TEXAS TECH UNIVERSITY
Multidisciplinary Research in Transportation

TxDOT Wildland Fire Management Training

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Texas Department of Transportation

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www.techmrt.ttu.edu/reports.php

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NOTICE

The United States Government and the State of Texas do not endorse products or manufacturers. Trade or manufacturers' names appear herein solely because they are considered essential to the object of this report.

MODULE 1
INTRODUCTION

Texas Department of Transportation

TXDOT WILDLAND FIRE MANAGEMENT Training

Course No. ??????
ISSUE: ??????

About the Course

OVERVIEW

- 6.0 hours duration
- Primary audience: Directors of operations/maintenance, area engineers, maintenance managers, maintenance supervisors, assistants and crew chiefs

INTRODUCTION

Course Outline

TXDOT WILDLAND FIRE MANAGEMENT TRAINING

Six Learning Modules, approx 1 hour each

1. Introduction
2. Organization and Communication
3. Resources and Equipment
4. Safety
5. Documentation and Data Collection
6. Training Programs

INTRODUCTION

Instructional Materials

TXDOT WILDLAND FIRE MANAGEMENT

- Student Manual
  - Presentation slides
  - Learning exercises (green sheets)
  - Reference pages (white sheets)
  - Review (pink sheets)
- Course Evaluation

Learning Icons

TXDOT WILDLAND FIRE MANAGEMENT TRAINING

...Digging Deeper/Food for Thought

...Video Clip

...Reference Material

...Summary and Review

Instructional Plan

TXDOT WILDLAND FIRE MANAGEMENT TRAINING

- Instructor-led, face-to-face
  - Classroom… presentations, videos
  - Field… fire shelter, hands-on
- Student interaction
- 60 minutes for lunch
- 10-minute breaks following each module

INTRODUCTION

Do's and Don'ts

TXDOT WILDLAND FIRE MANAGEMENT TRAINING

DO's

- Be on time
- Participate in group discussion/exercises
- Ask questions!
- Respond to questions when prompted by Instructor
- Help your co-workers
- Be responsible for your learning

DON'Ts

- Forget to turn off pagers & cell phones or set to vibrate
- Talk among yourselves when the Instructor is talking
- Disrespect others

INTRODUCTION

Learning Objectives

INTRODUCTION

Upon completion of this module, the participant will be able to:

1. Explain TxDOT'S Role in Wildland Fire Management
2. List Best Practices in Handling Wildland Fires

INTRODUCTION

VIDEO 1.1 (02:00) TxDOT Wildland Fire Management

SPEAKER

John A. Barton, P.E.
Deputy Executive Director/
Chief Engineer
Texas Department of Transportation

R 1.1 [1.31]

Key Themes

TXDOT ADMINISTRATION PERSPECTIVE

- Safety
- Careful planning
- Preparation
- Communication
- Service expectations
- Know your responsibilities
- Coordinate efforts
- Work together

Exercise 1.1

Wildland Fire Management Safety

1. Think about and jot down at least three safety considerations specific to TxDOT wildland fire management operations (individual assignment) (2 minutes).
2. Turn to the person to your left and discuss your ideas (2 minutes).

Be prepared to discuss your answers.

INTRODUCTION

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Best Practices for TxDOT on Handling Wildland Fires

TxDOT Wildland Fire Management Training

What We Learned

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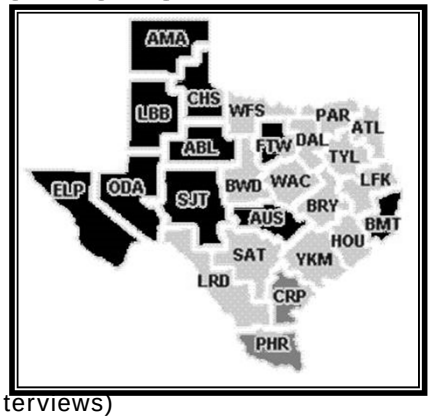
Best Practices for TxDOT on Handling Wildland Fires

TxDOT Interviews

- Districts (10)
  - Abilene
  - Amarillo
  - Austin
  - Beaumont
  - Childress
  - El Paso
  - Fort Worth
  - Lubbock
  - Odessa
  - San Angelo
  - Corpus Christi & Pharr (phone interviews)
- Maintenance Division



INTRODUCTION

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Best Practices for TxDOT on Handling Wildland Fires

Other State Agencies Interviewed

- Department of Public Safety
  - Texas Division of Emergency Management
- Texas A&M Forest Service
  - Asst. Fire Chief, West Region
  - Regional Fire Coordinator, Lubbock
  - Regional Fire Coordinator, Wichita Falls
- Texas Parks & Wildlife

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Local Agencies Interviewed

- Bastrop County
- Garza County and City of Post Emergency Management Coordinator
- King County
- Lubbock City Fire Department
- Potter and Randall County Emergency Management

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National Weather Service Lubbock Office

- Science & Operations Officer
- Senior Forecaster

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TxDOT Interview Questionnaire

- Advance Preparation
- Notification/Request for services to a TxDOT District
- Communication related to an event within TxDOT
- Communication with outside agencies
- TxDOT responsibilities to ensure employee/public safety
- Resource utilization by TxDOT during wildland fires events
- Information from recent wildland fires
- Effectiveness of current training
- Comments on existing resources/guidance

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Best Practices for TxDOT on Handling Wildland Fires

Advance Preparation
Common Responses from TxDOT

- Do not respond until notified by DPS
- Director of Maintenance (DOM)/ Director of Operations (DOO) receives official notice
- DOM/ DOO contacts Maintenance Supervisor
- DOM/DOO notifies TxDOT EMC

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Best Practices for TxDOT on Handling Wildland Fires

Notification/Request for TxDOT Services
Common Responses

- TxDOT does not engage off the ROW until officially directed by DDC.
- Director of Maintenance (DOM) is the official Point of Contact (POC) for the District.
- Equipment typically requested: dozers, motor-graders, fuel trailers, water trailers, and sign trailers.
- Districts typically have 1-6 requests for assistance annually. One District responded to 50 fires in 2011.
- Governor's Emergency Disaster Proclamations reach Districts through Maintenance Division.

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Communication Related to an Event within TxDOT Common Responses from TxDOT

- DDC directs DOM to respond to an event, and the DOM then notifies the Maintenance Supervisor(s).
- Involvement of other TxDOT offices varies by district.
- DOM authorizes resource utilization requests.
- Many districts use Daily Activity Reports (DARs) to collect data on events and use Microsoft SharePoint to log that data.
- Coordination between Districts handled DOM to DOM.
- TxDOT public notification duties include traffic control and updating Highway Condition Report (HCR) Drive Texas.
- Advanced briefing/debriefing differ between Districts.

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Best Practices for TxDOT on Handling Wildland Fires

Communication with Outside Agencies Common Responses from TxDOT

- TxDOT is responsible for notifying counties of wildland fire evacuation routes.
- Districts typically coordinate with DDC, DPS, TA&MFS, local governments, TCEQ, and utility companies during a wildland fire event.
- Interaction with other agencies outside of a wildland fire event is key to effective response during an event.
- There is no standard statewide protocol for interacting with outside agencies during a wildland fire event.

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TxDOT Resource Utilization during Events Common Responses from TxDOT

- Equipment typically used by TxDOT during an event includes: dozers, motor-graders, fuel trailers, water trailers, sign trailers, and traffic control devices.
- Only TxDOT personnel use TxDOT equipment.
- The number of TxDOT personnel deployed during a wildland fires event varies significantly by District and event size, although teams are typically small.

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TxDOT Resource Utilization during Events Common Responses from TxDOT

- Volunteer firefighters who are TxDOT employees may be approved for personal leave during an event.
- The amount of TxDOT fuel given to outside agencies varies by District and fire size.
- In addition to fuel, water is the resource most commonly distributed during an event.
- Districts have various individuals assigned by the DOM responsible for filing for reimbursement. Few districts have filed for and/or received reimbursement.

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TxDOT Responsibilities to Employee/Public Safety Common Responses from TxDOT

- TxDOT employees are not firefighters and should avoid direct contact with wildland fires.
- Division response trailers will carry PPE to district employees during major events.
- TxDOT works with the DPS to ensure public safety by deploying traffic control.
- Detailed local maps are a beneficial resource if spotters are not available.

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Advanced Preparation, Readiness & Training Common Responses from TxDOT

- Districts try to keep equipment pre-loaded and ready to deploy whenever possible.
- Districts often watch weather reports and try to stay aware of TA&MFS notifications.
- Districts typically have no formal staging protocols.

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Existing Resources/Guidance for Wildland Fires Response
Common Responses from TxDOT

- Districts identified the need for detailed statewide guidance for wildland fire response.
- TxDOT Maintenance Operations Manual should also be updated.
- TxDOT requires FEMA IS training. Additional training resources are available through TA&MFS.

Summary and Review

1. TxDOT's chief goal is safety.
2. Maintaining communication and a chain of command during a wildland fire incident is critical.
3. TxDOT employees must understand their role during wildland fire response.

MODULE 2
Organization and Communication

Texas Department of Transportation

TxDOT Wildland Fire Management Training

Course No.

ISSUE:

Learning Objectives

Upon completion of this section, the learner will be able to:

1. Know what resources the state uses in responding to wildland fire incidents.
2. Understand what role TxDOT plays in the response to wildland fire incidents.

Learning Objectives, cont'd

3. List what agencies TxDOT may interact with during a wildland fire response.
4. Locate important state resources on a map.

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Best Practices for TxDOT on Handling Wildland Fires

Texas State Emergency Management (EM)

- Covered in Ch. 418 (Emergency Management) and Ch. 421 (Homeland Security) of Texas Govt. Code
- Guidance for State Emergency Management Plan and Annexes found at http://www.txdps.state.tx.us/dem/downloadableforms.htm#stateplan

- **Agencies Involved in Statewide EM**
- The Governor's Office of Homeland Security
- State Emergency Management Council (SEMC)
- Div. of Emergency Management (TDEM), Texas DPS
- Texas Forest Service (TA&MFS)

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Best Practices for TxDOT
on Handling Wildland Fires

Primary and Secondary State Emergency Functional Responsibilities

State ESF	Function	Primary State Agency	Secondary State Agency
A	Warning	TDEM	DPS
B	Communications	CCG	DIR, GLO, PUC, TCEQ, TDCJ, DPS, TxDOT, DSHS. TDEM, FNARS, TEEX, TA&MFS, TXMF, TPWD
C	Mass Care	TDEM	DSHS, HHSC, 2-1-1 TIRN, TAHC, TDA, TDCJ, DFPS, TEA, TA&MFS, TXMF, TPWD
D	Radiological Emergency Management	DSHS, CPS. LSS, DBHS, CCEA, HSR,	DPS, TDA, TCEQ, TPWD, TAHC
E	Evacuation	DPS	TDEM, TxDOT, DSHS, TXMF, TEA, TAHC
F	Firefighting	TA&MFS	TCFP, TDI, TEEX, TDCJ, T**xDOT**, TXMF, CAP
G	Law Enforcement	DPS	OAG, TDCJ, TA&MFS, TPWD
H	Health and Medical Services	DSHS	HHSC, TSA, ARC, TDCJ, DADS, TCEW, DARS, TAHC, DFPS
I	Public Information	TDEM	SOC, JFO, EOC
J	Recovery	TDEM	ARC, TSA, TPASS, OAG, TDHCA, TDI, DSHS, TxDOT, TCEQ, TWC, DADS, THC, TSLAC, GLO, TWDB, HHSC
K	Public Works and Engineering	TxDOT	TPASS, TA&MFS, TCEQ, TDCJ
L	Energy	PUC	RRC, CPA/SECO

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Best Practices for TxDOT
on Handling Wildland Fires

