Alaska Department of Transportation & Public Facilities

Studded Tire Presentation

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State Highway System subject to Studded Tire Damage

- **Pavement Ruts:** Longitudinal depressions in the wheel paths
- **High Traffic Volume, High Speed Roads** are more prone to Studded Tire Damage

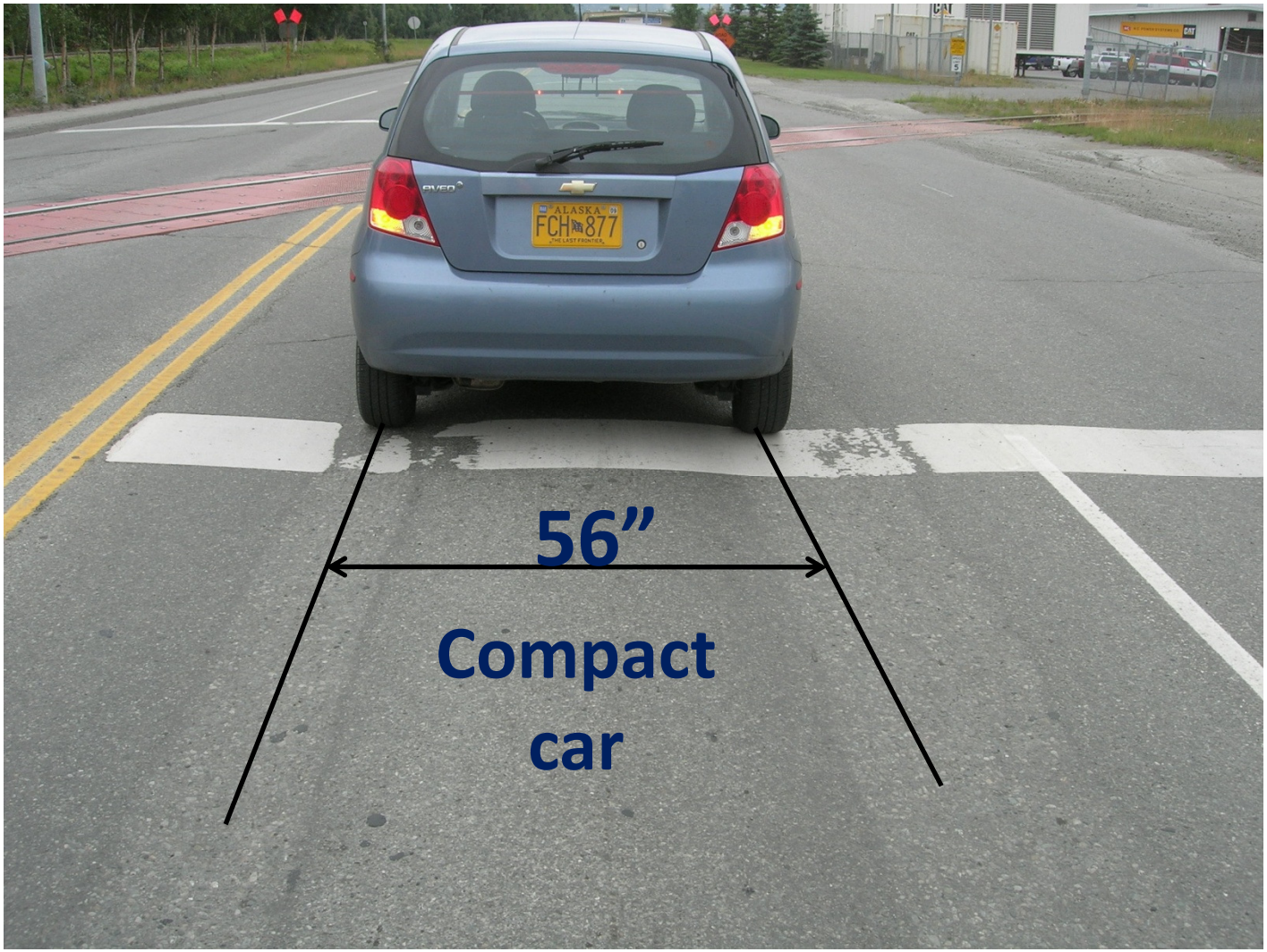
Examples include:

- **Glenn Highway** (Anchorage area)
- **Seward Highway** (Anchorage area)
- **Minnesota Drive** (Anchorage)
- **Egan Drive** (Juneau)

