CONCRETE
ALBERTA

ROLLOVER PREVENTION GUIDE

GOALS OF THIS DOCUMENT:

- To Save Lives
- Reduce Injuries
- Driver Retention
- Reduce Equipment Loss
- Increase Company Profits
- No Rollovers

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INTRODUCTION

Rollovers can result in serious injury or death to employees and the public.

All rollovers can be prevented.

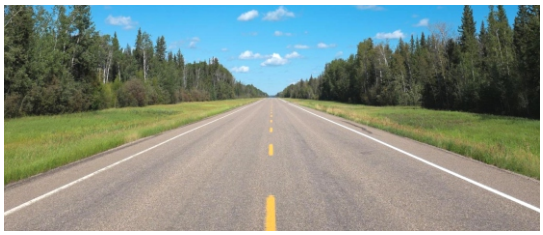
Rollovers create unnecessary human suffering and substantial costs and business disruption.

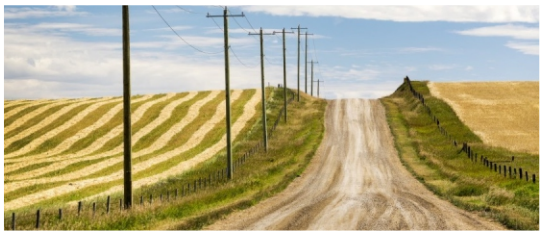
DEFINITIONS

Flat Road vs Incline Road:

Flat Road - indicates no grade present.

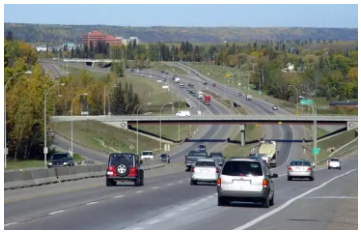
Incline Road - means the road either goes uphill or down hill.





INVESTIGATION

- Highway Ramps
- City Streets
- Rural Highways
- Job Sites
- Extreme Road Conditions



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ROLLOVER: HIGHWAY

- Truck rolled after beginning right sweeping turn on the ramp to highway.
- Ramp turns to the right with slight uphill grade.
- Driver was going to fast, lost focus on conditions, made abrupt truck manoeuver.
- Truck cab had excessive debris.

ROLLOVER: ON-RAMP

- Truck rolled after beginning a right sweeping turn onto Highway ramp from municipal road.
- Ramp was flat with gentle right turn going slightly uphill.
- Rollover occurred because driver was going too fast for road configuration.
- Driver not wearing seatbelt and ended up with a broke rib.

CITY STREET EXAMPLE

- Going downhill on sweeping right turn.
- The truck drove into oncoming traffic and hit oncoming car.
- Mixer rolled 60m later beyond collision.
- Other driver severely injured and truck was 'totaled'.
- Driver was going too fast for downhill road.
- Was not driving in gear (neutral).

CITY STREET ROLLOVER

- Entered a 90 degree intersection.
- Made right-hand turn at 25-29kph and had to make evasive manoeuvers to avoid hitting a car.
- Truck rolled onto its side 15m from entrance to intersection.
- Driver was entering intersection too fast and made evasive manoeuver.
- Driver injured from excessive debris in cab of truck.

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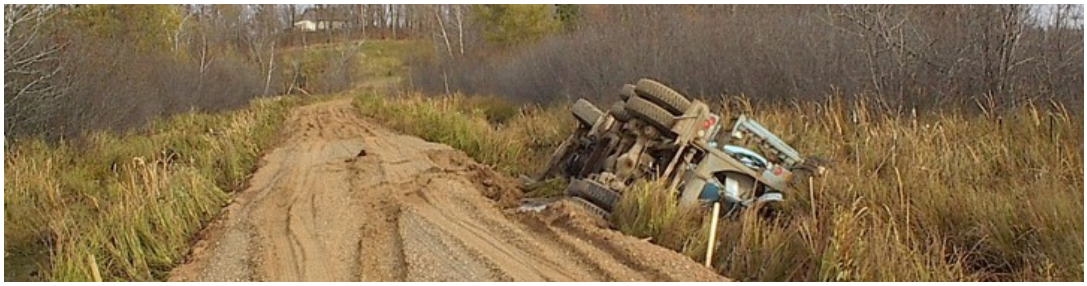
CITY STREETS

- Left turn in city intersection.
- Rear left tires hit curb, launching truck into the air.
- Driver was driving too fast for road conditions.
- Driver misjudged turning radius and hit curb.
- Driver was not wearing seatbelt and injured his back.