Primary and Secondary State Emergency Functional Responsibilities

State ESF	Function	Primary State Agency	Secondary State Agency
M	Resource Support	TPASS	PWRT, TAHC, TCEQ, TDA, TDCJ, DPS, DSHS, TxDOT, TDEM, TEEX, HHSC, TMF, TWC
N	Direction and Control	TDEM	
O	Animals, Agriculture, and Food and Feed Safety	TAHC, TOA, DSHS, OTSC	ALEXT, TXDPS
P	Hazard Mitigation	TDEM	GLO, RRC, ORCA, TDI, TxDOT, TFS, TCEQ, TPWD, TWDB, LCRA, TMLIRP, EMAT, TxGS, WISE,
Q	Hazmat and Oil Spill Response	TCEQ	GLO, RRC, TxDOT, TPWD, TDI, DSHS, TEEX, DPS, TCFP
R	Search and Rescue	TEEX	GLO, TDEM, Adjutant General's Department, TDCJ, DPS, TxDOT, TFS TPWD
S	Transportation	TDCJ	TMF, DSHS, GLO, RRC, TPASS, DPS, TxDOT, TEA, TEEX, HHSC, TPWD,
U	Terrorism Incident Response	DPS	TMF, TPASS, TAHC, DSHS, TEEX, TFS, TCEQ, TxDOT, OTSC, RRC GLO, PUC
V	Food and Water	HHSC	ARC, TCEQ, TDCJ, TA&MFS, TMF, TWDB, DSHS, TSA, VOADS

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Texas State Emergency Management

- Texas uses a "tiered" approach to wildland fire response and suppression.
- Local fire departments and counties are the first responders.
- State response activated as wildland fires or conditions exceed the local ability to control.
- If State resources are deemed insufficient, out-of-state agencies are called upon.
- Unless there is imminent threat to life and property, TxDOT can't respond without DDC approval.

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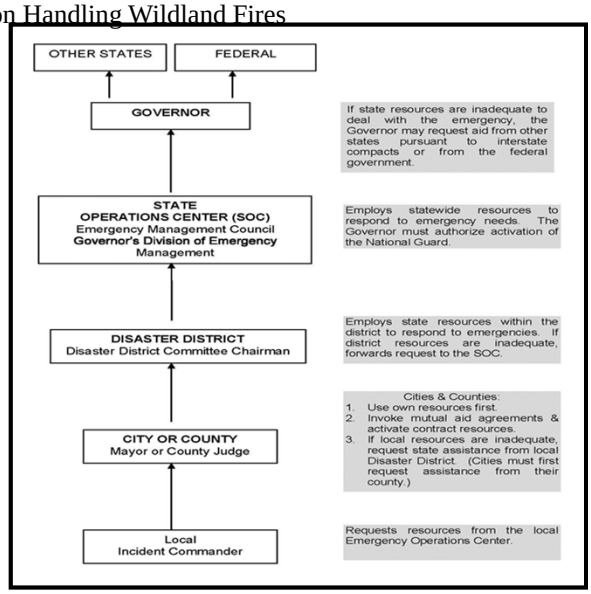
Texas Emergency Assistance Channels



(TDEM 2008)

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The Governor's Office of Homeland Security

- The Director of the Governor's Office of Homeland Security serves as the
  - Director of the Texas Division of Emergency Management (TDEM), and as
  - Chair of the State Emergency Management Council (SEMC)
- The SEMC has been authorized to issue directives that are necessary to effectively follow the Texas Disaster Act (Ch. 418, Govt. Code)

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State Emergency Management Council (SEMC)

- Adjutant General's Department (AGD)
- *American Red Cross (ARD)*
- Department of Information Resources (DIR)
- General Land Office (GLO)
- Governor's Division of Emergency Management (GDEM)
- Office of Rural Community Affairs (ORCA)
- Public Utility Commission of Texas (PUC)
- Railroad Commission of Texas (RRC)
- *Salvation Army (TSA)*
- State Auditor's Office (SAO)
- State Comptroller of Public Accounts (CPA)
- Texas Animal Health Commission (TAHC)
- Texas Attorney General's Office (OAG)
- Texas Building & Procurement Commission (BPC)
- Texas Commission on Environmental Quality (TCEQ)
- Texas Commission on Fire Protection (TCFP)
- Department of Aging & Disability Services (DADS)
- Department of Agriculture (TDA)
- Department of Assisted & Rehabilitative Services (DARS)
- Department of Criminal Justice (TDCJ)
- Department of Housing & Community Affairs (TDHCA)
- Department of Insurance (TDI)
- Department of Protective & Family Services (DFPS)
- Department of Public Safety (DPS)
- Department of State Health Services (DSHS)
- ***Department of Transportation (TxDOT)***
- Texas Education Agency (TEA)
- Texas Engineering Extension Service (TEEX)

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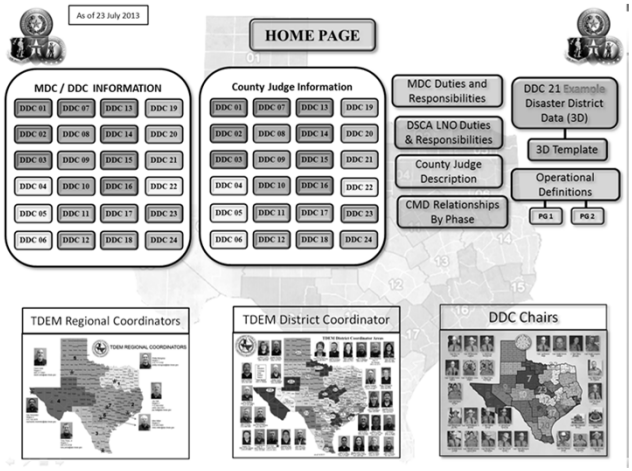
---Map of DDC ---



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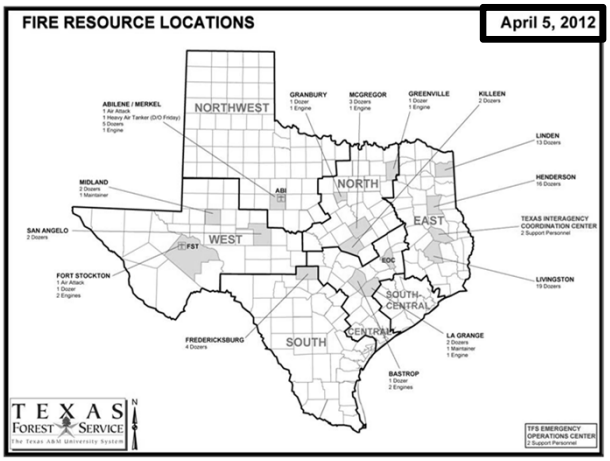
TA&MFS Texas Fire Resource Availability Map



http://TA&MFS.tamu.edu/wildfires/resources.png

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Five Types of Emergency Incidents

- These are rated by complexity.
  - Type I incident
  - Type II incident
  - Type III incident
  - Type IV incident
  - Type V incident

Increase in intensity

TxDOT responds at this level or higher!

- TA&MFS developing teams to handle different types of incidents.
- Currently there are multiple Type III Teamsn and one Type II Team

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Agencies Responsible for Coordinating Wildfire Response in Texas

- TDEM Disaster District Committees (DDCs)
- Texas Intrastate Fire Mutual Aid System (TIFMAS)
- National Wildfire Coordination Group (NWCG)
- Texas Forest Service (TA&MFS)

ORGANIZATION AND COMMUNICATION

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Best Practices for TxDOT on Handling Wildland Fires

2011 Resource Mobilization through TICC

Texas number does not include mobilization of TxDOT and other agencies!

http://ticc.tamu.edu/Documents/Home/TICC_2011_Resources.jpg

Exercise 2.1

TxDOT Wildland Fire Management

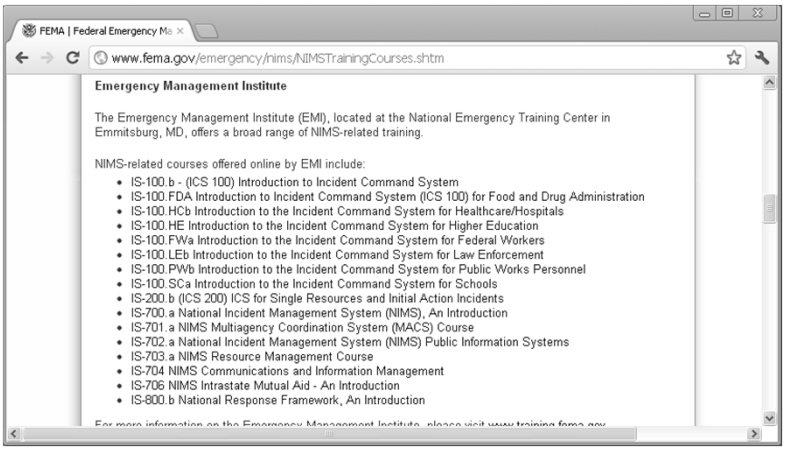
In your Learner Groups, discuss the following question:

1. What other agencies are you likely to interact with personally when responding to a wildland fire?
2. Jot down your ideas for discussion.

Be prepared to discuss your answers (2 minutes).

National Incident Management System (NIMS)

http://www.fema.gov/emergency/nims/NIMSTrainingCourses.shtm



$R_{2.1}$ [2.1]

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Best Practices for TxDOT on Handling Wildland Fires

NIMS and TxDOT

- When directed by DDC to serve in emergency incidents, TxDOT plays a critical role in public guidance during emergency incident occurrence and has to work within the NIMS framework.

ORGANIZATION AND COMMUNICATION

NIMS Training Requirements for TxDOT Personnel

National Incident Management System (NIMS)
Training Requirements for TxDOT Personnel

	IS-700 (FEMA online)	IS-100 (FEMA online)	IS-200 *(FEMA online)	IS-800 *(FEMA online)	I-300 *(via local agency, COG, or TDEM)	I-400 *(via local agency, COG, or TDEM)
Crew Chiefs	•	•				
Maintenance Tech's (also including Ferry Captains and Signal Tech's)	•	•				
Public Information Officers	•	•				
Safety Coordinators	•	•				
Traffic Engineers	•	•				
Others as recommended by DD	•	•				
Assistant Maintenance Supervisors	•	•				
Directors of Maintenance	•	•	•			
Maintenance Supervisors	•	•	•			
Travel Information Center Supervisors	•	•	•			
Personnel who work in a District Emergency Operations Center	•	•	•	•	•	
Personnel who work in the TxDOT Emergency Operations Center	•	•	•	•	•	
All personnel who work in the State Operations Center	•	•	•	•	•	
Area Engineers	•	•	•	•	•	
Assistant Area Engineers	•	•	•	•	•	
Assistant Regional Directors	•	•	•	•	•	
District Engineers	•	•	•	•	•	

*Recommended training for identified personnel.
Districts shall ensure at least one district staff member has completed all 6 courses.

VIDEO 2.1 (01:25) What is NIMS?

CREDIT
"IS-700.a National Incident Management System, and Introduction, I-700.a"
FEMA
Used with permission.

Incident Command System (ICS) Management Characteristics

R2.3 [2.3]

14 Management Characteristics

- Common Terminology
- Modular Organization
- Management by Objectives
- Incident Action Planning
- Manageable Span of Control
- Incident Facilities and Locations
- Comprehensive Resource Management
- Integrated Communications
- Establishment and Transfer of Command
- Chain of Command and Unity of Command
- Unified Command
- Accountability
- Dispatch/ Deployment
- Information and Intelligence Management

R2.3 [2.3]

ORGANIZATION AND COMMUNICATION

Integrated Communications

Facilitated through development and use of common communications plan and interoperable communications processes and architectures.

