Safety: Mission
ZERO

TxDOT Safety Process
Jerral Wyer
Director, Occupational Safety Division

Safety Never Stops!
Litter Crew April 1963
CONCERNS
Since TxDOT Started Keeping Records in 1938...

We have suffered

- 19 Deaths while Flagging Traffic
- 28 Deaths on the Shoulder or ROW
- 5 Deaths from Flying, Thrown or Falling Objects
- 52 Deaths Struck by 3rd Party in a Work Zone
- 15 Deaths Struck by Contractor Equipment
- 25 Deaths Stuck by TxDOT Equipment
- 22 Deaths from Equipment Roll Over
- 8 Deaths from Riding on Outside of Equipment
- 8 Deaths from Equipment Maintenance
安全管理：使命ZERO

背对交通？
Safety: Mission ZERO
Pothole Operations - Years Ago....
Pothole Operations
Safety: Mission ZERO
Safety: Mission ZERO
Work In/Near Intersection
Safety: Mission ZERO
Safety: Mission ZERO
Safety: Mission ZERO
Safety: Mission ZERO
Safety: Mission ZERO
Safety: Mission ZERO
Work Near the Shoulder
Safety: Mission ZERO

Traffic Awareness
Time Out
March 10, 2010
Programs that have Helped Us
“Move the Dial”
Safety: Mission ZERO

ZERO Injuries
Better to lose one minute in life... than to lose one life in a minute.
The Vision of Safety: Mission Zero

- Department Wide Commitment to:
  - Zero Injuries
  - Zero Lost-Time
  - Zero Preventable Incidents
  - Zero Fatalities

- Incorporate Safety into decision making at all levels of operations

- Ultimate Goal:
  - Prevent that “One” fatality we statistically face every year…
Safety: Mission ZERO

Communication Both Ways
Safety: Mission ZERO

**F** Find and recognize hazards

**O** Openly search to correct and eliminate hazards

**C** Coordinate the use of resources

**U** Understand the risks at all times

**S** Safety will save your life

Details!
Communication

- PLAN
- COMMUNICATE
- FOLLOW-THROUGH
Safety Culture Balance

- Outstanding Performance
- Positive Environment
- Trust Between Employees
- Safety Interdependence
- Mgt. Demonstrates Strong Leadership Qualities
- Positive Emotional Bank Accounts
- Peer Review (BBS)
- Employee Involvement
- Clear Planning

- Poor Performance
- Negative Environment
- Mistrust Between Employees
- Safety Dependence- Independence
- Poor Leadership Qualities
- Negative Emotional Bank Accounts
- Hide from Authority
- No Employee Involvement
- No Planning
Role of a Safety Professional

- Knowledge transfer: “Sell it, don’t tell it”
  - Training
  - Coaching
  - Teach others “how to fish on their own”
- Be THE resource!!
- Communicate with All Levels of Management
- Provide Check and Balance
- Team Member!
- Must spend majority of their time in the field
- PASSION FOR THE JOB! Lead By Example!
- Listen and listen well!!!!!!!!!!!!!
Each year, about 100 road construction workers are killed on the job. Inside work zones, the most common fatalities are workers struck or backed over by dump trucks or other construction vehicles," says LIUNA General Secretary Treasurer and LHSFNA Labor Co-Chairman Armand E. Sabitoni, noting that many of these tragedies can be prevented through the better use of internal traffic controls, technology, planning and proper training.