ROLLOVER

- Newly constructed road leading to cabin.
- Driver reached 24kph when truck started to turn left.
- Truck oversteered to the right and into a swamp.
- Driver did not inspect the job site 1st .
- Drove on a road that could not support a Ready-Mix Truck.
- Driver was injured.



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JOBSITE

- Driver drove past entrance and started to back into jobsite.
- Rear tandem tires drove off road surface and truck began to lean to the left.
- Driver tried to pull forward and the truck rolled over.
- Driver backed into site without a spotter.
- Driver was unaware of rear tires.
- Driver did not walk the site.
- Driver had no injuries.

JOBSITE

- Ground gave way as mixer pulled parallel to excavation.
- Mixer was 1 foot away from excavation.
- Driver was not wearing seatbelt and was killed.

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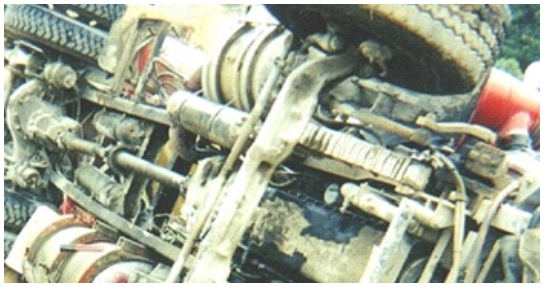
JOBSITE: SEPTIC TANK

- Mixer drove into rear yard of residential housing.
- Mixer rolled over after rear tires went into septic tank.
- Driver sustained no injuries.



JOBSITE

- Driver entered wrong entrance of jobsite.
- Driver was on dirt road and right rear tires came too close to a 3-4′ trench.
- Driver sustained no injuries.

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WET ROAD ROLLOVER

- Truck rolled after beginning sweeping right turn onto wet Highway ramp from another Highway.
- The ramp was a gradual right turn with slight uphill grade to an apex and then onto a slight downward grade.
- Driver was going too fast for wet conditions.
- Trailer axle was not pressurized properly for the load reducing tire traction on rear tires.
- Driver was not wearing seatbelt and sustained facial lacerations.

JOBSITE ROLLOVER

- Driver attempted to drive up steep hill, hit the brakes, front wheels lost contact with the road and vehicle rolled on right side.

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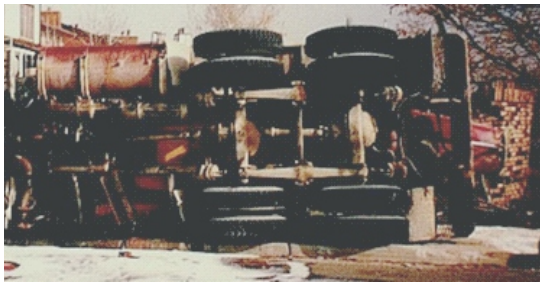
ICY ROAD ROLLOVER

- By 8am the temperature dropped below freezing.
- Driver did not slow down and Mixer rolled after hitting black ice while turning on a slight incline.



RURAL HIGHWAY

- Driver turning right onto road with a left leaning incline.
- Carrying low slump concrete with drum turning very slowly.
- Speed slower than 25 kph.

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RURAL HIGHWAY

- Mixer moved close to shoulder on a narrow two-lane road to let other vehicles pass by.
- Rear tires went into soft shoulder.
- Driver lost control and truck rolled over.

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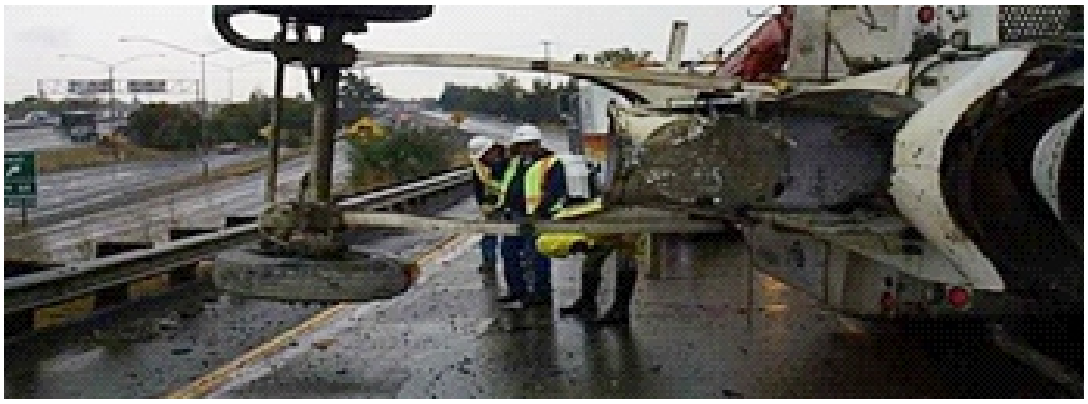
IMPACTS OF ROLLOVERS

1) Driver injuries.
2) Bystander injuries.
3) Equipment and compensation costs.