- ICS Form 205
- Links operational and support units of various agencies
- Necessary to maintain communications connectivity and discipline
- Planning should address equipment, systems, and protocols necessary to achieve integrated voice and data communications

R2.3 [2.3]

ICS FORM 205

INCIDENT RADIO COMMUNICATIONS PLAN (ICS 205)

1. Incident Name:	2. Date/Time Prepared: Date: Time:	3. Operational Period: Date From: Date To: Time From: Time To:

4. Basic Radio Channel Use:

Zone Grp.	Ch #	Function	Channel Name/Trunked Radio System Talkgroup	Assignment	RX Freq N or W	RX Tone/NAC	TX Freq N or W	TX Tone/NAC	Mode (A, D, or M)	Remarks

5. Special Instructions:

6. Prepared by (Communications Unit Leader): Name: _____ Signature: _____

ICS 205 | IAP Page ____ | Date/Time: _____

Establishment and Transfer of Command

Command function must be clearly established from beginning

•Primary agency designates individual at scene responsible for establishing command

•When command is transferred, process must include briefing that captures all essential information for safe and effective operations

$R_{2.3}$ [2.3]

ORGANIZATION AND COMMUNICATION

Chain of Command and Unity of Command

Chain of Command

•Orderly Line of Authority within the ranks of incident management organization

Unity of Command

•All individuals have a designated supervisor to whom they report at the scene of the incident

•Purpose is to clarify reporting relationships and eliminate confusion

•Incident managers must be able to direct the actions of all personnel under their supervision

$R_{2.3}$ [2.3]

ORGANIZATION AND COMMUNICATION

Unified Command

Incidents that involve multiple jurisdictions or multiagency involvement require unified command

•Allows agencies to work together effectively without affecting individual agency, authority, responsibility, or accountability

R2.3 [2.3]

ORGANIZATION AND COMMUNICATION

Accountability

ICS principles to ensure accountability:

•Resource Check-In/Check-Out Procedures
•Incident Action Planning
•Unity of Command
•Personal Responsibility
•Span of Control
•Resource Tracking

R2.3 [2.3]

ORGANIZATION AND COMMUNICATION

Dispatch/Deployment

Resources should only respond when requested or dispatched by an appropriate authority through established resource management systems.

- Resources not requested must refrain from spontaneous deployment
- For TxDOT, this request comes down through the DOM

$R_{2.3}$ [2.3]

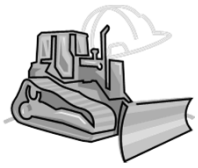
Exercise 2.2

TxDOT Wildland Fire Management

In your Learner Groups, discuss the following question:

1. What TxDOT employees at the District level are required to have ICS 300 and 400 level training?

Be prepared to discuss your answers (2 minutes).



Summary and Review

1. Texas responds to wildland fires with various state resources.
2. TxDOT is not a primary response unit, but rather responds to wildland fire incidents as part of a tiered system.
3. There are a number of other agencies with whom TxDOT may interact during a wildland fire incident.
4. DDC directs when TxDOT will respond *unless* there is imminent threat to life or property.

ORGANIZATION AND COMMUNICATION

MODULE 3
Resources and Equipment

Texas Department of Transportation

TxDOT Wildland Fire Management Training

Course No.
ISSUE:

Learning Objectives

Upon completion of this section, the participant will be able to:

1. List sources of information for wildland fire response.
2. Explain what heavy equipment might be available for wildland fire response.

Resources for Emergency Response

- Information Resources
- Heavy Equipment
- Personal Protective Equipment (PPE)
- Communication Equipment
- Training Resources

RESOURCES AND EQUIPMENT

Situation Awareness

Information

- Objective(s)
- Previous Fire Behavior
- Communication
- Weather Forecast
- Who's in Charge
- Local Factors

RESOURCES AND EQUIPMENT

Resources for Emergency Response
- Information Resources -

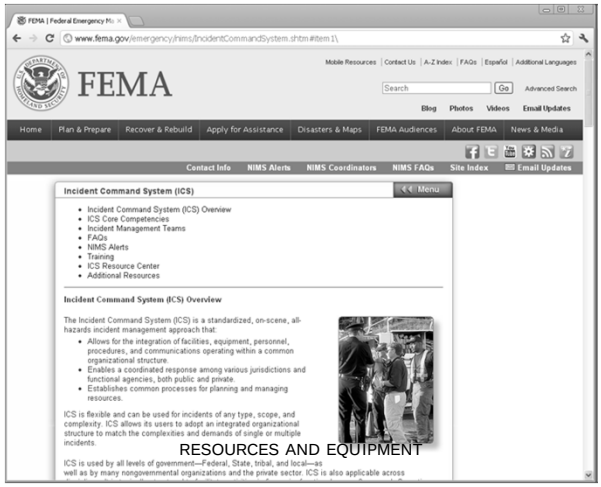
- Training & Education, Experience, Each other
- TxDOT
- FEMA
- TA&MFS
- TICC
- NOAA/NWS

Resources for Emergency Response
- Information Resources -

- TxDOT http://crossroads/org/mnt/

Resources for Emergency Response
- Information Resources -

- FEMA
  http://www.fema.gov/emergency/nims/IncidentCommandSystem.shtm



RESOURCES AND EQUIPMENT

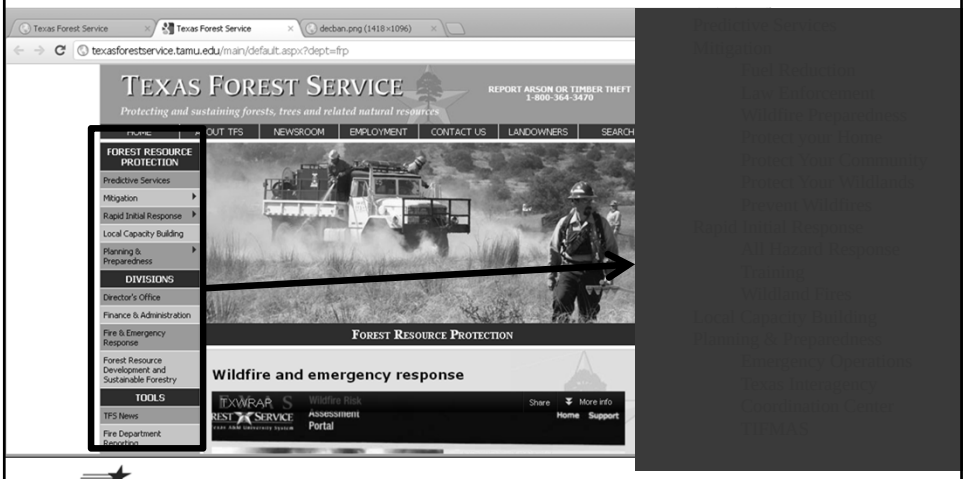
Resources for Emergency Response
- Information Resources -

- TA&MFS http://texasforestservice.tamu.edu/main/default.aspx

RESOURCES AND EQUIPMENT

Resources for Emergency Response
- Information Resources -

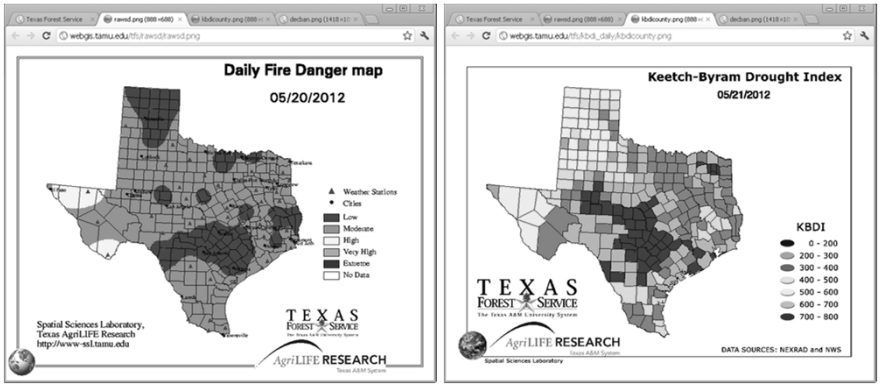
- TA&MFS: Resource Protection



Resources for Emergency Response
- Information Resources -

- TA&MFS: Predictive Services

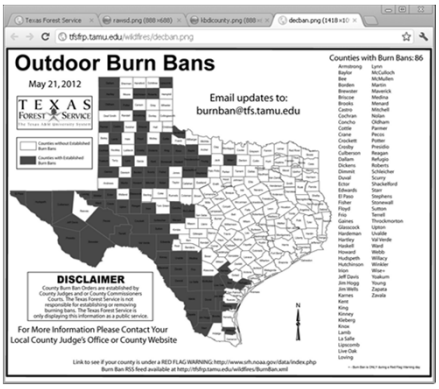
http://texasforestservice.tamu.edu/main/article.aspx?id=1991



Resources for Emergency Response
- Information Resources -

- TA&MFS: Predictive Services

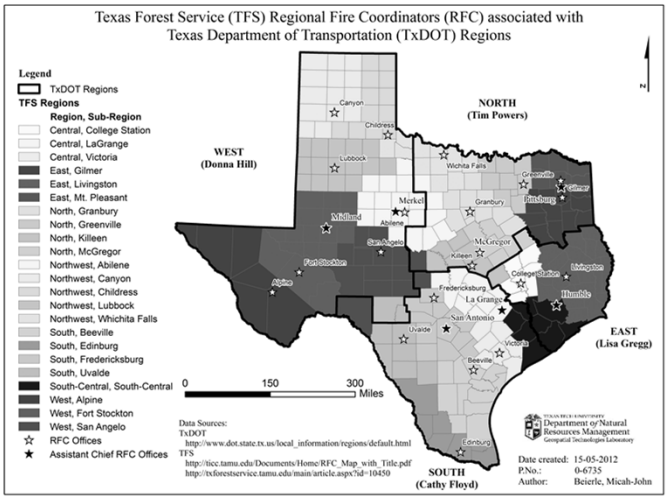
http://texasforestservice.tamu.edu/main/article.aspx?id=1991