"Unfortunately," Sabitoni continues, "the other major problem – intrusions, motorists crashing into work zones and hitting workers – is a lot harder to control."
Temporary Rumble Strips

Lane closures on conventional highways with posted speed limit of 75 mph or less
Type 1
STOP/SLOW

Type 2 (Right)
Red/Yellow lens

Both types required gate arm per TxDOT Standard
TCP (1-6) – 12
AWARE

- Combined technologies:
  - Advanced RADAR
  - Situational Awareness
  - Threat deterrent

Technology Breakdown:
1. Advanced RADAR
2. Situational Awareness
3. Threat Deterrent (Sirens, Lights)
MEMO
August 8, 2016

To: Administration
   District Engineers
   Division Directors

From: Jerrel Woer
      Director, Occupational Safety Division

Subject: Monthly Injury/Collision Report

The injury/collision statistics for Fiscal Year 2016 through June are reported for your information:

<table>
<thead>
<tr>
<th>Fiscal Year 2016</th>
<th>Total</th>
<th>Frequency Rate</th>
<th>Goal</th>
<th>Cost</th>
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<tr>
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<td>1.24</td>
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<td>$507,183**</td>
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* Cost per employee as of July 28, 2016
** Includes reserve cost for 3rd party vehicle liability claims.

Please note the department’s Injuries, Lost-Time Injury and Lost Production Day goals through the month of June were achieved. If there are any questions regarding the above or any portion of the report, please contact Tina Duke at (512) 416-3412 or Samuel Salazar at (512) 416-3363.

Attachments

CC: Business Services Coordinators
    Safety Coordinators
    Commission Office
## OCC Monthly Dashboard

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| OCC Division Cost           | $695,721 | $6,935,550 | $8,869,132 | $7,152,236 |
| Total W/C payout of claims by FY *(5)* | $226,168 | $2,534,650 | $2,886,667 | $2,538,146 |
| Liability On-Road Accident Direct Cost | $139,153 | $653,516 | $1,167,500 | $958,222 |
| Liability Off-Road Accident Direct Cost | $61,933 | $63,028 | $66,687 | $0 |

Footnotes
* Expectation = A 10% reduction from the state average of the last three fiscal years' frequency rates
*2 Recordable Injuries plus First Aid Rate/Lost-Time Injuries Frequency Rate = Number of injuries times 200,000 divided by man hours worked
*3 Lost Production Days Frequency Rate = Number of days lost times 200,000 divided by man hours worked (rates pending)
*4 Vehicle Collision Frequency Rate = Number of collisions times 1,000,000 divided by miles driven
*5 Actual = Direct Cost for Workers’ Compensation - Indemnity and Medical made during FY
## OCC Monthly Dashboard

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<th>Metro Franchise</th>
<th>Injuries</th>
<th>TxDOT Goal Last 3 Years Avg</th>
<th>Lost-Time Injuries</th>
<th>TxDOT Goal Lost 3 Years Avg</th>
<th>Lost Production Days</th>
<th>TxDOT Goal Lost 3 Years Avg</th>
<th>Vehicle Collisions</th>
<th>TxDOT Goal Last 3 Years Avg</th>
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# OCC Monthly Quick Picture Dashboard

## Performance Measures

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<td>Monthly Quick Picture</td>
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<td>Sorted by YTD Injuries</td>
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### Districts

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<th>Injuries Month / Year</th>
<th>Lost Time Month / Year</th>
<th>Lost Days Month / Year</th>
<th>Vehicle Collision Month / Year</th>
<th>W/C Cost* YTD</th>
<th>Liability Cost**(1) YTD</th>
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### Satellite Operations

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Note: Results as of 7/6/2018

* Direct Cost for Workers' Compensation - Indemnity and Medical

** Direct Cost for General Liability and Automobile including reserves
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**FOR FIELD EMPLOYEES**

- Perform two sets of 10 repetitions of every exercise per side.
- Alternate sides between sets.

- **Two sets of each stretch**—labeled in red (numbers 2, 9, 10, 11 and 12)—should be held for 20 seconds on each side.
- Do not perform an exercise if it is painful for you.

---

1. **Pelvic Tilt**
   - Lift low back and tuck in.
   - “Push up” on palms with knees bent and return to neutral position.

2. **Hip Flexor Stretch**
   - Hinge forward and hold for 20 seconds, keeping both knees engaged on back leg and torso upright.

