HENNEPIN COUNTY EMERGENCY MEDICAL SERVICES

I-35W BRIDGE COLLAPSE

AUGUST 1, 2007
35W Bridge

- Built 1967
- Rated in recent years as: ‘structurally deficient, but not in immediate need of replacement’
- 2000 ft span, 64 ft high
- 141,000 cars / day
- Mississippi 390 ft wide, avg 7ft depth
Bridge Collapse

- Entire bridge collapses, first of 49 related 911 calls comes in
- '500 2nd St. SE' is initial address
- Limited information, unclear which bridge
- First alarm fire response dispatched 6:07pm, Engine 11 arrived 6:12pm, requests 2-2 alarm
- EMS - 2 rigs and 1 supervisor, dispatch added 2 additional, supervisor and rig 1 arrived 6:13
- Requested 5 additional ambulances
INITIAL RESPONSE

From initial 911 call:

- **20 minutes**: EMS positioned in all critical areas of collapse zone
- **30 minutes**: patient transport had begun from each end of bridge

**Hennepin County EMS entities:**
- HCMC ambulance
- North Ambulance
- Allina Ambulance
- Edina Fire Rescue
- Waconia-Ridgeview Ambulance
INITIAL RIG DEPLOYMENT

500 2nd St SE

staging

421
481
EMSBr

485
488
482

(482)
Lakes Region

IC Liaison

486
Kanabec Co
NW SECTOR

- Became north staging area and base for extended operations
- Good vehicle access, minimal number of patients
**NE SECTOR**

- Very limited access, greatest number of significantly injured patients
- Use of pick-up trucks to rapidly evacuate patients
North Side

- Initial critical patients carried on backboards, passed down ladder
- Many bystanders and civilian medical assistance
- Pickups used to transport at least 7 victims from N downstream side, some went directly to hospital (U of M), some intercepted by EMS once reached city streets
SOUTH DIVISION

- SW Sector: only area with patients
- SE Sector: supported fire activities
South Side

- South side
  - Rapid civilian evacuation of span
  - Shifting debris, vehicle fires challenges
  - School bus evacuated, rapid search of area turned up no critical patients
  - Triage area / Staging set up with Red Cross assistance (in their parking lot)
Center Span

- Most vehicles intact
- Initial water rescues by police and civilians
- 1 CPR on span – terminated efforts on scene
- Few serious injuries on center span
- Multiple evacuated by fire boat to shore, transferred to waiting resources
HAZARDS

Structures and environment
Unknown hazardous materials and spills
Danger of secondary collapse: bridge moved and groaned during rescue.

Safety lanes past downed power lines and potential collapse zones marked with yellow tape.
COMMUNICATIONS

- Staffing and division of labor
- Notifications / Mutual aid coordination
- 800 MHz system / ETAC 1
- Coordination of sector activities

Issues:
- Radio channel overload
- Cell phone traffic gridlock
- Lack of information from scene to EOC, MRCC and receiving hospitals
MRCC UNDER-UTILIZED

- Crews forgot to notify MRCC
- MRCC controlled only 20% of patients
- Dispatch gave frequent reminders
- Records updated after the event
RESPONSE SUMMARY

- Collapse to last patient transported:
  - Initial clearing of all sectors: 1 hr 35 mins
  - Last EMS transport: 2 hrs 6 mins
- 50 patients transported by EMS
- 8-13 casualties via other vehicle
- Over 100 patients treated in 24 hours
- 13 deaths (4 at scene/2 hospital/7 recovery)
- No serious injuries to first responders or rescue personnel
- 29 ambulances used in first 4 hours
EMS CHALLENGES

- Understanding the scene
- Maintaining command and sustaining essential communications with multiple staging sites
- Setting priorities: triage / transportation
- Managing mutual aid response
- Coordinating and tracking patient movement
- Overcoming hazards / ensuring rescuer safety
- Contending with volunteers / self assigned personnel
WHAT WORKED

- Incident Response Plan
- Responder / Interagency Cooperation
- Radio System (all 800 mghz)
- Overall coordination of event
- EMS performed rapid patient triage, stabilization and transport
- Resuscitation efforts were limited and terminated in the field
- Adapting resources and protocols to the prevailing conditions
WHAT'S NEXT?

- Modify Response Plan to better anticipate really large incidents
- MCI Plan to follow daily operations
- Improve communication and coordination with receiving facilities
- Control of radio = control of event
- Conditioning crews to use MRCC in MCI
- Emphasize regional planning, training and exercises.

North Memorial
Mitigating Factors

- Weather/ Season/ Time of day
- Traffic / lack of forward motion of vehicles
- Use of automobile restraints
- ‘Cushion’ of bridge collapsing under vehicles, shock absorbers, and seats
- Location of event (proximity to hospitals and resources)
- Luck!