RESOURCES AND EQUIPMENT

Resources for Emergency Response
- Information Resources -

- TA&MFS



RESOURCES AND EQUIPMENT

Resources for Emergency Response
- Information Resources -

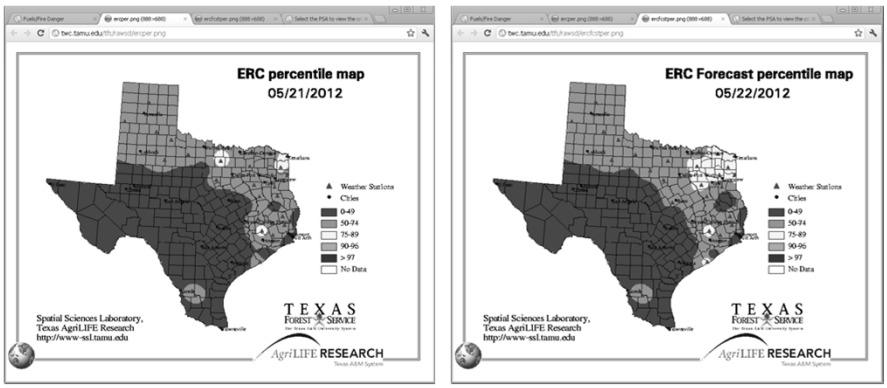
- TICC: http://ticc.tamu.edu/

RESOURCES AND EQUIPMENT

Resources for Emergency Response
- Information Resources -

- TICC: Fuels/Fire Danger

http://ticc.tamu.edu/PredictiveServices/FuelsFireDanger.htm



RESOURCES AND EQUIPMENT

Resources for Emergency Response
- Information Resources -

- TICC: Incident Response

http://ticc.tamu.edu/Response/FireActivity/

RESOURCES AND EQUIPMENT

Resources for Emergency Response
- Information Resources -

- Meso-West

http://mesowest.utah.edu/cgi-bin/droman/mesomap.cgi?state=TX&rawsflag=3

RESOURCES AND EQUIPMENT

Resources for Emergency Response
- Information Resources -

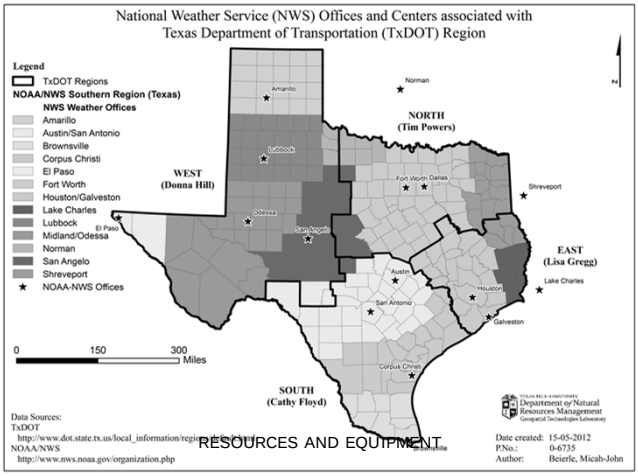
- NOAA/NWS: Fire Weather

http://radar.srh.noaa.gov/fire/

RESOURCES AND EQUIPMENT

Resources for Emergency Response
- Information Resources -

- NOAA/NWS

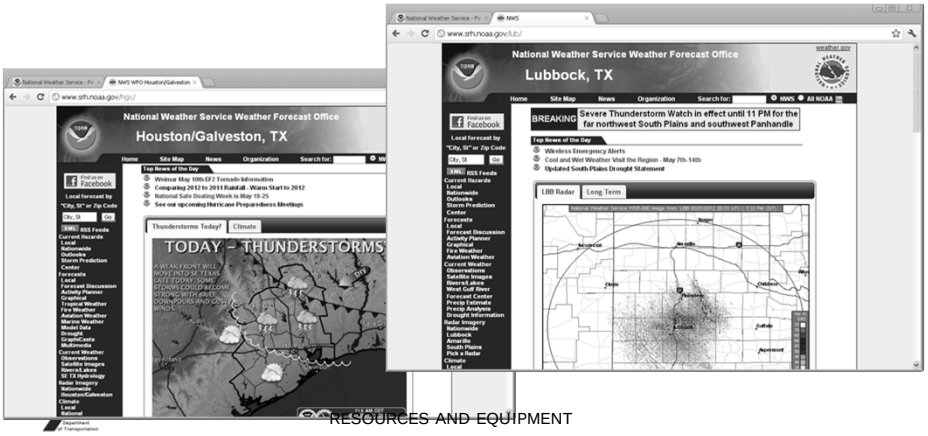


RESOURCES AND EQUIPMENT

Resources for Emergency Response
- Information Resources -

- NOAA/NWS: Fire Weather

http://www.nws.noaa.gov/organization.php

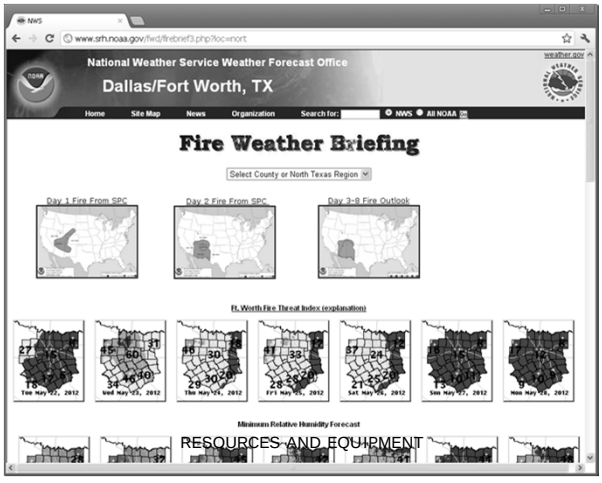


*RESOURCES AND EQUIPMENT

Resources for Emergency Response
- Information Resources -

- NOAA/NWS: Fire Weather

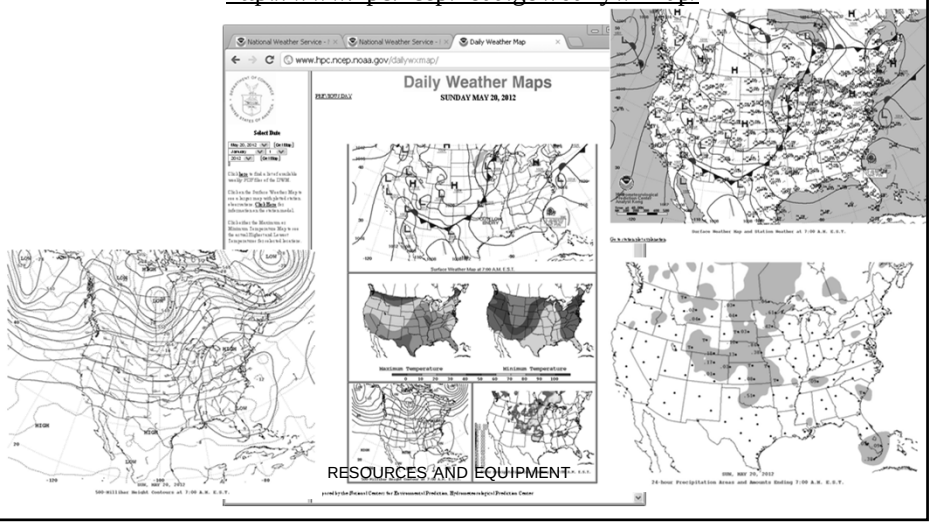
http://www.srh.noaa.gov/fwd/firebrief3.php?loc=nort



RESOURCES AND EQUIPMENT

Resources for Emergency Response
- Information Resources -

- NOAA/NWS: Fire Weather
  http://www.hpc.ncep.noaa.gov/dailywxmap/



RESOURCES AND EQUIPMENT

Resources for Emergency Response
- Heavy Equipment -

- Dozer Boss
  DOZB
- Strike Team Leader Dozer
  STLD
- Strike Team Leader Tractor/Plow
  STPL

All now replaced by

- Heavy Equipment Boss
  HEQB

RESOURCES AND EQUIPMENT

Resources for Emergency Response
- Heavy Equipment -

R3.1 [3.1]

Resources for Emergency Response
- Dozer-

- Guidelines for maximum percent slope
  - 75% downhill maximum
  - 55% uphill maximum
  - 45% sidehill slope

Resources for Emergency Response
- Heavy Equipment -

- Types of Blades
  - Straight Blade – can be angled to push soil to either side of the dozer
  - 'U' Blade – used for pioneering fireline and is often followed by a straight blade
  - Brush Blade – best use is pioneering in brush, clearing and piling slash, mopup work, and certain rehabilitation work
  - V Blade – Best in swampy ground and is also good for pioneering through dense stands of small diameter fuels

$R_{3.1}$ [3.1]

Exercise 3.1

TxDOT Wildland Fire Management

Individual Assignment

1. Does your crew use these hand signs?
2. How can your crew's communication when using heavy equipment improve?

Be prepared to discuss your answers (2 minutes).

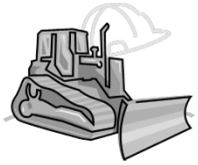
Resources for Emergency Response
- Heavy Equipment -

- There is much more on Heavy Equipment

  such as:
  - safety zone and escape route considerations
  - watershed considerations
  - special considerations
  - use, terminology, and maintenance

  For more information contact your TA&MFS Regional Fire Coordinator.

RESOURCES AND EQUIPMENT



Summary and Review

1. TxDOT employees engaged in responding to wildland fire incidents should be aware of information regarding weather, safety hazards, etc.
2. Heavy equipment operators should follow standard protocols for vehicle operation during wildland fire response.

RESOURCES AND EQUIPMENT

MODULE 4
Safety

Texas Department of Transportation

TxDOT Wildland Fire Management Training

Course No.

ISSUE:

Learning Objectives

Upon completion of this section, the participant will be able to:

1. Explain what PPE is needed when responding to a wildland fire situation
2. Explain the new regulations regarding communication during a wildland fire situation

Learning Objectives, cont'd

3. Identify radio communication limitations at a wildland fire site
4. Understand various situation risks involved in wildland fire response

SAFETY

Resources for Emergency Response

- Personal Protective Equipment -

- NWCG recommends the following gear for all firefighters:
  - fire resistant shirt and pants or coveralls,
  - helmet,
  - eye protection,
  - heavy-duty leather gloves,
  - 8" tall laceup leather boots, and
  - a fire shelter
- TxDOT has two District response trailers equipped with wildland fire PPE and available upon request for extreme wildland fires.

SAFETY

Resources for Emergency Response
- Personal Protective Equipment -

- Fire-resistant coveralls

Topps Economy Nomex
IIIA
$ 233.50 - $ 273.00

R4.1 [4.1]

SAFETY

Resources for Emergency Response
- Personal Protective Equipment -

- Helmet (white)

Bullard "USRX Series"
Helmet
$ 176.50

R4.1 [4.1]

SAFETY

Resources for Emergency Response
- Personal Protective Equipment -

- Eye protection

Shark Hunter Range Safety Glasses - Bouton $4.50 – $5.75

SAFETY

R4.1 [4.1]

Resources for Emergency Response
- Personal Protective Equipment -

- Leather gloves

North Star 100% Leather Pull-Strap Driver Gloves $ 19.50

SAFETY

R4.1 [4.1]

Resources for Emergency Response
- Personal Protective Equipment -

- Leather steel-toe boots

Fire Flash Xtream Boot 10in
Uppers NFPA – Haix
$ 423.00

SAFETY

R4.1 [4.1]

Resources for Emergency Response
- Personal Protective Equipment -

- New Generation fire shelter

New Generation Rev-E Fire
Shelter
$ 428.50

Choose
Regular
or
Large

SAFETY

R4.1 [4.1]

Resources for Emergency Response
- Personal Protective Equipment -

- Current Resources for TxDOT employees
  - Two emergency response trailers equipped with
    - Nomex Coveralls
    - Helmets/face shields
    - Fire Shelters
- Resources TxDOT Personnel should already be equipped with:
  - Change of clothes (all cotton)
  - Glasses/Sun Glasses
  - Gloves
  - Boots

*Remove tags from all clothing

SAFETY

Exercise 4.1

TxDOT Wildland Fire Management

In your Learner Groups, discuss the following questions:

1. Why is it important to always wear PPE?
2. Why do we sometimes forget to equip proper PPE?

Be prepared to discuss your answers (2 minutes).