3. **Deadlift**
   - Start with your feet flat, maintaining a neutral posture.
   - Hinge forward at your hips, holding the spine straight, then slowly return to your start position.

4. **Static Lunge**
   - Start with one leg back.
   - Keep spine neutral and bend knees until opposite elbow height.
   - Keep front knee balanced.

5. **Spine Twist**
   - Start in neutral position.
   - Rotate to one side, keeping hips still. Return to start position and repeat on other side.

6. **Shoulder Blade Mover**
   - Pull shoulder blades together with upper back muscles.

7. **Shoulder Blade Lift**
   - Reach arms overhead.
   - Elevate shoulders as high as possible. Lower shoulders with arms overhead as far as possible.

8. **Mid-back Extension**
   - Keep back neutral and flex upper body forward.
   - Lift chest upward while engaging abdominal muscles.

9. **Side Bend Stretch**
   - Start with arm reaching overhead.
   - Bend to the side and hold position for 20 seconds.

10. **Arm Stretch**
    - Reach arm overhead.
    - Bend above and hold 20 seconds.

11. **Neck Stretch**
    - Standing with hand holding opposite side of head.
    - Gently stretch and pull to side.

12. **Forearm Stretch**
    - Extend elbow and pull hand back on fingers.
    - Hold for 30 seconds.
Supervisor attends doctor’s visit

- Discuss duties
  - Modified duties
  - Alternate duties
  - Transitional duties

Collaboration between Operations/HR/Safety
Biometric Screening

- Preventive measure for employee’s health
- Alert employees of possible unknown health conditions
- Free for all employees at local offices
  - Body Mass Index
  - Blood Pressure
  - Total Cholesterol (TC), HDL and TC/HDL
  - Glucose
  - Brief Coaching and Booklet with written results
  - Prostate Specific Antigen for men over 40

- 100% Confidential
Plan Safety into Every Day

- **Play of The Day!**
  - Discuss Traffic Control Plan
  - Discuss Internal Traffic Control Plan

- **Recap** – End of the Day

- **Safety:** Every Second Every Day!!
Employee Recognition Programs

- Safety Awards Banquets
  - Opportunity to share a meal and celebrate group and individual accomplishments:
    - Safe Operator Award
    - No Injury Award
    - Group No Lost Time
Expanded Drug/Alcohol Testing

- From “Safety Sensitive” to “Safety Impact”
  - Beyond CDL

- A Safety-Impact Position is a position which requires the performance of safety-impact activities which if performed with inattentiveness, errors in judgement, diminished coordination, dexterity, or composure could clearly result in mistakes that could present a real and imminent threat to the personal health and safety of other employees or the public.
Specialized Awareness Material
Hazard Recognition

Components:

- Provides for the discussion of hazards related to internal and external dangers
- Requires proper planning/scheduling of resources
- Moving Ops / Work Convoys require effective use of protection – TMA's, arrow boards, signage
- Protects the equipment operator from distracted drivers

Boot On The Ground Form
Hazard Recognition

- Proper flagger station?
- No escape route
- ‘Arrow Board’ at flagger station
- Cone placement for flagger station
- Flagger ‘blends’ into vehicles surrounding the area
- Warning device shall be held in hand closest to travel lane

- Proper Parking Decision?

  TxDOT Backing Policy
  - Think About Departure Upon Arrival
  - Pull Through Parking
  - Back First Procedure
  - 360 Walk Around Reminder
Boots on the Ground

- Concept created during Operation One DOT. Required embedding Safety Officers into maintenance crews for the entire shifts.
- Provides opportunity to evaluate employees following through with safe work practices as well as coach and reinforce where gaps exist.
- This initiative has expanded to daily operations and has strengthened our focus on safety within work zones.
Boots On The Ground
Crew Leader Training
Boots On The Ground
Components:

