How would you like it if people drove their cars thru your office?
Work Zone Safety

More than 40,000 people are injured each year as a result of motor vehicle crashes in work zones
How serious is the WZ Problem?

- 835 fatalities
- $4.4$ billion Annual Cost
- 75 workers killed by vehicles/equipment

2007 Statistics
How is Motorist Crash Risk Affected?

% Increase in Crash Risk

- Work Zone Active, Lanes Closed
- Work Zone Active, No Lanes Closed
- Work Zone Inactive, No Lanes Closed

Daytime
Nighttime
Drowsy Driving in Work Zones

![Bar chart showing the comparison of percent of crashes in work zones versus non-work zones during daytime and nighttime. The chart indicates a significantly higher number of crashes in work zones during the daytime compared to nighttime.]
Drunk Driving in Work Zones

![Bar chart showing the comparison of percent of crashes in work zones and non-work zones during daytime and nighttime.](chart.png)
Highway Equipment Related Fatalities

- Workers on Foot: 57%
- Operators: 35%
- Passengers: 8%

Source: Bureau of Labor Statistics
Highway Worker Fatalities

- Construction Equipment: 41%
- Traffic Crash: 19%
- Vehicle Entering Work Area: 22%
- Other: 18%

Source: Bureau of Labor Statistics
Work Zone Safety

Speed: the number one concern in work zone safety
Work Zone Safety

• Distracted Driving:
  – Reaching/looking for items in the car
  – Things, events outside of the car/rubbernecking
  – Cell phones
  – Adjusting the radio
  – Eating
  – Grooming
  – Children and pets
WORK ZONES ARE DANGEROUS PLACES TO WORK OR VISIT
What does WZ Safety mean to the public?
Work Zone Safety

As a result of the Public’s Perception...

...the desired effect of our traffic control sometimes gets compromised.
ROAD WORK
NEXT 118 MILES
Error 404: Road not Found
What does WZ safety mean to the contractor?
Safety

• Remember, there is only 1 goal
• You, the motorist, bicyclist and the pedestrian must go home at the end of each work day.
• There are no other acceptable alternatives.
Traffic Issues

• Sight Distance – Blind Curves
  – Need extra signage

• High Speed – High Traffic Volume
  – No gaps for merging vehicles
  – Stopping traffic is impractical and unsafe

• Tailgating
  – Motorists following trucks into work space
  – Panic stops

• The motorist NEEDS MORE information
Work Zone Issues

• Acceleration/Deceleration lanes
  – Short or non-existent

• Signage indicating merge/exit points
  – Signs give vague information
  – Messages left up 24/7

• Flagging operations
  – Works best with low traffic and moderate construction trucks
  – Low construction truck traffic means intermittent flagging
    • Proper rules are forgotten

• Information must be accurate and REAL TIME!
Work Zone Safety

• **Congestion** on our roads is growing. Vehicle miles of travel are growing at a rate greater than mile of roadway:

• **Between 1982 and 2002, vehicle miles traveled increased by 79 percent, while highway lane miles only increased 3 percent during the same period.**

Internal Work Zone Traffic Control for worker protection

Traffic cones from Europe

Not proper use of Jersey Barrier
Additional Truck Mounted Attenuators (as needed for project)
Additional Message Boards
Oops, No I meant the First

You’ll have to go round again
(M32, M4)
(M32)

Take the second exit

Look I said I was Sorry
Backer Spotter
Trucks – access and egress
Additional Law Enforcement
Making Worker more Visible

“Standard” Safety Vest
Additional Warnings
Additional Warnings

Hit a Worker

$10,000 Fine

Lose Your License
CONES ARE ONLY APPROPRIATE AT SHORT TERM SITES
Traffic Control Devices

- Effective
- Changeable message signs
- Arrow panels
- Warning flags and lights on signs
- Effective buffer space
- Trained flaggers and spotters
Other TCDs & Safety Devices

- Enhanced flagger setups
- Intrusion alarms
- Rumble strips
- Pace or pilot vehicle
- High quality work zone pavement markings and removal of misleading markings
- Reduced channelizing device spacing
Good TTC
Achieves Multiple Goals

• Movement of vehicles, bicycles, pedestrians
• Accommodates transit operations
• Provides access to property and utilities
• Protects workers and work operations
• Allows efficient completion of the work

Bottom line = reasonably safe & efficient movement of road users while protecting workers & completing work efficiently
What is an Internal Traffic Control Plan?

• Developed by the contractor
• Coordinates vehicle and equipment movement inside the work zone
• Limits exposure of workers on foot to construction traffic
• Reduce hazards for equipment operators
“Stage” the Roadway Work Zone

• Advance Warning
• Transition
• Activity – Work space, Buffer space, Traffic space
• Termination
Work Zone Safety

• Traffic control plan is needed
• Traffic control devices must be used inside the work zone
• First warning should be 4-8 times (in feet) the speed limit (in mph)
• Flaggers and others need high visibility, reflective clothing and training
Principles of Safe Traffic Control

- Plan for Safety
- Keep if Moving
- Communicate
- Monitor
- Plan for the Worst
- Train
The Future of Work Zones

• **It is possible** to reduce work zone accidents

• Goals:
  – Identify and create best practices
  – Implement Internal Traffic Control strategies for improved motorist information on destination and delay
Considerations

• Pre-shift meeting with all involved
• Everyone must know what is happening for the day.
Work Zone Safety

However...

“The owner would not always allow us to place additional safety devices on the job!”

“We did not get paid for a lot of those extra safety devices!”