winter storms and can have a significant impact on both individual citizens as well as commerce. In addition, winter storms could impact the first responder response to emergencies. With the potential for freezing precipitation, icing of roadways and bridges are of an utmost concern. They will be given priority for surface cleaning and deicing especially bridges located over designated waterways. Freezing precipitation could have an impact on trees and above ground electrical utilities. They are often damaged by ice accumulation on the trees falling on the utility lines causing fires and restricting access.

Identification of Assets and Vulnerability Assessment

An inventory of The Town of Shady Shores geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Shady Shores as delineated by U.S. Census 2010 block data provided by NCTCOG.
- **Improved property**: Includes all developed properties according to local parcel data from the Denton County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, Denton County Emergency Management Coordinator, and participating jurisdictions.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, Denton County Emergency Management Coordinator, and participating jurisdictions. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, Denton County Emergency Management Coordinator, and participating jurisdictions.

The following tables provide a breakdown by municipal jurisdiction of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the U.S. Census 2010 block data provided by NCTCOG, the total population of Denton County in 2010 was 2,620people, with 935 households. The count breakdown by municipal jurisdiction is provided in *Table 3.3.*

Table 3.3. Town of Shady Shores Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total	Population Density (Sq. Mile)	Household	% of County Total	Household Density (Sq. Mile)
Shady Shores	2,620	.37	856	935	.36	305

Source: 2013 Census Data
** Denton County unincorporated areas*
***Includes totals from incorporated jurisdictions not participating in the plan*

Table 3.4 summarizes population counts and population chance (absolute and percent predications for Shady Shores).

Table 3.4 Population Predictions

Jurisdiction	Population 2010 Census	Population 2013 Estimate	Population 2014 Estimate	Absolute Change 2013-2014	Percent (%) Change 2013-2014
Shady Shores	2,612	2,620	2,630	10	.4

Source: 2010 Census Data

Property

There are an estimated 7477 parcels in the Town of Shady Shores, with an estimated 1,122,512.821 in total assessed value of, *Table 3.5* lists the total number and percentage of parcels by jurisdiction.

Table 3.5 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
Town of Shady Shores	1523	0.32%	161,519,623

Source: County Data and Regional Hazard Assessment Tool

Emergency Facilities

There are 0 identified emergency facilities in The Town of Shady Shores, including 2 fire stations, 1 police station, and 1 hospital. *Table 3.6* presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.6 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
Town of Shady Shores	0	0	0

Source: County Data and Regional Hazard Assessment Tool

Critical Facilities

There are 5 critical facilities, which are considered non-emergency in The Town of Shady Shores. The critical facilities include 3 schools no historical property sites (*Table 3.7*). Geographic coordinates (i.e., latitude and longitude) were used to determine the location of each facility.

Table 3.7 Critical Facilities

Jurisdiction	Schools	Historical Property
Town of Shady Shores	3	0

Source: Local jurisdictions

Critical Infrastructure

There is 1 identified critical infrastructure facility in The Town of Shady Shores, including 1 airports, no natural gas facilities, no water treatment facilities, no wastewater treatment facilities, no dam, and no railway/highway bridges (*Table 3.8*).

Table 3.8 Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
Town of Shady Shores	1	0	0	0	0	0

Source: Local jurisdictions

Methodology

Based on the type of information available for analysis, The Town of Shady Shores' vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Climatic Data Center, the Texas Forest Service, and NCTCOG Regional Hazard Assessment Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for The Town of Shady Shores, two were analyzed using a Geographic Information System-based analysis, eight using a statistical risk assessment methodology, and the remaining four hazards using a qualitative analysis. The qualitative analysis was limited to 4 of the hazards due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these events is unattainable at the present time, but will be an objective in the five-year planning cycle update. *Table 3.9* summarizes the methodology used for each hazard.

Table 3.9 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			X
Drought	X		
Earthquake			X
Expansive Soils			X
Extreme Heat		X	
Flooding	X		
Hail	X		
High Winds		X	
Lightning		X	
Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerability Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.1

Drought	
Population	According to National Climatic Data Center (NCDC) no recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to National Climatic Data Center (NCDC), a loss of zero per year can be expected in property loss due to damage from drought. Available historical data indicates that the expected losses from drought correspond to crop losses in the amount of $0 per year, mostly experienced in water shortages and crop losses on agricultural lands.
Emergency Facilities	Because of the nature of this hazard, there are no losses or direct impacts expected on emergency facilities due to drought events.
Critical Facilities	Because of the nature of this hazard, there are no losses or direct impacts expected on critical facilities due to drought events.
Critical Infrastructure	Because of the nature of this hazard, there are no losses or direct impacts expected on critical infrastructure due to drought events.