- BOTG requires a team effort; key players are the supervisor, crew leaders, and road crew members
  - Flagger station & parked vehicles, maintain escape routes
- Isolate workers on the ground from moving equipment
- Reduce the need to travel in reverse; if backing is necessary use a spotter, back up alarms, proximity sensors or cameras
  - Spotter placement should be from the passenger side, away from open lane of travel
Challenges Addressed / Improvements Needed

- Flagger Station
- Vehicle Spacing
- No flag on blade
- Tarps damaged/Not used
- Seat Belts
- Escape Route
- PPE
- Proper Signage
- Proper Sign Spacing
- Recap Meeting
- Spotter Usage
Boots On The Ground

Components:

- Provides for the discussion of hazards related to internal and external dangers
- Requires proper planning/scheduling of resources
- Moving Ops / Work Convoys require effective use of protection – TMA’s, arrow boards, signage
- Protects the equipment operator from distracted drivers
Internal Traffic Control Plans Require Communication, Teamwork and Follow-Thru

- Since 1938, TxDOT has suffered 274 employee fatalities
  - 103 fatalities as a result of being struck by 3rd party motorist
  - 28 fatalities on the shoulder or ROW
  - 19 fatalities while flagging traffic

- Between 2005 and 2010, 48% of worker fatalities related to run-overs / back-overs

- The act of planning the placement of vehicles and personnel in work zones is a very familiar practice

- Coordinates the flow of vehicles, equipment and workers within the work zone to prevent vehicle incidents and employee injuries.

- Identifies the flow of operations

- Benefits motorist & TxDOT employees

WIFM
Components:

- **Morning Tailgate / Play of the Day**
  - TA/TCP - JSA - Google Earth - Workplace Hazards - Predetermined Routes - PPE

- **Identify entry/exit points in the work zone**

- **Proper placement of necessary vehicles in the work zone**, unused equipment should be staged away from buffer zones and work areas

- **Regular and effective communication**, follow-thru and constant reviews of the work zone are important to keeping our TxDOT workers and public safe and free of injury
  - Use visibility devices in order to be seen: Flag/pole on maintainer blade, slow moving vehicle emblem, Overhead Line Identification

- **Time Outs Encouraged**

- **Best Practices (Required)**
  - Lights on For Safety - Staging of Equipment - Tarps - PPE - Seatbelts - Taper / Tangent

- **Safety Devices**
  - TMA (proper spacing) - Arrow board per TCP - AFADS, Portable Traffic Lights - Caution board
  - Pilot Vehicle with proper sign
Front line leaders are in a unique position because of the closeness to the individual team.

**Tips to becoming a good Safety Leader:**

- **Thank the worker** - If you see an employee working in a safe manner, say thank you. We appreciate their willingness to be safe. A simple “thank you” reinforces safe work practices.

- **Never say “THEY”** - We don’t want our workers to do things a certain way because “they” (OCC/Austin) want us to do it. We want them to do things a certain way because it’s the right thing to do.

- **Coach** - As a rule, employees tend to do as instructed. If a leader wants the safe practice to continue, explain WHY we do things. Employees will gain a better understanding.
Being a **LEADER** means more than having employees working beneath you to get work done.

Front line supervisors/crew leaders drive the safety culture in any organization.

Workers tend to do things because their bosses do it or tell them to do it.

It is because of this that we need our **LEADERS** to **Walk the Talk**

(Lead by example…Practice what you preach…Practice Makes Permanent)
Commitment

- Let’s commit for everyone to share their concerns; using Safety Timeout
- Let’s commit to be proactive when preventing Hurts & Incidents
- Let’s commit to develop a culture of trust and respect for each other
- Let’s commit to address and eliminate negative trends and unsafe work practices
- Let’s commit to lead in safety initiatives – lead by example (360 walk around, stretch and flex, ‘Drive Along’ program)
- Let’s commit to accomplishing Safety: Mission Zero
Cable Barrier Guidance

Option 5
Remove hairpins and lock plates for approximately 100 feet on either side of the vehicle. A span of approximately 100 feet without any posts or hairpins should allow the cables to lie on the ground.