SAFETY

Resources for Emergency Response
- Communications -

- Texas Statewide Interoperability Channel Plan
  ⇨ http://tsiec.region49.org/
- Most vehicles have radios which comply with the TSICP.
- In some areas with rough terrain, communication is often broken.
- Blackberries

R4.2 [4.2]

SAFETY

Resources for Emergency Response
- Communications -

- Texas Statewide Interoperability Channel Plan

  http://tsiec.region49.org/
- 2012 changes
  - Removed Digital P25 requirements
  - Removed reference to P25 compliance by 2015

  - Texas Law 1 TXCALL1D
  - Texas Law 2 TXCALL2D

R4.2 [4.2]

SAFETY

Resources for Emergency Response
- Communications -

- Texas Statewide Interoperability Channel Plan
  - TxDPS recommended radio programming
    http://www.txdps.state.tx.us/LawEnforcementSupport/communications/interop/documents/recmdProgInstr_PriorityChannels.pdf
  - 21 VHF *Narrowband* (NB) interoperable channels
  - 2 State of Texas VHF NB interoperability calling channels
  - 8 VHF ***wideband***

R4.2 [4.2]

SAFETY

Resources for Emergency Response
- Communications -

- Texas Statewide Interoperability Channel Plan
  - VHF ***narrowband*** interoperability frequencies

2	VTAC11	1	VCALL10	6	VFIRE21
3	VTAC12			7	VFIRE22
4	VTAC13	22	TXCALL1D	8	VFIRE23
5	VTAC14	23	TXCALL2D	9	VFIRE24
16	VTAC33			10	VFIRE25
17	VTAC34	12	VMED28	11	VFIRE26
17	VTAC35	13	VMED29		
19	VTAC36				
20	VTAC37	14	VLAW31		
21	VTAC38	15	VLAW32		

R4.2 [4.2]

SAFETY

Resources for Emergency Response
- Communications -

- Factors that Affect Radio Communications:
  - Knowledge of the radio issued to individuals
  - Net control, frequencies
  - Line of sight restrictions
  - Antenna polarization effect
  - Minimizing noise interference
  - Wideband vs. narrowband
  - Solar flares

R4.2 [4.2]

SAFETY

Resources for Emergency Response
- Communications -

- How to mitigate potential problems
  - Implement effective communication procedures
  - Give a good comprehensive briefing
  - Confirm that relayed information is received, acknowledged, and understood
  - Keep a continuous information flow
  - Establish emergency check-in procedures
  - Provide a minimum of four radios per 20-person crew
  - Include district radio communication technician as part of responders.

R4.2 [4.2]

SAFETY

Resources for Emergency Response
- Communications -

- Five Communication Responsibilities
  - Brief others
  - Debrief your actions
  - Communicate hazards to others
  - Acknowledge messages
  - Ask if you don't know

R4.2 [4.2]

Exercise 4.2

TxDOT Wildland Fire Management

In your Learner Groups, discuss the following question:

1. How will the changes to radio operation protocols affect communications at a wildland fire event?
2. List a few of the factors that affect communication that you may encounter.

Be prepared to discuss your answers (2 minutes).

Resources for Emergency Response
- Situational Safety -

- Driving Safety
  - Drive only when well-rested
  - Practice situational awareness
  - Never drive when taking over-the-counter or prescription medications which may impair driving or operating heavy equipment.
  - Delegate navigation or communication to the passenger
  - Constantly move your vision to avoid highway hypnosis
  - Avoid eating or drinking
  - Be patient

R4.3 [4.3]

SAFETY

Resources for Emergency Response
- Situational Safety -

- Hazardous Materials Encounters
  - Types of hazardous materials
    - Clandestine drug waste
    - Midnight dumping
    - Transportation accidents
  - Self-protection is your first responsibility
  - Respond to all encounters with the three R's
    - Recognize
    - Retreat
    - Report
  - See OSHA training 1910.120 (q)

R4.3 [4.3]

SAFETY

Resources for Emergency Response
- Situational Safety -

- Vehicle Entrapment (Wildfire Lessons Learned Center)
  - Using a vehicle during fire entrapment is an option if in a safety zone
  - Park the vehicle in an area void of vegetation or behind a natural barrier, but never on the downhill side of a road or under overhanging hazards
  - Position the crew portion of the vehicle away from the fire with the parking brake on, motor running, vehicle lights on, windows up, and doors unlocked
  - The reflective materials from fire shelters can be used to cover windows
  - Protect your airway; remain as low as possible and cover mouth and nose with a dry bandana

SAFETY

Resources for Emergency Response
- Situational Safety -

- Vehicle Entrapment (Wildfire Lessons Learned Center)
  - Expect the following conditions:
    - Temperatures may reach over 200 degrees
    - Smoke and sparks may enter the vehicle
    - Plastic parts may melt and give off toxic gases
    - Windows may crack
    - Exposed skin may receive radiant heat burns

SAFETY

Resources for Emergency Response
- Situational Safety -

- Vehicle Entrapment (Wildfire Lessons Learned Center)
  - If the vehicle catches fire or windows blow out, and you must exit the vehicle before the fire has passed:
    - Each crewmember should cover himself with a fire shelter
    - Exit the vehicle from side away from the greatest heat
    - Stay together and get as low to the ground as possible while moving away from the vehicle
    - Deploy fire shelter in a safe area.

$R_{4.3}$ [4.3]

SAFETY

Resources for Emergency Response
- Situational Safety -

- Managing Vehicle Traffic in Smoke
  - Identify alternate traffic routes
  - Identify important, public roads that may be impacted by smoke
  - Identify adequate equipment and trained personnel to control traffic
  - Identify traffic routes subject to shift in wind directions

$R_{4.3}$ [4.3]

SAFETY

Resources for Emergency Response
- Additional Safety Concerns -

- Fatigue/Stress
- Heat Disorders
  - Heat cramps
  - Heat exhaustion
  - Heat stroke
- Hydration
  - Dehydration
  - Hyponatremia (over-hydration)
- Hypothermia
- Smoke Exposure

SAFETY

Resources for Emergency Response
- Additional Safety Concerns -

- Power Lines
- Gas or water lines
- Buried utility lines
- Liquefied Propane Gas (LPG) Tank Hazards
- Static Electricity Hazards
- Thunderstorms

R4.3 [4.3]

SAFETY

Exercise 4.3

TxDOT Wildland Fire Management

In your Learner Groups, discuss the following questions:

1. What situational hazards have I encountered in the field?
2. Did I respond properly?
3. What are the proper steps for managing vehicle traffic in smoke?

Be prepared to discuss your answers (3 minutes).

SAFETY

Summary and Review

1. TxDOT employees should have appropriate clothing, PPE, and equipment when responding to a wildland fire
2. TxDOT employees may encounter numerous situational safety hazards when responding to wildland fires and should know how to address these hazards
3. TxDOT has two District response trailers that will carry PPE to District employees during a major wildland fire event

SAFETY

MODULE 5
Documentation and Data Collection

TxDOT Wildland Fire Management Training

Course No.

ISSUE:

Learning Objectives

Upon completion of this section, the participant will be able to:

1. Understand how to use a Daily Activity Report to collect data from a wildland fire situation.
2. Understand how to use the TxDOT MNT website for data collection.

DOCUMENT AND DATA COLLECTION

Learning Objectives, cont'd

3. Understand how to use the TxDOT EOC website for data collection.
4. List other data collection resources available.

Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

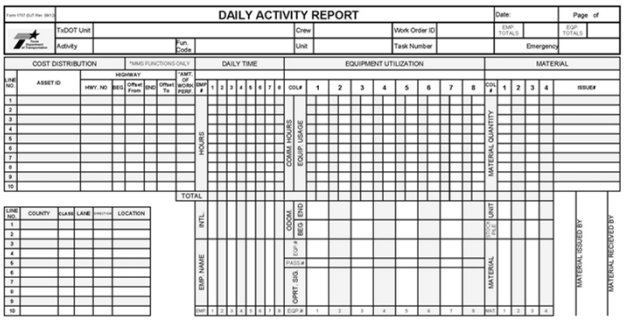
Documentation and Data Collection

- How do TxDOT districts currently collect data?
  - Emails and Sharepoint
  - Wildland fire resource committed notes made by MS emailed to District Office Manager
  - Maintenance Division Database
  - Daily Activity Reports (DARs)
  - Employee diaries, situation reports, equipment and personnel logs

Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

Documentation and Data Collection

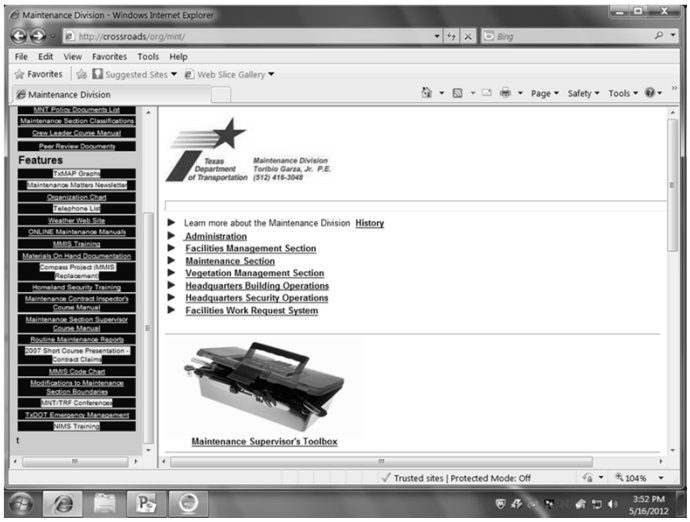
- DARs



DOCUMENT AND DATA COLLECTION

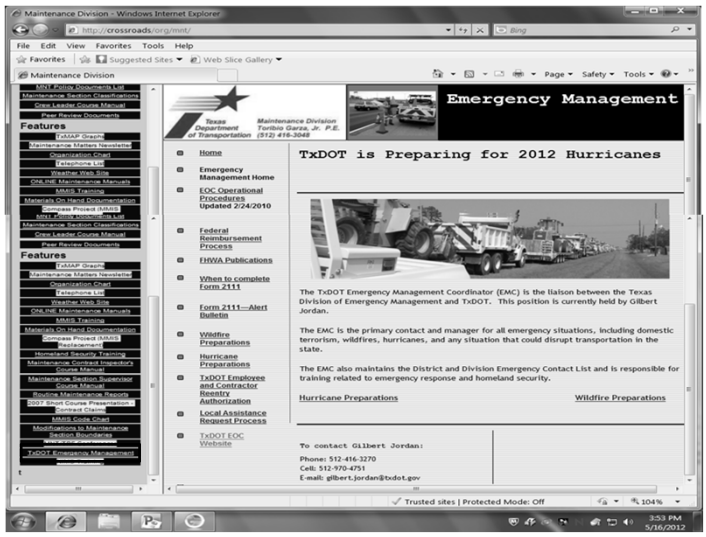
Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

TxDOT Crossroads MNT Website



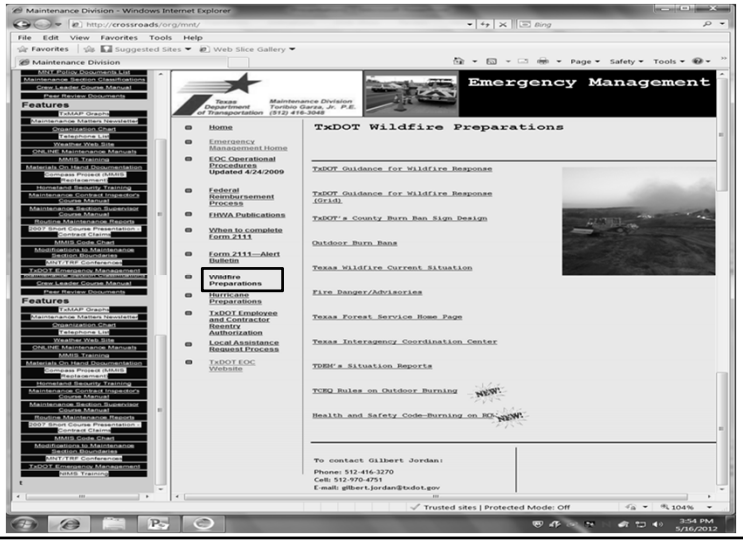
Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