Rutting Evidence caused by Studded Tire

Ruts fit wheel path of passenger vehicle

Arctic Blvd., Anchorage, August 5, 2008



Pavement Sampling
Eagle River Loop Road
13,000+ vehicles/day
July 29, 2008

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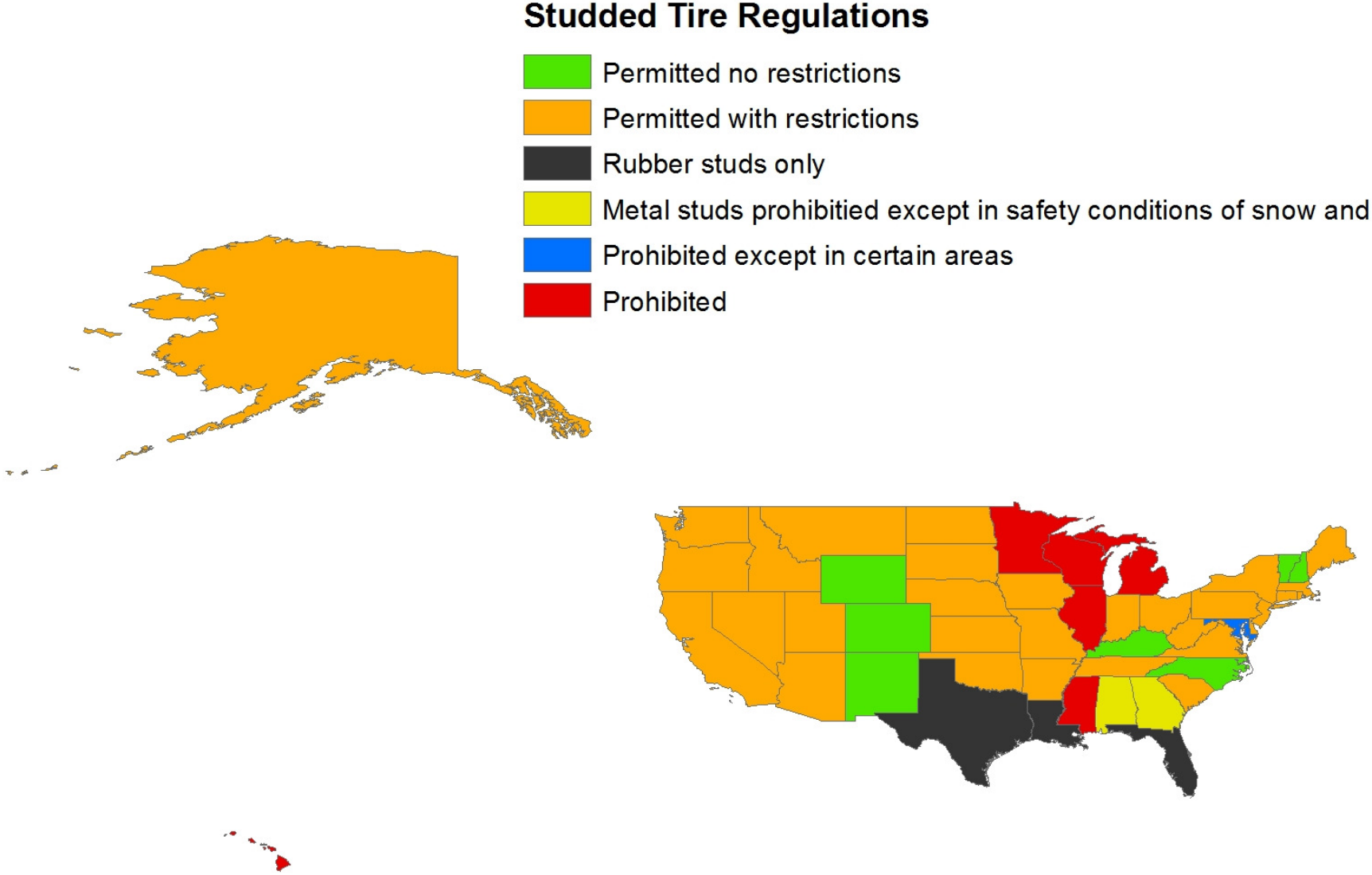
US Restrictions & Permissions



Safety and Environmental Issues

- Ruts become a **Safety Hazard** to the travelling public:
  - **Icy road:** Ice or snow in ruts causes addition loss of traction
  - **Dry road:** Difficulty steering and changing lanes
  - **Wet road:** Hydroplaning potential due to water in ruts
- **Studded tire use** on bare pavement generates dust, posing risk to human health
  - Based on this **human health risk**, Japan banned studded tires in 1990

Addressing Rut Damage

- **Rut Repair Trigger:** Rut depth of ½-inch triggers a project to address rut repair; usually a 2-year turnaround to bid-ready plans
- **Typical Fix:** Mill-and-Fill in travel lanes
- **Hard Aggregate Policy:** Stipulates the use of hard aggregate in the asphalt mix when the traffic volume exceeds 5,000 vehicles per lane in areas prone to stud use
- **Potential fixes, i.e., *Microsurfacing*,** a mix of aggregate, polymerized asphalt, and water that is used to fill the ruts using special paving equipment. Road is open to traffic in ~2 hours.

Winter Driving

- Automobile Technology Improvements
  - All-wheel drive
  - ABS braking
- Tire Technology Improvements
  - Tire composition and tread
  - Studless tires, e.g., X-Ice®, Blizzak™
  - Better all-season tires
- Limited range of conditions in which studded tires outperform alternatives