

Asphalt Pavements that Carry Heavy Trucks



Technology Development in
China and Opportunity for
Transfer to the U.S.A.



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Heritage Research Group

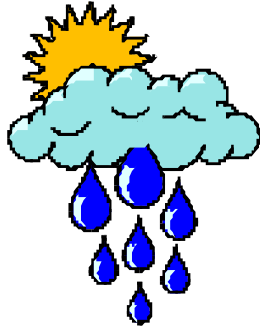
Roads In China



- China's Expressway Network:
64,900 miles (2013)
- U.S. Interstate System:
47,714 miles (2012)

U.S. and China Comparison

- Weather

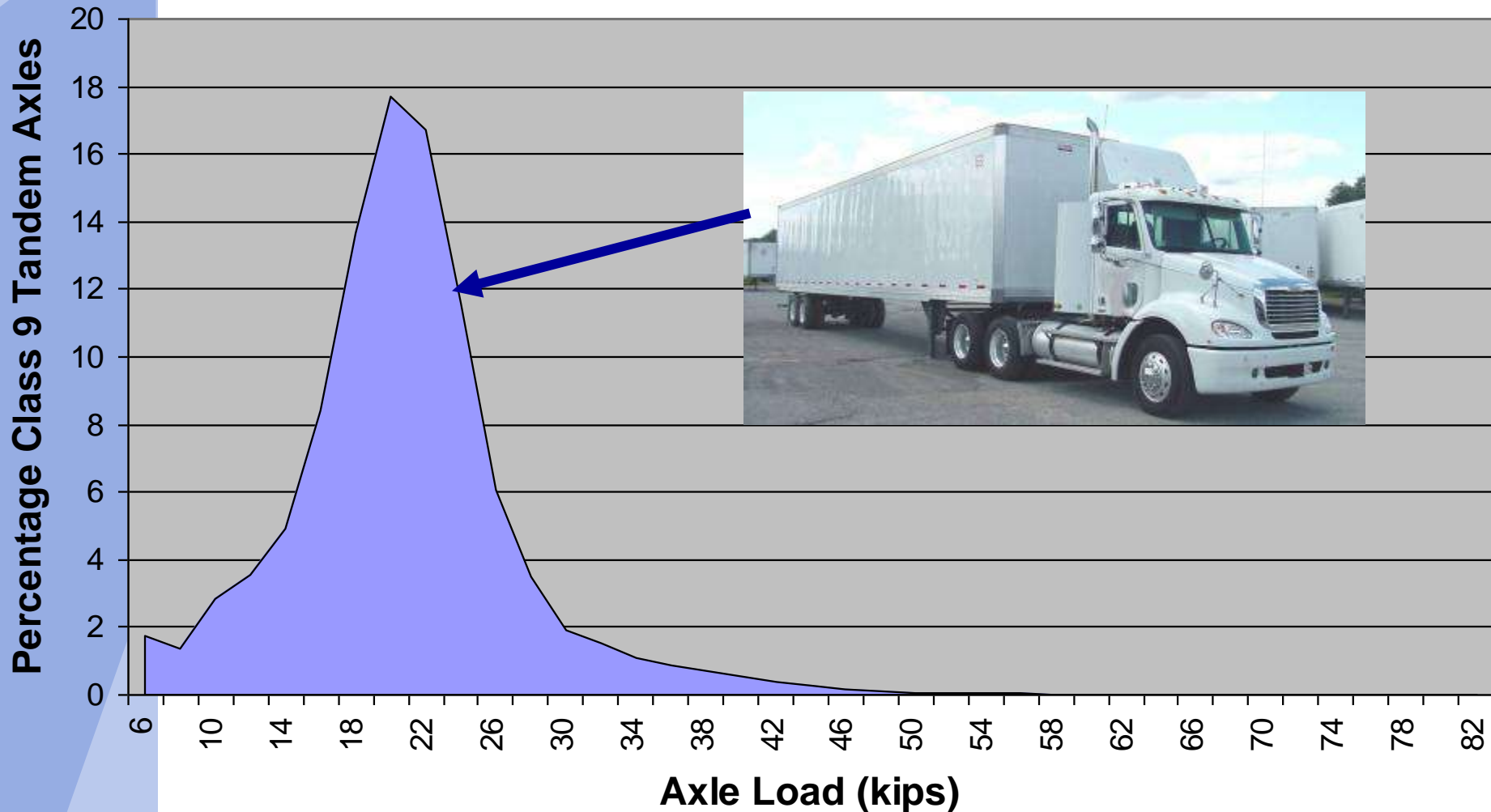


Climate

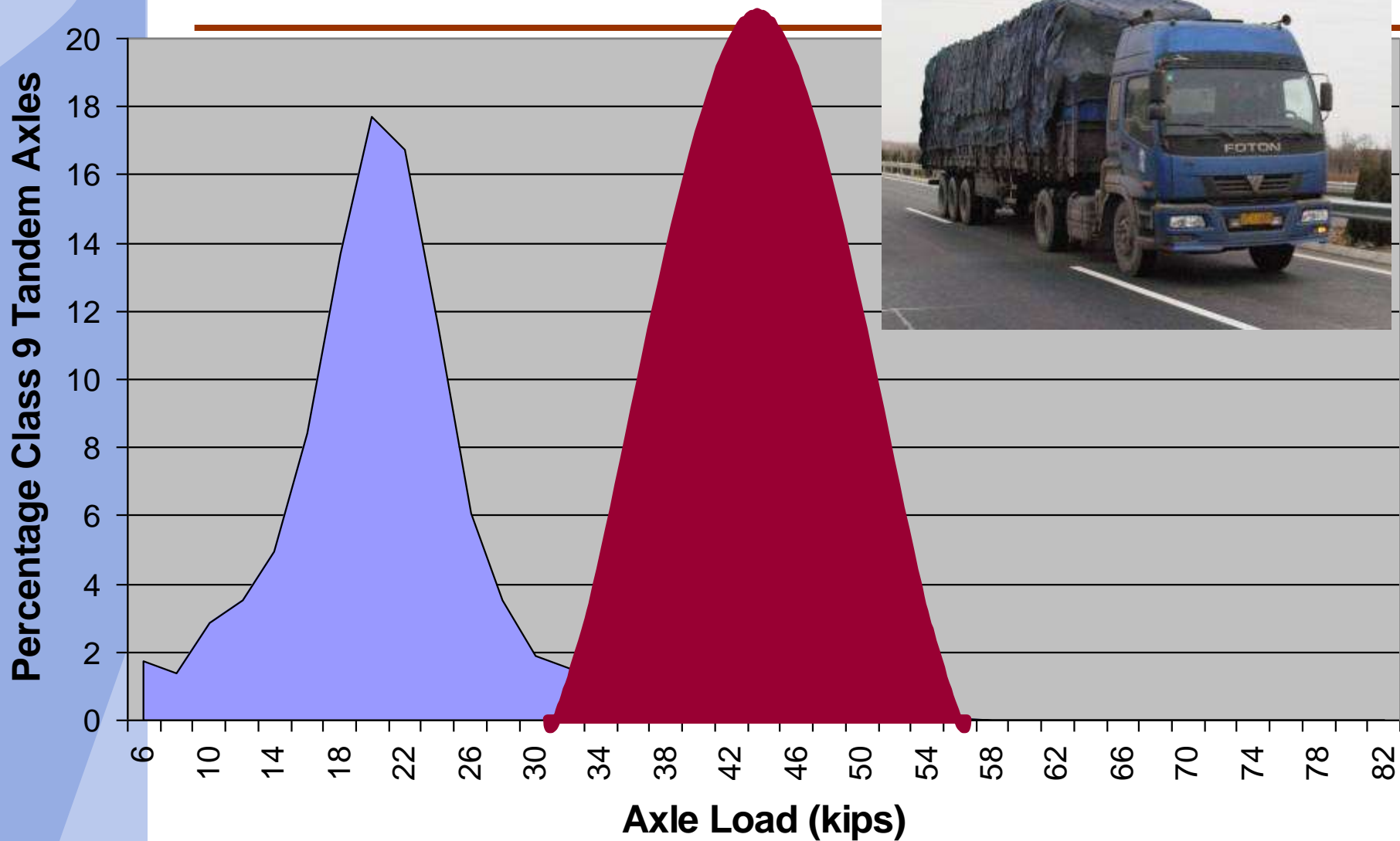


- Truck Weight

American Truck Weights



China Truck Weights



Trucks in China









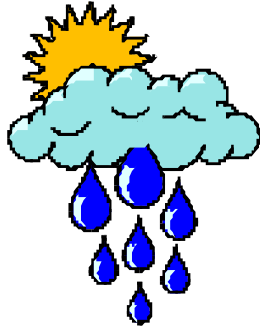
Aggregate Trucks



Gross Weight 185,000 lb.