TxDOT Crossroads MNT EM Portal



Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

TxDOT Crossroads MNT EM Portal



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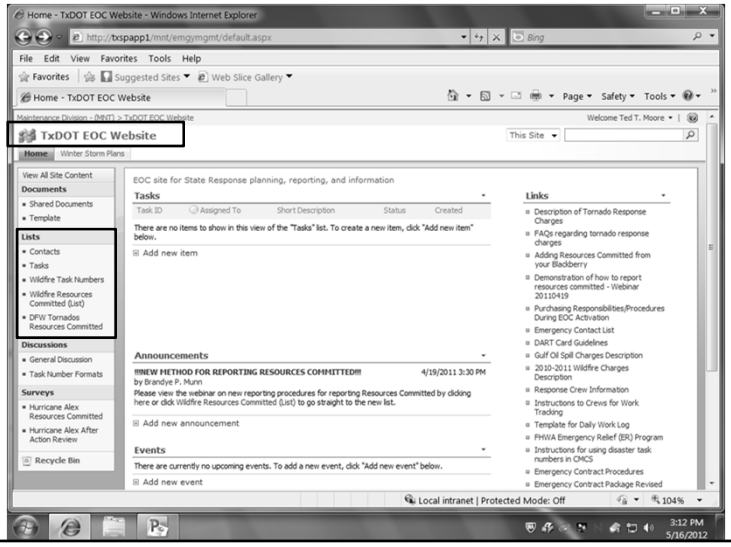
Best Practices for TxDOT on Handling Wildfires

TxDOT Crossroads MNT EM Portal

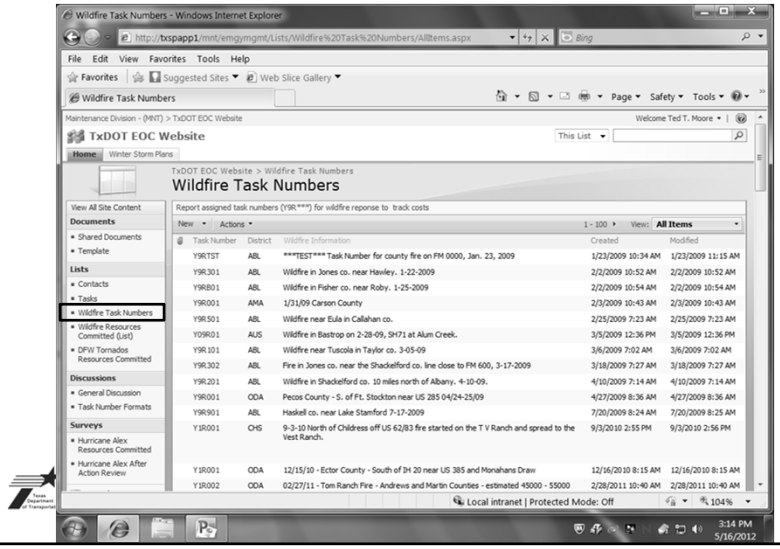
Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

TxDOT EOC Website



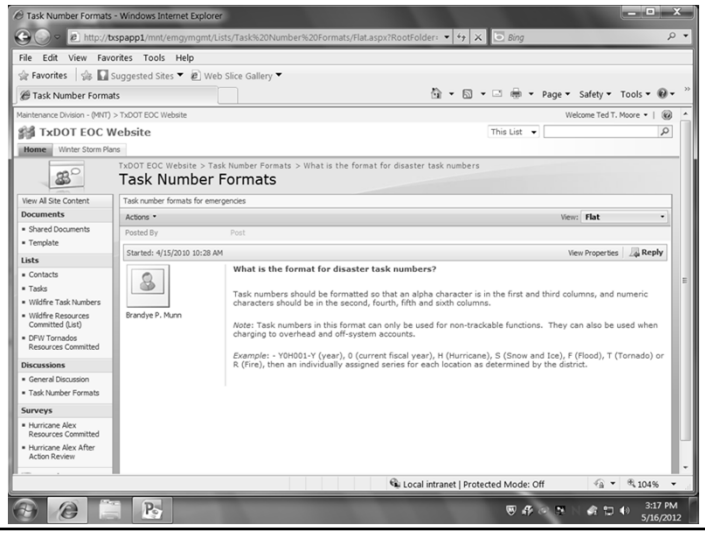
Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

TxDOT EOC Website



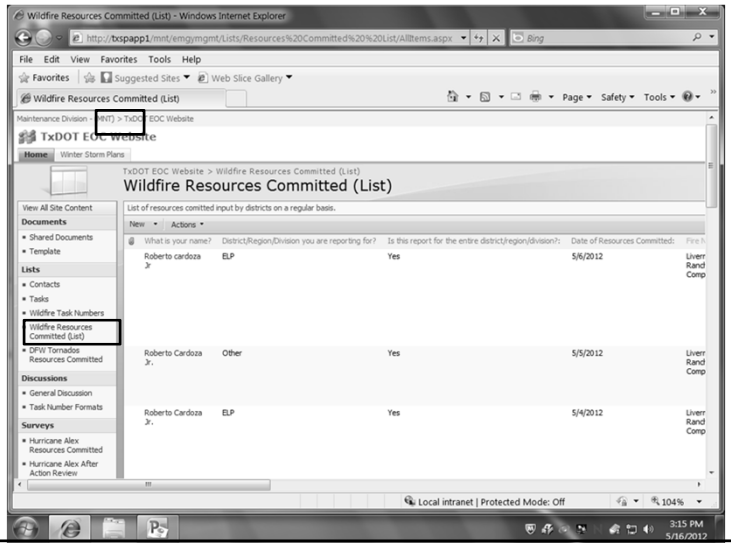
Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

TxDOT EOC Website



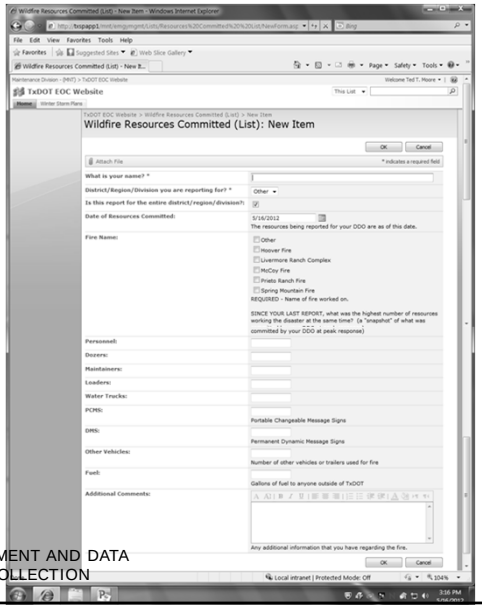
Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

TxDOT EOC Website



Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

TxDOT EOC Website



DOCUMENT AND DATA COLLECTION

Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

Texas State Emergency Management (EM) TxDOT Wildfire Preparedness Mitigation Activities

Request or Type of Action	Response Level 3	Response Level 2	Response Level 1	Local Response Activities (Could happen at any response Level)	
	• Normal Conditions • Occasional report of wildfires • Few burn bans in effect • Wildfire fuel in existence	• Conditions dry and favorable for wildfires • Increasing reports of wildfires • Substantial number of burn bans • Substantial wildfire fuel in existence • Wildfire Situation Reports may be produced by the SOC	• Conditions are extremely dry and favorable for wildfires • Daily or numerous reports of wildfires • Many areas of the state with all or most counties under burn ban • Wildfire fuel abundant • SOC may be activated with critical agencies • TxDOT or District EOCs may be activated • Numerous requests from counties for wildfire mitigation • Local or national media coverage of wildfires • Political interest in state agency activities is high	• Wildfire exists in county	• Wildfire is approaching TxDOT ROW and Incident Commander considers using highway as firebreak
Burn Ban Signs (County provided, maintained and installed)	Metal and wood signs are allowed on ROW as long as they are mounted in compliance with TxDOT standards and at locations agreed upon by TxDOT District Engineer. County will be responsible for ensuring underground utility installations are not affected. Signs are displayed for duration of burn ban only.				
	Plastic and cardboard signs are allowed on ROW as long as they are at locations agreed upon by TxDOT District Engineer. If mounted within the clear zone (typically within 30' of the travel lane), support shall be on the Compliant Work Zone Traffic Control Device List, unless it is installed adjacent to the ROW fence. County will be responsible for ensuring underground utility installations are not affected. Signs are temporary for duration of burn ban only.				
Burn Ban signs (TxDOT provided, maintained and installed)	No	No	No	No	No
Portable Changeable Message Signs (County provided and installed)	No	No	At discretion of District Engineer	Upon request from the DDC or at discretion of District Engineer	
Portable Changeable Message Signs (TxDOT provided and installed)	No	No	At discretion of District Engineer	Upon request from the DDC or at discretion of District Engineer	
Permanent Dynamic Message Signs displaying wildfire information	No	No	Upon request from the State Operations Center and with approval of TxDOT administration	Upon request from the DDC or at discretion of District Engineer	
Firebreaks (County provided and installed)	No	No	No	No	Upon request from the DDC or at discretion of District Engineer
Firebreaks (Private entity provided and installed)	No	No	No	No	Upon request from the DDC or at discretion of District Engineer
Firebreaks (TxDOT provided and installed)	No	No	Upon request from the State Operations Center or County Judge, and then only at discretion of District Engineer	Upon request from the DDC or at discretion of District Engineer	

Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

Documentation and Data Collection

- What other data collection resources are available?
  - Operational Briefings
  - After Action Reviews (AARs)
  - "Chainsaw" AARs

Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

Documentation and Data Collection

- Operational Briefings
  - Use the standard checklist printed on the inside cover of the National Wildland Fire Coordination Group (NWCG) Incident Response Pocket Guide (IRPG)

R5.1 [5.1]

DOCUMENT AND DATA COLLECTION

Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

Documentation and Data Collection

- Operational Briefings
  - Discuss the following topics
    - Situation
    - Mission/Execution
    - Communications
    - Service/Support
    - Risk Management

R5.1 [5.1]

DOCUMENT AND DATA COLLECTION

Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

Documentation and Data Collection

- AARs
  - In-depth discussion of event with the objective to identify successes and failures
  - Used to get maximum benefit from every incident or project

R5.1 [5.1]

DOCUMENT AND DATA COLLECTION

Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

Documentation and Data Collection

- AARs
  - Part of standard operating procedures
    - Have it ASAP after event
    - Leader facilitates
    - Everyone should participate
    - Pay attention to time
    - Establish clear ground rules
    - End on a positive note

R5.1 [5.1]

DOCUMENT AND DATA COLLECTION

Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

Documentation and Data Collection

- AARs
  - Questions to discuss:
    - What was planned?
    - What actually happened?
    - Why did it happen?
    - What are we going to do next time?

R5.1 [5.1]

Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

Documentation and Data Collection

- "Chainsaw" AARs
  - Simple, quicker format of AAR
  - Assemble the team and ask one member:
    - What is one thing that went well?
    - What is one thing that went badly?
    - What is one thing you would do differently?
    - What is one thing you learned?
  - Continue to each member
  - Note comments

R5.1 [5.1]

Research Project 0-6735
Best Practices for TxDOT on Handling Wildfires

Documentation and Data Collection

- Report any concerns or safety issues to team leader.
- Follow TxDOT chain of authority when reporting concerns or issues.

Exercise 5.1

TxDOT Wildland Fire Management

In your Learner Groups, discuss the following questions:

1. Do we currently debrief after incidents?
2. Why or why not?
3. List available data collection resources.

Be prepared to discuss your answers (3 minutes).

Summary and Review

1. TxDOT has several built-in programs for data collection.
2. There are several other resources available for collecting, discussing, and disseminating data and information related to wildland fire incidents.

MODULE 6

Training Programs

Texas Department of Transportation

TxDOT Wildland Fire Management Training

Course No.

ISSUE:

Learning Objectives

TXDOT WILDLAND FIRE MANAGEMENT

Upon completion of this section, the participant will be able to:

1. Understand Lookouts Communication Escape Routes Safety Zone (LCES)
2. Understand the basics of fire behavior
3. Understand basic fire suppression methods.

TXDOT WILDLAND FIRE MANAGEMENT TRAINING

The following presentation is a compilation of several presentations by the Texas A&M Forest Service (TA&MFS) and Texas Department of Transportation (TxDOT) district personnel.