Option 6
Tension in the cables can also be released at the nearest upstream and downstream turnbuckles, or at one of the cable end anchors, whichever is closest. Use hand tools to loosen the turnbuckle until the end of each threaded terminal reaches the inspection hole.

WARNING
The threaded terminals should always remain visible in the inspection holes. Unscrewing the turnbuckle or cable anchor ends beyond this point can be unsafe. The cables could release rapidly as the threads strip out of the connection.

Remember that every incident is different. To ensure everyone’s safety:
- Never stand in the cable deflection zone
- Maintain constant communication with TxDOT employees and first responders
- Use extreme caution during vehicle recovery, paying particular attention to where responders stand and what they touch
TMA Guidance

RESPONSIBILITIES AND ROLES OF THE TMA OPERATOR

RESPONSIBILITIES
Ensure that the TMA/protective vehicle is in the proper position to protect crew members from errant vehicles and to protect the traveling public.

ROLES
- Trained in TMA/WZTC operations and procedures.
- Mentally alert; physically aware/observant and able to react to surrounding conditions.
- Check at least one mirror every 5-8 seconds and monitor traffic and traffic flows.
- Be able to alert the crew quickly and effectively.
- Maintain constant communication with crews to update them on all operating conditions.
- Experienced with roadway operations (pre-plan, plan, implement, and review).
- Follow daily tasks, traffic control plans (TCPs) and internal traffic control plans (ITCPs).
- Always wear seat belt in the vehicle cab.
- Ensure that no electronic devices or cell phones are in use.
- Call a “time-out” if conditions change or if there is a safety concern.
- Discuss and learn from near misses.
- Attend all pre-work meetings.

Rotate operators to prevent mental fatigue or daydreaming and to increase driver attentiveness.

SUMMARY
- TMA/TMMs are effective when used properly.
- “No TMA get left behind in the yard.”
- Follow standard procedures, traffic control plans (TCPs) and internal traffic control plans (ITCPs).

TRUCK-MOUNTED ATTENUATOR (TMA) AND TOWED TRAILER-MOUNTED ATTENUATOR (TTMA) OPERATIONS FIELD GUIDE

Incorporate safety into decision-making at all levels of operations.

OCCUPATIONAL SAFETY DIVISION
Ph 512-416-3415 | Fx 512-416-3302

TMA/TMMs have been tested and certified—they have saved the lives of many highway workers.
Summer Awareness Campaign

- 123 Safe Days of Summer
  May 1 thru August 31
  - Highlight top performers in franchise categories
    - Rural
    - Urban
    - Metro
  - Lowest combined incidence and recordable vehicle rates

Brownwood District
No Lost-Time Injuries
Met All 4 Goals
2015 Short Course
TXDOT’S DRIVER IMPROVEMENT PROGRAM
Every three years
All driving employees
Classroom/Online
Smith System Collision Avoidance Training

• 6,500 trained last three years
• Focus on building space cushion
• Reduced severity of incurred liability claims
Key 1 Aim High In Steering®
Key 2 Get The Big Picture®
Key 3 Keep Your Eyes Moving®
Key 4 Leave Yourself An Out®
Key 5 Make Sure They See You®

© 2010 Smith System Driver Improvement Institute, Inc. All Rights Reserved SSS-941 REV 05.2011
Be Safe, Be Visible!
Drive with Head Lights on:

Day & Night!
This is not a phone booth.
Employee Accountability

- Preventable Incident Disciplinary Plan
  - Three and Out
- Backing Policy
  - Walk Around
  - Spotters
  - Avoid backing
  - Charge back
Employee Drive Along

- Process through which employees drive with their supervisor for approximately two hours as part of a driving/coaching session.
- Supervisor utilizes a form with key driving observations to identify safe driving habits and provide coaching on areas for improvement.
- Field operations implemented this process and is now expanding to Divisions and Offices.
- Investment in this process is paying off. Follow through will reduce vehicle incidents in upcoming years.
- Main purpose: Create safer drivers!
Safety: Mission ZERO