Summary Table 3.2

Extreme Heat	
Population	According to National Climatic Data Center (NCDC), there were no injuries or fatalities recorded due to extreme heat. The Town of Shady Shores and its population is exposed to this hazard.
Improved Property	According to National Climatic Data Center (NCDC), there is no impact of extreme heat to developed areas and the improved property in The Town of Shady Shores is not exposed to this hazard.
Emergency Facilities	According to National Climatic Data Center (NCDC), there is no impact of extreme heat to buildings and the emergency facilities in The Town of Shady Shores are not exposed to this hazard.
Critical Facilities	According to National Climatic Data Center (NCDC), there is no impact of extreme heat to buildings, and the critical facilities in The Town of Shady Shores are not exposed to this hazard.
Critical Infrastructure	According to National Climatic Data Center (NCDC there is no impact of extreme heat to critical infrastructure, and exposure to this hazard is considered minimal in The Town of Shady Shores

Summary Table 3.3

Flooding	
Population	Flooding produces an expected annualized count of zero fatalities and injuries per year. 251 or approximately 21.23% of the residential parcels in Shady Shores are located within the 100-year floodplain.
Improved Property	According to the NCDC $0 per year can be expected in property loss due to flooding from the 100-year storm event.
Emergency Facilities	There are no emergency facilities at imminent risk from the 100-year storm event.
Critical Facilities	There are no critical facilities located within the 100-year storm event.
Critical Infrastructure	There are critical infrastructure at risk from the 100-year storm event. Many of these structures are designed to traverse or be located within the floodplain due to unavoidable circumstances. Additionally, treated wastewater is typically discharged towards streams, which makes portions of wastewater treatment facilities likely to be located within the floodplain.

Summary Table 3.4

Hail	
Population	According to National Climatic Data Center (NCDC), no recorded injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from hailstorm events.
Improved Property	According to National Climatic Data Center (NCDC), no loss per year can be expected in property loss due to hailstorm damage, and all improved property is exposed to this hazard. Although some crops are susceptible to hail hazards, available historical data for The Town of Shady Shores indicates that there are no expected crop losses from this event.
Emergency Facilities	Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in The Town of Shady Shores are exposed to this hazard.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in The Town of Shady Shores are exposed to this hazard.
Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in The Town of Shady Shores are exposed to this hazard.

Summary Table 3.5

High Wind	
Population	According to National Climatic Data Center (NCDC), there are no recorded injuries or fatalities from high wind events. All the population of The Town of Shady Shores is exposed to this hazard.
Improved Property	According to National Climatic Data Center (NCDC), no loss per year in property losses is expected from high wind events in The Town of Shady Shores. No crop losses resulted from this hazard in The Town of Shady Shores.
Emergency Facilities	Because of the expected geographical widespread nature of high winds, all emergency facilities in The Town of Shady Shores are exposed to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in The Town of Shady Shores are exposed to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in The Town of Shady Shores are exposed to this hazard.

Summary Table 3.6

Lightning	
Population	According to National Climatic Data Center (NCDC), lightning events can be expected to cause no deaths and no injuries in The Town of Shady Shores. All the population of The Town of Shady Shores is exposed to this hazard.
Improved Property	According to National Climatic Data Center (NCDC), there have been no recorded property or crop losses resulting from lightning in The Town of Shady Shores.
Emergency Facilities	Because of the expected geographical widespread nature of lightning, all emergency facilities in The Town of Shady Shores are exposed to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in The Town of Shady Shores are exposed to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in The Town of Shady Shores are exposed to this hazard.

Summary Table 3.7

Tornado	
Population	According to National Climatic Data Center (NCDC), there have been no recorded injuries or fatalities from tornado events in The Town of Shady Shores. All the population of The Town of Shady Shores is exposed and vulnerable to this hazard.
Improved Property	According to National Climatic Data Center (NCDC), an average loss of $0 per year in property losses is expected to result from tornado events. No crop losses are expected from this hazard in The Town of Shady Shores.
Emergency Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all emergency facilities in The Town of Shady Shores are exposed to this hazard.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in The Town of Shady Shores are exposed to this hazard.
Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in The Town of Shady Shores are exposed to this hazard.