It also contains information from the following NWCG training materials: Basic Firefighting (S-130), Intro to wildland fire behavior (S-190), Introduction to ICS (I-100), Human factors in the wildland fire service (L-180), Fireline Handbook (PMS 410-1), Incident Response Pocket Guide (PMS 461), and Dozer Boss (S-232)

Training Programs

SLIDE 6.3

Module 6.1: LCES

TxDOT Wildland Fire Management

LCES:

1. Lookouts
2. Communications
3. Escape Routes
4. Safety Zones

Training Programs

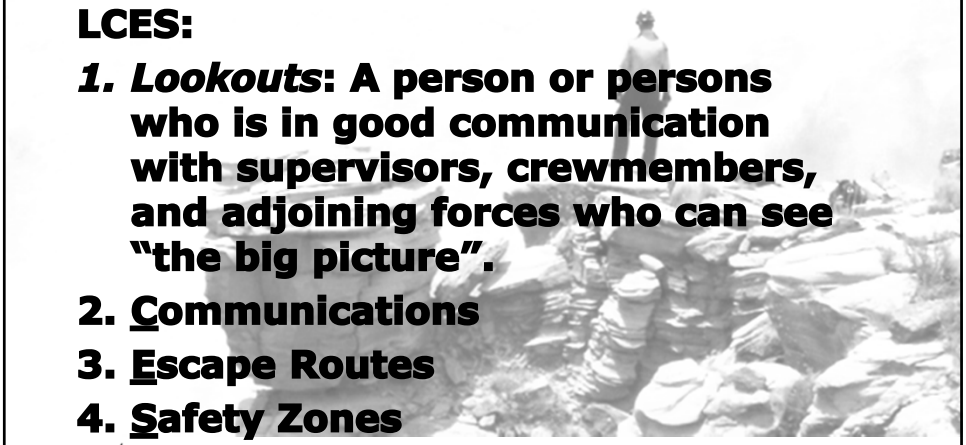
SLIDE 6.4

Module 6.1: LCES

TxDOT Wildland Fire Management

LCES:

1. ***Lookouts*: A person or persons who is in good communication with supervisors, crewmembers, and adjoining forces who can see "the big picture".**
2. **Communications**
3. **Escape Routes**
4. **Safety Zones**



Training Programs

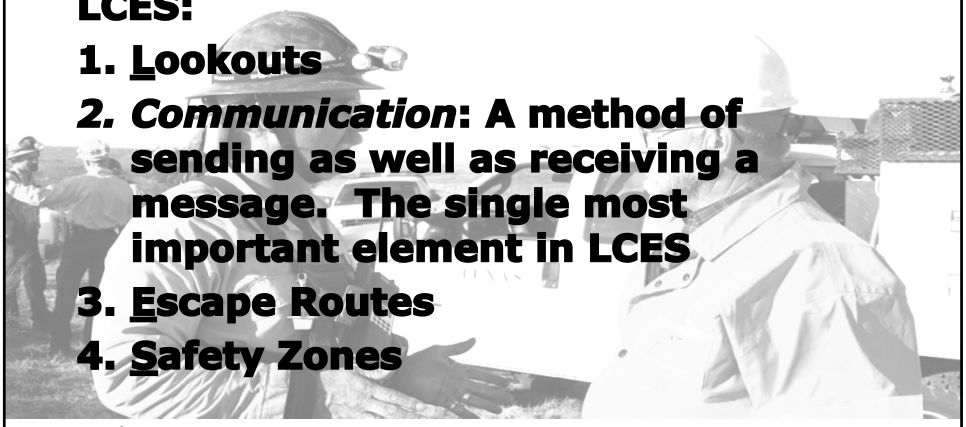
SLIDE 6.5

Module 6.1: LCES

TxDOT Wildland Fire Management

LCES:

1. **Lookouts**
2. ***Communication*: A method of sending as well as receiving a message. The single most important element in LCES**
3. **Escape Routes**
4. **Safety Zones**

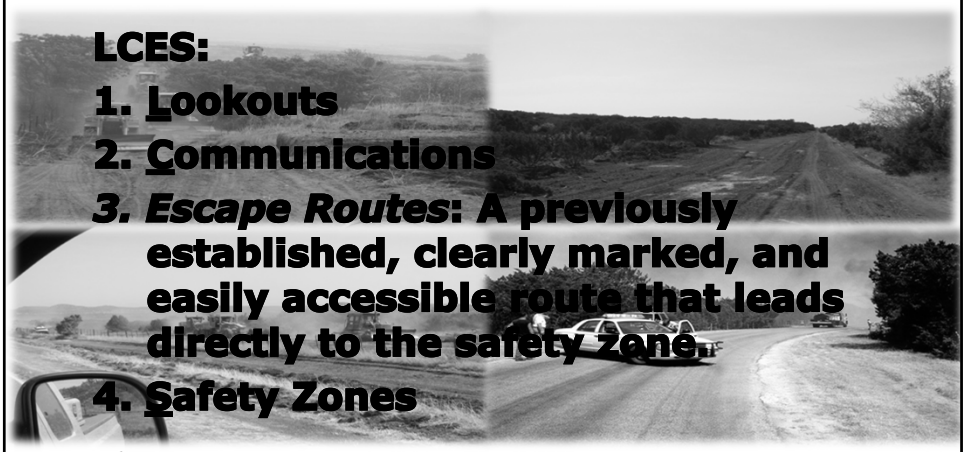


Training Programs

SLIDE 6.6

Module 6.1: LCES

TxDOT Wildland Fire Management



LCES:

1. **Lookouts**
2. **Communications**
3. ***Escape Routes*: A previously established, clearly marked, and easily accessible route that leads directly to the safety zone.**
4. **Safety Zones**

Training Programs

SLIDE 6.7

Module 6.1: LCES

TxDOT Wildland Fire Management

LCES:

1. **Lookouts**
2. **Communications**
3. **Escape Routes**
4. ***Safety Zones*: A pre-determined area of little or no fuel and where extreme fire behavior can be observed *WITHOUT THE USE OF FIRE SHELTERS***

Training Programs

SLIDE 6.8

Exercise 6.1

TxDOT Wildland Fire Management

Individual assignment:

1. What is LCES?
2. In the TxDOT chain of command who is the Lookout?
3. What methods of Communication are used by TxDOT?
4. What is an Escape route?
5. Where are the Safety zones?

Be prepared to discuss your answers (2 minutes).

Summary and Review

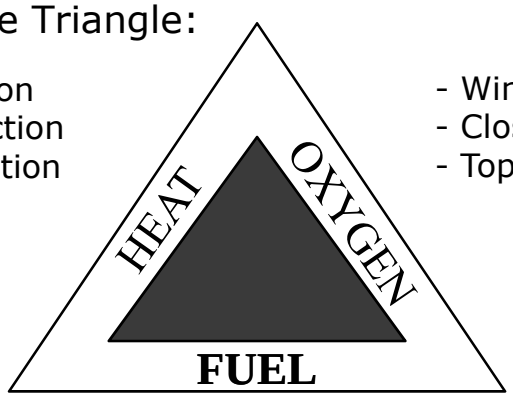
1. Lookouts provide a valuable perspective on a situation and their…
2. Communication with all levels of command.
3. Escape routes are direct route(s) to a…
4. Safety zone large enough for crew and equipment.

Module 6.2: Fire Behavior Basics

TxDOT Wildland Fire Management

The Fire Triangle:

- Radiation
- Conduction
- Convection



- Wind Speed
- Closed/Open
- Topography

Training Programs

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Module 6.2: Fire Behavior Basics

TxDOT Wildland Fire Management

Fuel Types:

1. Grass
2. Shrub
3. Timber Litter
4. Logging Slash

Training Programs

SLIDE 6.12

Module 6.2: Fire Behavior Basics

TxDOT Wildland Fire Management

Fuel Characteristics

1. Fuel Moisture
2. Size and Shape (The physical characteristics of fuels)
   - Light/ Heavy
3. Fuel Loading
4. Horizontal Continuity and Vertical Arrangement

Module 6.2: Fire Behavior Basics

TxDOT Wildland Fire Management

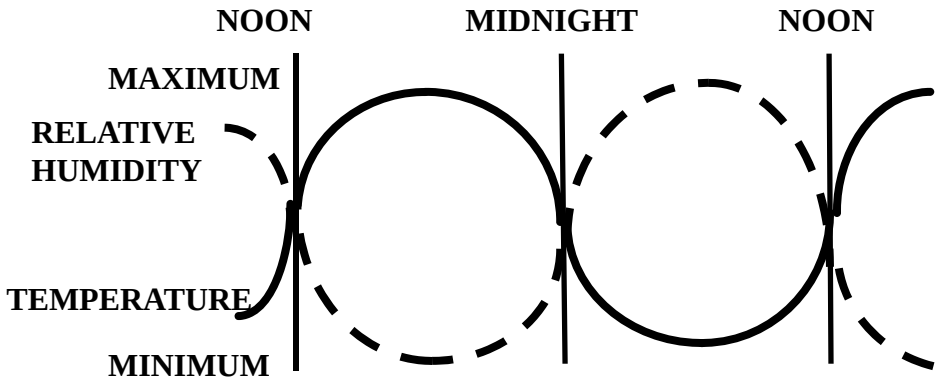
Fire Spread

1. Three types of fire spread
   - Creeping
   - Running
   - Torching and spotting
2. These three are in the order of progression. For example, a fire will creep before it starts to run.

Module 6.2: Fire Behavior Basics

TxDOT Wildland Fire Management

Temperature and Relative Humidity



Training Programs

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Module 6.2: Fire Behavior Basics

TxDOT Wildland Fire Management

Cold Front

1. Wind Direction will abruptly shift
2. Fire pattern will shift before (strong southerly winds drive fire head N/NW) and (W/NW driving the head fire to the E/SE) following passage of frontal passage.
3. Rapid drop in relative humidity within 24 hours of front of passage

Training Programs

SLIDE 6.16

Module 6.2: Fire Behavior Basics

TxDOT Wildland Fire Management

Thunderstorms

- Indirect unstable air
- Possibility of lightning
- Downdrafts and in-drafts causing wind shifts

Exercise 6.2

TxDOT Wildland Fire Management

Individual assignment:

1. What are the three parts of a fire triangle?
2. What fuel types and structure does your region have?
3. Why does fire burn more rapidly in the afternoon than in the morning or at night?
4. What weather conditions can effect fire in your Region?

Be prepared to discuss your answers (2 minutes).

6.2 Summary and Review

1. Fuel will vary within the region and across as-well-as within districts.
2. Fire spread will change with fuel type, characteristics and weather.
3. Weather is a key factor in fire training into a season, event, during the event, and following the event.
4. Fuels, weather and topography play key rolls in the growth potential of wildland fires.

Training Programs SLIDE 6.19

Module 6.3: Suppression Methods

TxDOT Wildland Fire Management

Resources

1. Kind
   - **Crew** – "An organized group of workers, such as firefighters under the leadership of a crew boss or other designated official, that conduct wildland fire operations. "

Training Programs SLIDE 6.20

Module 6.3: Suppression Methods

TxDOT Wildland Fire Management

Resources Cont.

2. Category
   - **Dozer** – "A tracked vehicle with a front mounted blade used for exposing mineral soil to construct fireline or firebreaks."
   - **Fire Plow** – "A heavy duty plowshare or disc plow usually pulled by a tractor to construct a fireline."

Module 6.3: Suppression Methods

TxDOT Wildland Fire Management

Resources Cont.

2. Category
   - **Tractor** – "A rubber tired or tracked rider-controlled automotive vehicle, used in wildland fire management for pulling a disk or a plow to construct fireline by exposing mineral soil."

Module 6.3: Suppression Methods

TxDOT Wildland Fire Management

Resources Cont.

