Gibraltar
Cable Barrier Systems

Objectives

- Why we have Cable Barriers
  - Different than other barriers
  - Introduction of the Gibraltar HTC
- First Responder Education

Iowa Cable Captures

Purpose to reduce cross medium crashes
  - Reduces impact
  - Easy to repair
Cable Barrier History

- Cable Barriers have been used since the 1960's
  - Primarily Low Tension
- Designed to contain and redirect errant vehicles from hazards
- Currently 5 Manufacturers of HTCB
Why Do We Have HTCB?

- Softer System than Concrete or Guardrail
  - Less Injury to Vehicle Occupants
  - Less Damage to Vehicle
  - Large % Vehicles Drive Away
- Protect More Highway with Same $  
  - 1/4 Cost of Double Faced Guardrail  
    • For Bi-Directional Protection  
    - 1/10 Cost of Concrete

Limitations of HTCB

- Deflection  
  - Need Space for Vehicle to "Deflect" into
- Slopes  
  - Only Tested on 4:1 or Flatter
Gibraltar History

- Received our First FHWA Acceptance Letter in 2005
- Since then we have tested our System Over 25 Times
- Last Manufacturer to enter market, and have become the leading provider of HTCB
HTCB Testing Requirements

- All HTCB Systems Must be Tested and Pass per NCHRP 350 or MASH Standards
  - Capture without Overturning and without Compartmental Deformation or Intrusion
  - Deflections are System Specific
- Deflection Distances are based on Pickup Truck Test (Test 3-1) Only
- Once System has passed, States have option of accepting for use on their Highways
Basic Cable Barrier Construction

- Post can be Direct Driven or Socketed
- Sockets can be Driven or Cast in Concrete
- Posts are placed in Sockets and Cables are hung from Posts
- Cable heights are pre-determined through hardware
- After a hit, bent Posts are removed and a new Post is placed in Socket
- Cables are re-hung, tension is checked and system is ready

Cable Tension

- Tension is set based on ambient temperature
- Tension is achieved through a two step tensioning - Initial and Final
- Initial tension is set based on temperature and system will sit for a pre-determined period of time - for cable "seating"
- Final tension is set based on temperature after "seating", tension will fluctuate with temperature
- Tension should be checked and recorded after every hit

Most are Socketed by Iowa DOT

First Responders should not be afraid to cut the cables
Steel Wire Rope

- Invented in the early 1830s
- Nominal 3/8 inch dia. (19 mm)
- 3 by 7 (three bundles of 7 wires each)
- Right-hand lay (helical twist)
- 5 inch wire pitch, 8 inch rope pitch
- 35,900 lb. minimum breaking strength
- Galvanized per ASTM A123 Class A

Hairpin System

For vertical TL-4 at 39 inch height
Call Traffic Management Center for additional support during heavy traffic.
Terminal Section

- Must Be a Pass-Through Terminal / Gated
- Cables Must be Released Upon Impact - From Either Direction
- Cannot Have "Dead-Man" Post
- Why Do Terminals Need To Be Pass Thru?
First Responder

- Typical Hit Photos
- Non-Typical Hits
- How To Get a Vehicle Out of the System
- How to Release the Cables

Recommended do hands-on training in Grimes
Wheels right on the yellow line is a dangerous situation!

Example of damage
Don't cross the cars, toy, terminal in this case.
This is an easy fix.

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What To Do If Vehicle is In System

- Use Caution & Best Judgment
  - Possible Unstable Condition if Hung Up on Vehicle
- Keep Non-Emergency Personnel Away
- Methods to Release Cables
  - Remove Hairpins & Lockplates Up & Downstream
  - Push over Cable Release Post
  - Cut Post at Grade or move vehicle out of system
- Remove Vehicle by pulling it the way it entered

Contact TMC (Traffic Management Center) for additional support

Jawing and Recovery can also contact TMC for additional support
What To Do If Vehicle is In System

- Release the Vehicle
- Pull Vehicle Out the Same Way It Came In
- May Have to Pick Up Vehicle that Has Run Over Cable
- Remove cable from posts up and downstream
- Cut off Part of Vehicle Entangled in Cable

- Cut the Turnbuckle (LAST RESORT)
- Cut the Cable (LAST RESORT)
  - Repair of Cut Cables Takes Longer – System is down until repaired
  - Cable Cutting Videos

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Cut turnbuckle before cutting the cable, only as a last resort

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These are cable cutting videos available.

Can cut with JAWS or H-42, or whatever is the fastest
Support Team

- Team Designed for Customer Service
- 800-495-8957
  - Ron, Jay, Bryan, Heather, John or Julie

People at Gibraltar

Contact George Kerlaw or Ted Shirley for training
with high tension cables