Summary Table 3.8

Wildfire	
Population	Based on geographical data, approximately 98% of Shady Shores is vulnerable to wildfires, with Shady Shores and the unincorporated areas contributing with the majority of the exposed population.
Improved Property	Based on geographical data, a minimal loss of value per year can be expected in property loss due to wildfires..
Emergency Facilities	Based on geographic information there are no fire stations at risk from wildfire events.
Critical Facilities	Based on geographic information there are no schools at risk from wildfire events.
Critical Infrastructure	Critical infrastructure in Shady Shores are at risk from wildfire events.

Summary Table 3.9

Winter Storm	
Population	According to National Climatic Data Center (NCDC), there have been no recorded injuries or fatalities from winter storms. All the population of The Town of Shady Shores is exposed to this hazard.
Improved Property	According to National Climatic Data Center (NCDC), an average loss of $580k per year in property losses is expected to result from winter storm events. No crop losses are expected from this hazard in Denton County.
Emergency Facilities	Because of the expected geographical widespread nature of winter storms, all emergency facilities in The Town of Shady Shores are exposed to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in The Town of Shady Shores are exposed to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in The Town of Shady Shores are exposed to this hazard.

4. Capability Assessment

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities																
Jurisdiction	Building Code	Zoning Ordinance	Subdivision Ordinance or regulation	Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)	Growth management ordinances (also called "smart Growth" or anti-sprawl programs)	Site Plan review requirements	General or comprehensive plan	A capital improvements plan	An economic development plan	An emergency response plan	A post-disaster recovery plan	A post-disaster recovery ordinance	Real estate disclosure requirements	Other	% Yes per Jurisdiction
Shady Shores	Y	Y	Y	N	N	N	N	N	N	Y	N	N	N		**31%**
Average % Yes Capabilities – 31%																
Y- Yes N- No																

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency manager	Grant writers	% Yes per Jurisdiction
Shady Shores	Y	Y	N	N	N	Y	N	N	Y	N	**40%**
Average % Yes Capabilities – 40%											
Y- Yes N- No											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new developments/homes	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas	Other	% Yes per Jurisdiction
Shady Shores	N	Y	Y	N	Y	N	N	N	N		**30%**

To quantify Shady Shores' legal and regulatory capabilities, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category; limited (0-30%), moderate (31-70%), and strong (70-100%). Questionnaire responses indicated that on average, Shady Shores has 31% of legal and regulatory capabilities, 40%of administrative and technical capabilities of, and 30% fiscal capabilities.

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
Town of Shady Shores	Town Manager	The town council, including the Mayor, Mayor Pro-Tem, and Council members, along with the town manager, address the budget; pass laws, regulations, and codes; hire staff; approve plans; and determine the direction of the town overall. As the governing body, the ability to implement and approve mitigation actions, expand existing mitigation actions, and integrate mitigation into existing policies and programs is a function of this group.

Expansion or improvement of current hazard mitigation vehicles can be best determined through assessment and analysis of current projects and actions. Actions that can expand and improve existing authorities, plans, policies, and resources for mitigation include: budgeting for projects, passing mitigation policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

The risk assessment and capabilities assessment serves as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, Shady Shores considered not only its level of hazard risk but also the existing capability to minimize or eliminate that risk.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, the Shady Shores Hazard Mitigation Planning Team developed a mitigation strategy for the Plan update utilizing the results of both assessments as well as reviewing the goals and objectives that were included in the 2009 HazMAP. These strategies were similar to the goals identified in Section 6 by the Denton County Hazard Mitigation Action Plan Working Group.

Goal 1 Reduce or eliminate loss of life and property damage resulting from severe weather events.

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate Early Warning Systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.

Goal 2 Protect existing and new properties from the effects of all natural hazards.

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 Reduce losses and repetitive damages for chronic hazard events while promoting insurance coverage for catastrophic hazards.

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones within Denton County.
Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 Develop a Mitigation Public Education Campaign to educate the public on what actions they can take to prevent/ mitigate damage to homes and property resulting from all natural hazards.

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.
Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

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6. Action Items

Below is a list of the new actions items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLE+E criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLE+E analysis economic considerations were weighed for each action. The action items that were said to be ongoing or deferred in the previous HazMAP were included as action items in the Updated Plan. The new actions items are as follows:

Shady Shores Action Item	Develop and Implement Mitigation Public Education and Awareness Program with resources to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Extreme Heat, Drought, Winter Storm, Hail, Lightning, High Winds, Flooding, Wildfires, Earthquake, Expansive Soils, Dam Failure
Goal/Objective	4-A,B
Priority	High
Estimated Cost	$1500
Potential Funding Sources	Fire Department
Potential Matching Sources	None
Lead Department	Fire Department
Implementation Schedule	9-12 months
Effect on Old Buildings	none
Effect on New Buildings	none
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	Hazard public education and awareness materials will be distributed through social media and public outreach. This will provide a community awareness campaign concerning the risks and consequences of natural hazards. Educate the public on the hazards, loss of life and property may be mitigated as they take steps to secure their property and respond to warnings.