2. Category
   - **Single** – An individual, a piece of equipment, crew or team with an identified work supervisor that can be used on an incident.
   - **Strike Team** -specified combinations of kind type unit resources.
   - **Group** - Divide incidents into functional areas of operation.

Module 6.3: Suppression Methods

TxDOT Wildland Fire Management

Operations

1. Attack
   - **Direct** – … physically separating the burning from unburned fuel.
   - **Parallel** - … parallel but not directly at the fire.
   - **Indirect** - … control lines are located a considerable distance away from the fire's active edge.

Module 6.3: Suppression Methods

TxDOT Wildland Fire Management

Operations

2. Other

- **Mop up** - Extinguishing or removing burning material near control lines.

Module 6.3: Suppression Methods

TxDOT Wildland Fire Management

Module 6.3: Suppression Methods

TxDOT Wildland Fire Management

1. **Attacking the fire directly on the fire's edge**
- **Gives firefighters good view of what the fire is doing**
- **Provides a quick escape route to the black area for use of safety zones**
- **Ensures a secure anchor point**
- **Roll into the fire**
- **ANCHOR & FLANK**

Training Programs

SLIDE 6.27

Module 6.3: Suppression Methods

TxDOT Wildland Fire Management

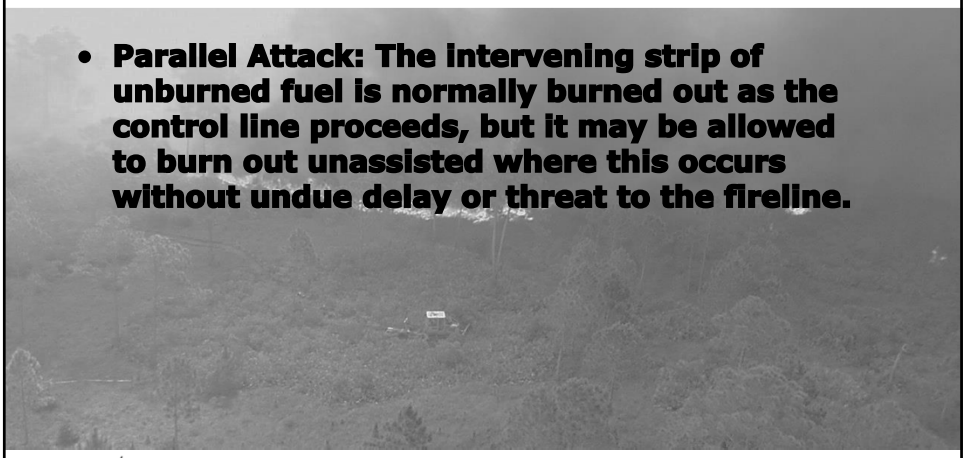
- **Parallel Attack: Method of fire suppression in which fireline is constructed approximately parallel to, and just far enough from the fire edge to enable workers and equipment to work effectively, though the fireline may be shortened by cutting across unburned fingers.**

Training Programs

SLIDE 6.28

Module 6.3: Suppression Methods

TxDOT Wildland Fire Management



- **Parallel Attack: The intervening strip of unburned fuel is normally burned out as the control line proceeds, but it may be allowed to burn out unassisted where this occurs without undue delay or threat to the fireline.**

Training Programs

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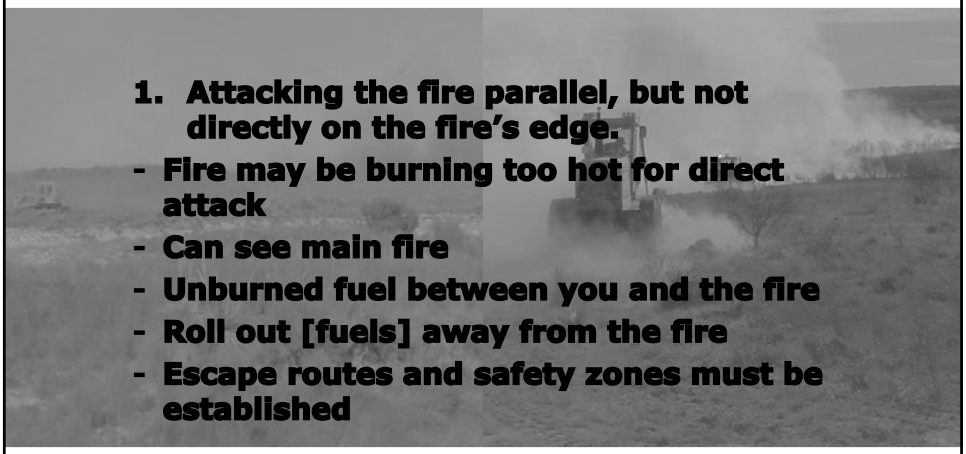
Module 6.3: Suppression Methods

TxDOT Wildland Fire Management



1. **Attacking the fire parallel, but not directly on the fire's edge.**

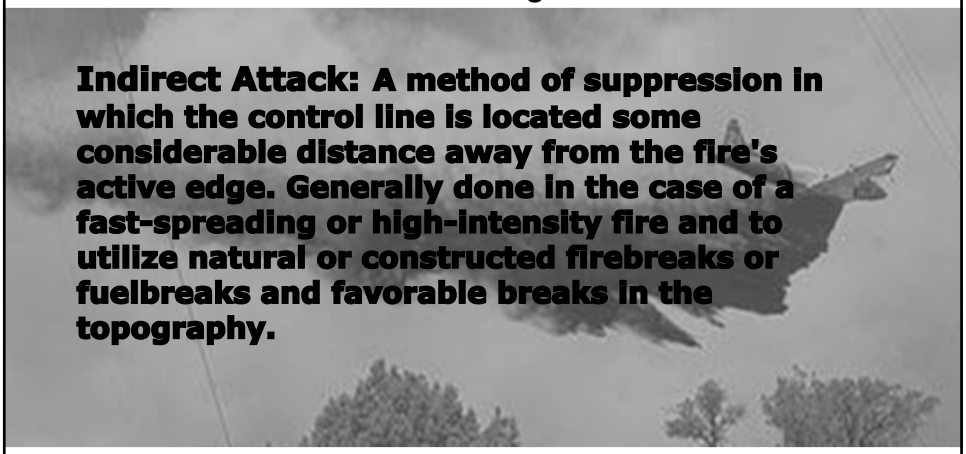
- **Fire may be burning too hot for direct attack**
- **Can see main fire**
- **Unburned fuel between you and the fire**
- **Roll out [fuels] away from the fire**
- **Escape routes and safety zones must be established**

Training Programs

SLIDE 6.30

Module 6.3: Suppression Methods

TxDOT Wildland Fire Management



Training Programs

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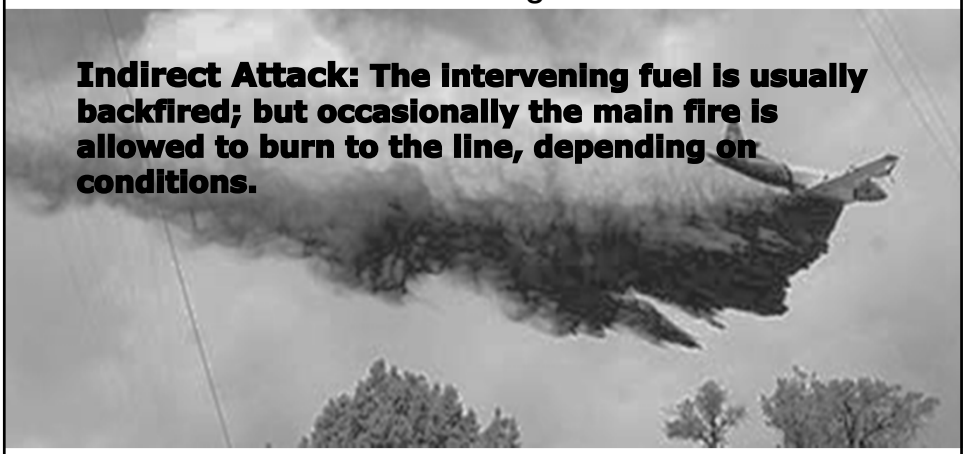
Module 6.3: Suppression Methods

TxDOT Wildland Fire Management



Training Programs

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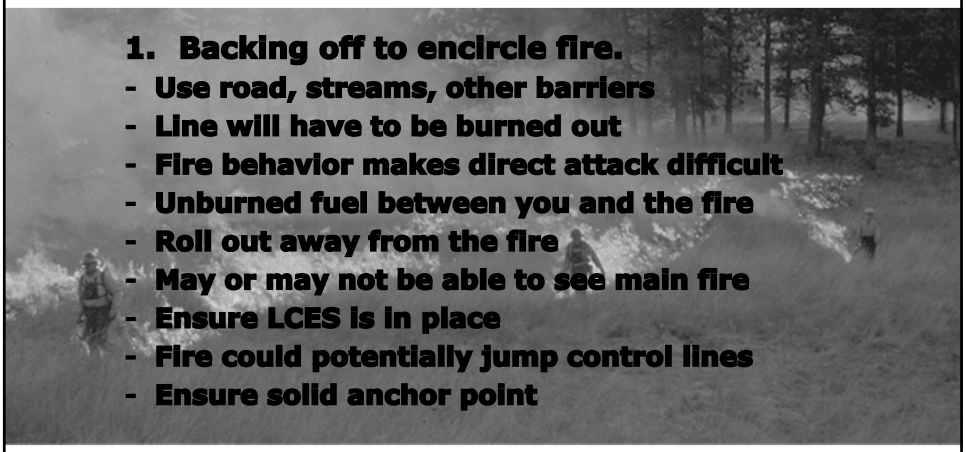
Module 6.3: Suppression Methods

TxDOT Wildland Fire Management



6.3 Summary and Review

1. Various resource kind, category, and types
2. Three primary methods to attacking a fire
   - Direct attack: Attacking the fire directly on the fire's edge
   - Parallel attack: Attacking the fire parallel to but not directly on the fire's edge.
   - Indirect attack: Backing off to encircle fire

Exercise 6.3

TxDOT Wildland Fire Management

Individual assignment:

1. What kind, category, and type of recourse does TxDOT provide?
2. What type of attack or function does the team provide?

Be prepared to discuss your answers (2 minutes).

Module 6.4: Training Resources

TxDOT Wildland Fire Management

Online courses

1. Texas A&M Forest Service
   - http://texasforestservice.tamu.edu/main/default.aspx
   - https://tiwa.tamu.edu/RegSysStudent/Home/Home.aspx
   - http://texasforestservice.tamu.edu/main/article.aspx?id=10580
2. Texas Interagency Coordination Center
   - http://ticc.tamu.edu/index.html
   - http://ticc.tamu.edu/Response/FireActivity/
3. NOAA
   - http://www.srh.noaa.gov/data/index.php
   - http://innovation.srh.noaa.gov/wordpress/imet/

Module 6.4: Training Resources

TxDOT Wildland Fire Management

Training & Education

1. Wildfire Academies & Fire Schools

- http://ticc.tamu.edu/Training/TrainingMain.htm

Training Programs

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Module 6.4: Training Resources

TxDOT Wildland Fire Management

To find out who your Regional Fire Coordinator is, go to:

http://texasforestservice.tamu.edu/main/article.aspx?id=10580

Training Programs

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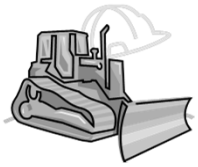
Exercise 6.4

TxDOT Wildland Fire Management

Individual assignment:

1. Where can resources be found?
2. Where can training opportunities be found?
3. What training opportunities are there?

Be prepared to discuss your answers (2 minutes).



Summary and Review

1. Training opportunities are available from numerous sources.
2. Many training programs are required for TxDOT personnel.

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