Total Number of Workers’ Compensation Claims Reported by TxDOT Employees

FY1985-FY2015
Number of Recordable Vehicle Incidents at TxDOT FY1985-
FY07-FY16 TxDOT Hours and Injury/Lost-Time Incident Rates

- **Hours**
  - FY07: 31,261,754
  - FY08: 29,771,406
  - FY09: 28,024,019
  - FY10: 25,961,402
  - FY11: 25,146,547
  - FY12: 24,713,454
  - FY13: 24,789,070
  - FY14: 24,993,544
  - FY15: 24,948,734

- **Injury Rate**
  - FY07: 3.06
  - FY08: 2.72
  - FY09: 2.85
  - FY10: 2.49
  - FY11: 2.65
  - FY12: 2.08
  - FY13: 1.74
  - FY14: 1.62
  - FY15: 1.35

- **Lost-Time Rate**
  - FY07: 1.38
  - FY08: 1.21
  - FY09: 1.13
  - FY10: 0.93
  - FY11: 0.84
  - FY12: 0.47
  - FY13: 0.59
  - FY14: 0.40
  - FY15: 0.29
Total Cost of Workers’ Compensation Claims

Paid by Fiscal Year

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What Do We Need?

- **Total Involvement**
  - Employees empowered and engaged
    - Employee ownership
  - Leadership creates and sustains a safety culture
    - Every decision involves Safety
    - Focus on “Safe Production”

- **Accountability**
  - With ourselves and each other
Levels of Safety Commitment

Level 1
Comply when convenient

Level 2
Comply when I have to

Level 3
Believe for me & family

Level 4
Believe for me, family & team mates

Believe in

- Behaviors are not constant
- Everyone is a blend of levels
- What level do we demonstrate frequently?
Understanding Culture and Safety Performance

External Motivation
- COMPLIANCE
  - Rules, Procedures, Protocols

Internal Motivation
- COMMITMENT
  - Felt Leadership, Role Modeling, Influencing >> Engagement

Injury Rates

Reactive
- Safety by natural instinct
- Compliance is the goal
- Delegated to safety manager
- Lack of management involvement

“I follow the rules because I have to”

Dependent
- Management commitment
- Condition of employment
- Fear / Discipline
- Rules / Procedures
- Supervisor control, emphasis and goals
- Value all people
- Training

Supervision

“I follow the rules because I want to”

Independent
- Personal knowledge, commitment & standards
- Internalization
- Personal Value
- Care for Self
- Practice & Habits
- Individual Recognition

Interdependent
- Help others conform
- Being others’ keeper
- Network contributor
- Care for others
- Organizational Pride

Teams
TxDOT Employees Committed to Mission: ZERO
Jerral Wyer
Jerral Wyer
Jerral Wyer
Jerral Wyer
Jerral Wyer
We Remember...
1) Safety Report to the Top

2) **Monthly Dashboard**: Ranking Districts/Goal

3) **Boots on the Ground**: Safety Officer in each District (Full Time)

4) **Weekly Leadership Call**: DE explains any Incidents/Injuries

5) **Daily Play of the Day Meeting/Daily Recap Meeting**
6) **Time Out:** Any employee can call

7) **Aggressive Driver Improvement Program:** DDC, Smith System, Supervisor Drive-A-Long, 360 Walkaround, Lights on for Safety (Employee must follow process)

8) **Area Engineers, Supervisors, Crew Leaders:** Lead Safety and Promote Accountability

9) **Peer Reviews/Field Coaching**

10) **Work Safely:** #1 on Performance Plan
Just One...

It takes one minute to write a safety rule
It takes one hour to hold a safety meeting
It takes one day to hold a safety class
It takes one month to put a plan into operation
It takes one year to win a safety award
It takes one lifetime to make a safe worker
It takes one second to destroy it all with...

One Incident
Safety: MissionZERO

Safety Never Stops!