Shady Shores Action Item	Develop and implement a strategy to enforce water conservation regulations
Hazard(s) Addressed	Extreme Heat, Drought
Goal/Objective	2-A
Priority	High
Estimated Cost	None
Potential Funding Sources	None
Potential Matching Sources	None
Lead Department	Public Works
Implementation Schedule	12-18 months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Low cost effective means of preserving water.
Discussion	The Town of Shady Shores will develop, implement and enforce a Water Conservation Plan, Drought Contingency, and Water Emergency Response plan. The plans will develop methods to help mitigate the negative impacts caused by periods of drought.

Shady Shores Action Item	Enhance Landscaping and Design Measures Ordinance
Hazard(s) Addressed	Drought
Goal/Objective	2-A,D
Priority	High
Estimated Cost	None
Potential Funding Sources	None
Potential Matching Sources	None
Lead Department	Planning, Public Works
Implementation Schedule	9 to 12 months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Low cost effective means of preserving water.
Discussion	This action will incentivize drought-tolerant landscape design by incorporating incentives into existing landscaping ordinances for developers who implement water conservation measures such as xeriscaping, permeable driveways and surfaces, and other techniques into developments.

Shady Shores Action Item	Develop and Implement a town flood protection ordinance.
Hazard(s) Addressed	Flooding
Goal/Objective	2-E, 3-B
Priority	Medium
Estimated Cost	N/A
Potential Funding Sources	N/A
Potential Matching Sources	N/A
Lead Department	Development Services / Engineering Department
Implementation Schedule	9 to 12 months
Effect on Old Buildings	N/A
Effect on New Buildings	N/A
Cost Effectiveness	Overtime this will reduce the flooding cost to the town.
Discussion	The town will develop ordinances that regulate development in the floodplain. The town will factor items into its annual budget as necessary to reduce vulnerability to flooding.

Shady Shores Action Item	Retrofit existing buildings to meet the requirements of the International Building Code
Hazard(s) Addressed	Tornado, Extreme Heat, Drought, Winter Storm, Hail, Lightning, High Winds, Flooding, Wildfires, Earthquake, Expansive Soils
Goal/Objective	2-B,C,D
Priority	High
Estimated Cost	Staff time
Potential Funding Sources	General Funds
Potential Matching Sources	Local funds
Lead Department	Planning and zoning
Implementation Schedule	9 to 12 months
Effect on Old Buildings	New building codes would allow existing buildings to be retrofitted to mitigate against structure-impacting hazards.
Effect on New Buildings	None
Cost Effectiveness	Benefits outweigh costs
Discussion	The International Building Code provides the framework for constructing and retrofitting structures that will most effectively withstand natural hazards. As the IBC is periodically updated, the town will update and enforce the code to require all structures within the town limits be retrofitted to these standards.

Shady Shores Action Item	Adopt and Implement International Building Code for New Buildings
Hazard(s) Addressed	Tornado, Extreme Heat, Drought, Winter Storm, Hail, Lightning, High Winds, Flooding, Wildfires, Earthquake, Expansive Soils
Goal/Objective	2-B,C,D
Priority	High
Estimated Cost	Staff time
Potential Funding Sources	General Funds
Potential Matching Sources	Local funds
Lead Department	Planning and zoning
Implementation Schedule	9 to 12 months
Effect on Old Buildings	None
Effect on New Buildings	New building codes would allow for new buildings to be constructed to mitigate against structure-impacting
Cost Effectiveness	Low- Benefits outweigh costs
Discussion	The International Building Code provides the framework for constructing structures that will most effectively withstand natural hazards such as hail-resistant roofing and windows; wind and impact resistant doors, windows, and roofing ; wildfire breaks and fire resistant building materials; stricter foundation standards for earthquake and expansive soils; increased elevation (BFE) standards for flooding; higher grade insulation to mitigate extreme heat and winter weather; and resource-efficient (low-flow) plumbing for drought. Also, additional codes for dry-proofing and lightning protection (rods, grounding) for public buildings to mitigate flood and lightning. As the IBC is periodically updated, the town will update and enforce the code to require all structures within the town limits be built to these standards.

