



# Texas hit by flash floods

“Storms have claimed 11 lives in northern and central Texas in the past two weeks. President Bush declared Texas a major disaster area Friday, ordering federal aid for Cooke, Coryell, Denton, Grayson, Lampasas and Tarrant counties.

Gov. Rick Perry declared disaster areas in 37 counties across Texas. Residents of those counties would have access to state assistance programs.

The weather service measured more than 11 inches of rain in June at Dallas-Fort Worth International Airport, about a half-inch shy of the 1928 record.

The normal rainfall is about 4 inches, reports **CBS News meteorologist George Cullen**.”











# TADD Campaign



**Nearly half  
of all flash flood  
fatalities are  
vehicle-related.**

**Turn  
Around  
Don't  
Drown™**

**Call 311 for more information.**

# Okay for low volume roads



# Anyone willing to turn around?



# **9<sup>th</sup> International Conference on Low-Volume Roads, Austin, Texas**

- Organised by Transportation Research Board (TRB)
- Held every 4 years
- 3 day conference incl. field trip
- 80 peer reviewed papers
- Five pre-conference workshops
- Texas Transportation Institute visit

# Safe, Clean, and Affordable . . . Transport for Development

- 1996 report - sustainable transport focus
  - Economic, financial, environmental, social outcomes
- 2007 rural road investment & development
  - Facilitate/create economic opportunity, urban/rural linkages, accessing health & education
- Rural access index
  - South Asia/Latin America <60%
  - North Africa 30%
- Assessing community priorities
  - 70% travel in Africa "head-loaded"

# Roads Economic Decision Model

- With limited funds what is the best investment
- Simplified version of HDM-4 in spreadsheet format for low volume roads (part. unsealed)
  - Defining road quality levels
  - Estimate road agency & user costs
  - Perform economic evaluation & sensitivity analysis
- Benefits of improving or maintaining road quality level – comparison by NPV
- Need to establish country specific data

# Disaster Responses for LV Roads

- North Carolina Forestry Service have developed Flood Emergency Road Maintenance Plans (FERMA Plans)
- These detail procedures for Emergency Response
- Include information on :
  - Equipment
  - Rental equipment agreements
  - Maintenance contract task orders
  - Co-op agreements with other road control authorities

# Freeze Thaw Management

- Major issue much of United States, Canada and Northern Periphery (Arctic area)
- Load restrictions are common during thaw period
- Canadian test roads researching effect of seasonal factors on pavement deterioration
- US Forest Service determined when to place and remove spring load restrictions
- Subsurface sensitivity instruments used plus a thaw index based on air temperature

# Minnesota Road research project



# Minnesota Road Research Project

- Low volume road 2.5 mi 2-lanes closed loop
  - 5-axle tractor/semi-trailer, known load conditions
- 20 test cells each 500 feet long
  - 15 asphalt and 5 concrete cells
- Total ESAs per lane equal over time
  - Legal load (gross weight 36tonne) 4 days per week
  - Heavy load (gross weight 46tonne) 1 day per week
- Pavement performance more affected by no. passes/load repetitions than total ESAs

# Texas Transportation Institute

- Texas A&M university
- \$38M grant & contract expenditure
- Riverside crash testing facility
  - Homeland security
  - Vulnerability of embassies, facilities etc.
  - New protection barrier standards
  - Rating of anti-ram bollards

# Conclusion

- Consider the main benefit of the Conference to have been identification of some of the information freely available out there, and where to get hold of it.
- Provided ideas and details of work undertaken elsewhere which may be able to be developed for our use.

# Low volume road?





**What drunk drivers  
are wearing this season.**



**Drink. Drive. Go to Jail.**

Work Zones.  
Pay  Attention  
or pay the price.