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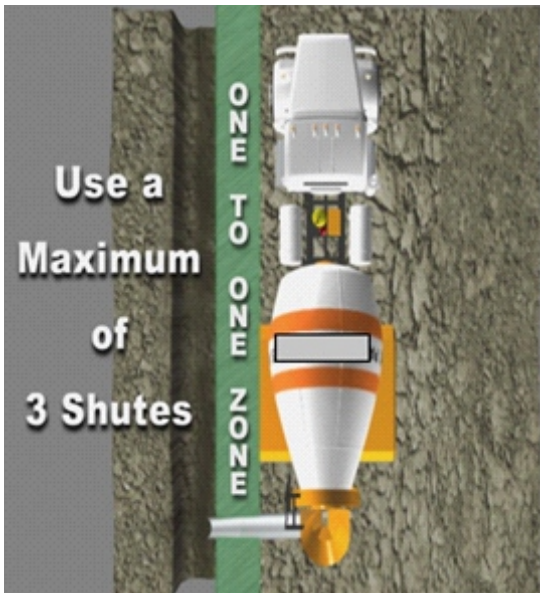
CAUSES OF ROLLOVERS

1) Excessive speed.
2) Driver not aware of rear end.
3) Improper trailer pressure.
4) Not staying 1ft away from trench for every foot of trench depth.
5) Not wearing seatbelt.
6) Inexperience - 88% of rollovers occur on dry surfaces and half of incidents occur when driving straight.
7) Newer drivers are more likely to rollover than more experienced based on investigation results.



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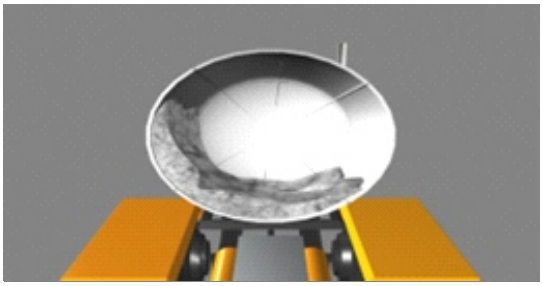
CHARACTERISTICS OF MIXER TRUCKS & RESEARCH TESTING

- Mixer Trucks have high centres of gravity. For example, top of front hood, more weight on drivers side when turning and rotating drum constantly changes weight distribution.
- Trailer axle stabilizes the mixer.
- Too much pressure reduces traction which increases rollover likelihood, too little pressure affects steering of front wheels.
- Truck will tip up when making flat 90 degree turns at 19kph.
- Truck will rollover when making flat 90 degree turns at 22-25kph.
- Sudden jerks on steering wheel or hard braking when turning will decrease rollover threshold.
- Truck will tip up when making flat highway turns at 40kph.
- Truck will rollover when making flat highway turns at 43-46kph.



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ROLLOVER PREVENTION TECHNIQUES

- If Driver feels rear tires losing traction or the engine racing, the truck is beginning to tip up and the Driver must slow down and straighten the wheels to regain control. Then apply brakes.
- If Driver feels a rollover beginning they need to steer away from the turn to bring truck back down and then brake.
- Truck speed needs to be 16kph slower than posted speed when turning.
- Drivers must slow down on hills and never take truck out of gear to speed up.
- Abrupt braking or steering maneuvers when turning will cause rollovers.
- Minimum follow distance of 4 seconds to stationary object must be observed.
- Drivers must always inspect new jobsites and take extra care around trenches, ditches and soft soil and be sure to raise jobsite concerns.
- Approach ditches as close to perpendicular as possible.
- Drivers should keep the mixer 1ft away for every foot of depth of trench.
- Focus on driving is a must in mixer truck.
- Drivers MUST always wear seatbelts.
- The inside of the truck must be kept clean. Stow needed items and garbage in closable containers.
- Instead of passing oncoming traffic on narrow roads, Drivers should stop and let other drivers drive around the ready-mix truck.

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ROLLOVER PREVENTION REFERENCES

- NRMCA Rollover Program - CLICK HERE to order.
- Concrete Alberta Health & Safety Members - Visit MEMBERSHIP DIRECTORY
- Concrete Alberta Safety Committee - CLICK HERE to see current list.