Shady Shores Action Item	Develop and Implement a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfires
Goal/Objective	2,-A, 3-C,4-A,B
Priority	Medium
Estimated Cost	$25,000
Potential Funding Sources	HMPG,PDM, General Fund
Potential Matching Sources	Local funds, donations, in-kind, grants
Lead Department	Fire Department, County Emergency Services
Implementation Schedule	18-36 Months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	CWPPs show town officials where to double their efforts in preventing wildfire, saving time and money. Also, work to establish urban wildfire interface around lake development properties.
Discussion	Review and develop ordnances to enhance the town's ability to enforce WUI mitigation plan.

Shady Shores Action Item	Community Safe Room
Hazard(s) Addressed	Tornados, High Wind
Goal/Objective	1-C
Priority	High
Estimated Cost	$700,000
Potential Funding Sources	HMPG,PDM, General Fund
Potential Matching Sources	Local funds, donations, in-kind, grants
Lead Department	EDC, Planning
Implementation Schedule	18-36 Months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Community safe room potentially decrease personal injury and death during severe weather, tornados or high wind events and other hazards.
Discussion	Shady Shores plans to seek grant funding for the construction of a Safe Room in the town. The town plans to add the Safe Room to the activity center. Town officials believe that this structure will provide an additional level of protection that will effectively mitigate losses of life that could be caused by tornadoes.

Shady Shores Action Item	Build an Emergency Operations Center
Hazard(s) Addressed	Tornados, Winter Storms, Hail, Lightning, Wildfires, Flooding
Goal/Objective	1-A
Priority	Medium
Estimated Cost	TBD
Potential Funding Sources	HMPG,PDM, General Fund
Potential Matching Sources	Local funds, grants
Lead Department	Fire Department, Develop Services
Implementation Schedule	18-36 Months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	High
Discussion	The EOC will be the main coordination point for all hazard and special events. As the town grows, it will require a central location do coordinate emergencies.

Shady Shores Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	Protect existing and new properties from the effects of all natural hazards.
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS
Implementation Schedule	12-18 Months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.

Shady Shores Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	4-B
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	6 months – 18 months
Effect on Old Buildings	n/a
Effect on New Buildings	n/a
Cost Effectiveness	Low
Discussion	Data deficiency identified in Chapter 3. Project outputs will guide development of future earthquake mitigation projects.

Shady Shores Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	4-A
Priority	Low
Estimated Cost	TBD
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	12-18 months
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Expansive soil data deficiency identified in Chapter 3. Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

Shady Shores Action Item	Elevate Shady Shores Rd to reduce future loss to due to flooding.
Hazard(s) Addressed	Flooding
Goal/Objective	1-C, 2-A,B,D,E 3-A,C
Priority	High
Estimated Cost	$5 million
Potential Funding Sources	HMPG, General Fund
Potential Matching Sources	Local funds, donations, in-kind, grants
Lead Department	Public Works, EDC, Floodplain Manager
Implementation Schedule	18-24 Months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	High
Discussion	Shady Shores road is a main road located in the Town of Shady Shores that connects to Lake Dallas along Lewisville Lake connecting residents and business. The road continues to flood during severe storms and when the lake rises above conservation pool of 522ft. First Responders and residents are unable to use the road until the water subsides. The goal is to raise the road for access and minimize the cost of future response and recovery.

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National Flood Insurance Program (NFIP) Compliance

Shady Shores is participating in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
481135#	SHADY SHORES, TOWN OF	DENTON COUNTY	3/18/1977	5/11/1982	4/18/2011	5/11/1982	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Compliance

Once the community applies for the NFIP, FEMA arranges for a study of the community to determine base flood elevations and flood risk zones. Consultation with the community occurs at the start of and during the study, and those communities with minimal flood risk are converted to the Regular Program without a study.

FEMA provides the studied community with a Flood Insurance Rate Map delineating base flood elevations and flood risk zones. The community is then given 6 months to adopt base flood elevations in its local zoning and building code ordinances. Once the community adopts more stringent ordinances, FEMA converts the community to the NFIP's Regular Program. FEMA then authorizes the sale of additional flood insurance in the community up to the Regular Program limits. The community must implement and enforce the adopted floodplain management measures. FEMA provides periodic community assistance visits with local officials to provide technical assistance regarding complying with NFIP floodplain management requirements.

The purchase of flood insurance is mandatory as a condition of receipt of federal or federally-related financial assistance for acquisition and/or construction of buildings in SFHAs of any participating community. Those communities notified as flood-prone which do not apply for participation in the NFIP within 1 year of notification are ineligible for federal or federally-related financial assistance for acquisition, construction, or reconstruction of insurable buildings in the SFHA.

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Hunt County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Jurisdiction	Community Floodplain Administrator	NFIP Activity	Activity Description	Enforcement
The Town of Shady Shores	Planning & Zoning Director	Floodplain Mapping, Flood Data Management	Town Ordinance No.256-5-2013 Comprehensive Zoning Ordinance outlines Flood and drainage information. The FIRM shows the Town of Shady Shores' base flood elevations, flood zones and floodplain boundaries.	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval. Failure to comply with Town's flood damage prevention order shall result in fines of $2000 each offense.
		Storm Water Management	Town Ordinance No. 222-2-2010 outlines the use of fencing near drainage easements and waterways. The Town has also implemented Storm Water Management Program for Small Municipal Separate Storm Sewer System (MS4)	
		Outreach Projects Hazard Disclosure Flood Protection Information	Information located on the town website. Town Clean-Up Efforts. Provide flood protection information resources from on the town website	
		Promotion of Flood Insurance, Flood Protection Assistance	Provide open accessibility of FEMA news release disseminating information promoting flood plain insurance via Planning & Zoning Department	
		Floodplain Mgmt Planning	Completing and maintaining FEMA elevation certificates for pre-FIRM and or post-FIRM buildings. Permits are issued through Planning and Zoning. Maintenance and Permits are issued through the Planning and Zoning Department.	
		Flood Warning and Response	Create and maintain coordination of flood warning and response activities with operators of critical facilities Sustain public information outreach by disseminating flood warnings to public	

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In Compliance with requirement § 201.6(c)(4)(i), Shady Shores has developed a plan maintenance process which is described in the following paragraphs. Shady Shores, along with participating jurisdictions are responsible for monitoring implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by Denton County Commissioners Court, and formal adoption of the plan by Town Council by each participating jurisdiction, the actions outlined in the Denton County Hazard Mitigation Plan would be implemented by the county and participating jurisdictions as described throughout this document.

The Denton County Emergency Management Coordinator will be responsible for ensuring the mitigation action items and implementation are monitored, evaluated, and reviewed biannually by emailing all the participating jurisdictions for updates on their individual action items. The progress of the action items will be tracked electronically as "in progress", "deferred" or "completed". This implementation will be included in the Mitigation Strategies for the 5 year update of the plan.

The Denton County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning committee, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, Shady Shores will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning committee will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented below:

Personnel	Activity	Update Schedule
Assistant Emergency Management Coordinator	**Monitoring Plan**: Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
	Update Plan	Once every 5 years

At least once every five years the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, and analyses and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented for approval to the Denton County Commissioner's Court and the respective councils of incorporated cities included in the Denton County plan. Likewise, each participating jurisdiction will undergo the same process for reviewing, revising and updating their respective plans and submitting same for approval by the state, FEMA and each local jurisdiction's governing body. The plan will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms ***(In compliance with 201.6(c)(4)(ii))***
Based on the requirements set forth in § *201.6(c)(4(ii)*, the State of Texas Mitigation Plan, the vulnerability and capabilities assessment for each jurisdiction was carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT will establish a process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into the existing regional and local planning strategies.

Local and regional planning committees currently use comprehensive land use planning, capital improvements planning, and building code ordinances to guide development. The mitigation strategy, goals, objectives and actions outlined in this plan will be integrated into these existing mechanisms as applicable. Those mechanisms include the following:

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
Town of Shady Shores	Town Manager	Budget Meetings	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
	Deputy Fire Chief	Emergency Action Plan updates	Annually	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
	Town Manager	Floodplain ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
	Town Manager	Capital improvement plans	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
		Comprehensive Long Range Plan		
		Strategic Plan		
	Public Works Director	Drought Contingency plans	As needed	Integrate drought actions such as xeriscaping, water restrictions, and public education
		Natural Resource Conservation Plan	Annually	Integrate conservation measures by directing development away from hazard-prone areas identified in HazMAP.

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the Shady Shores Hazard Mitigation Planning Team considers this HazMAP,

including development and maintenance, to be the primary vehicles to ensure implementation of local hazard mitigation actions.

Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Denton County website. The planning committee will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Denton County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

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