U.S. and China Comparison

- Weather

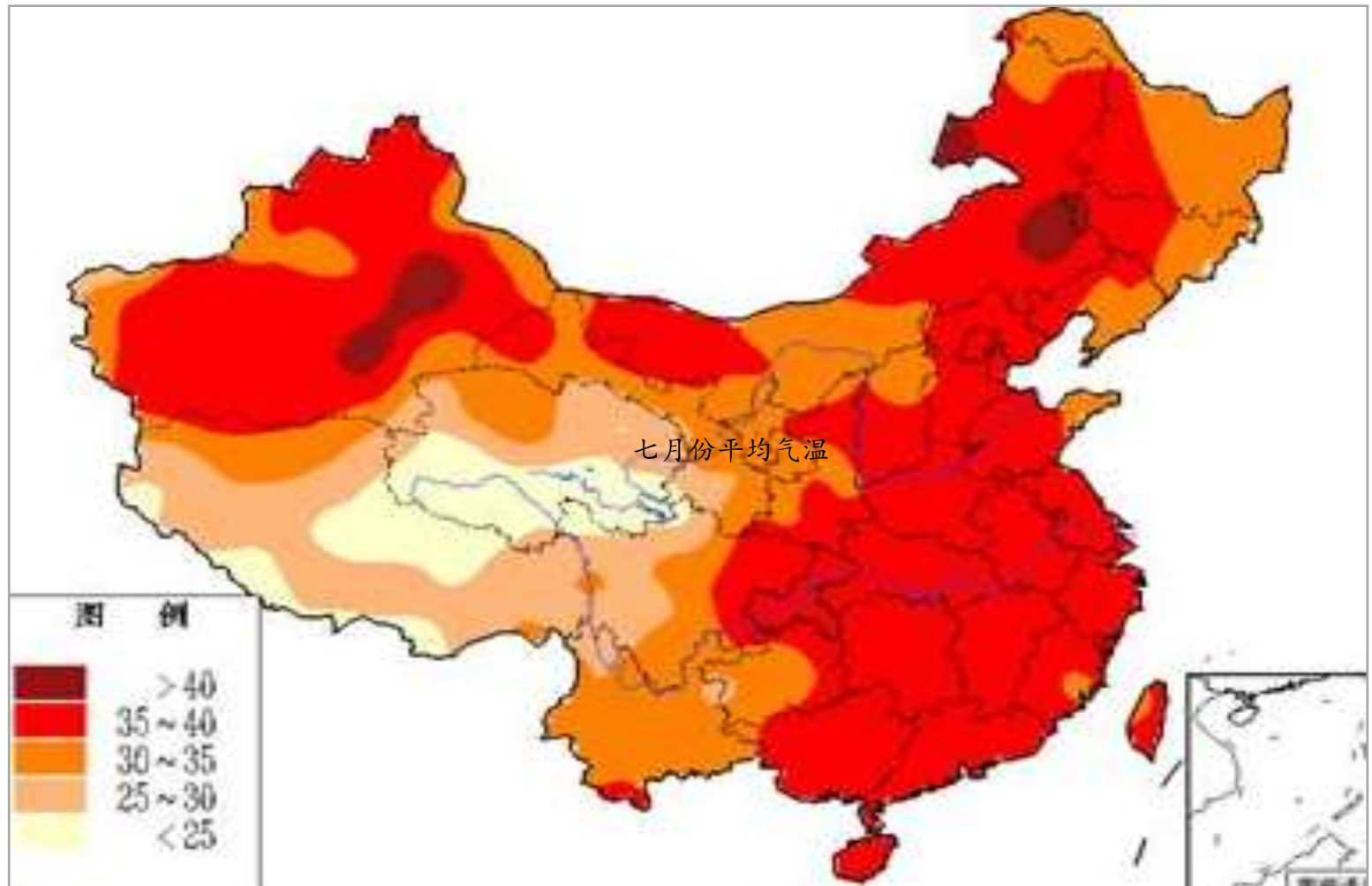


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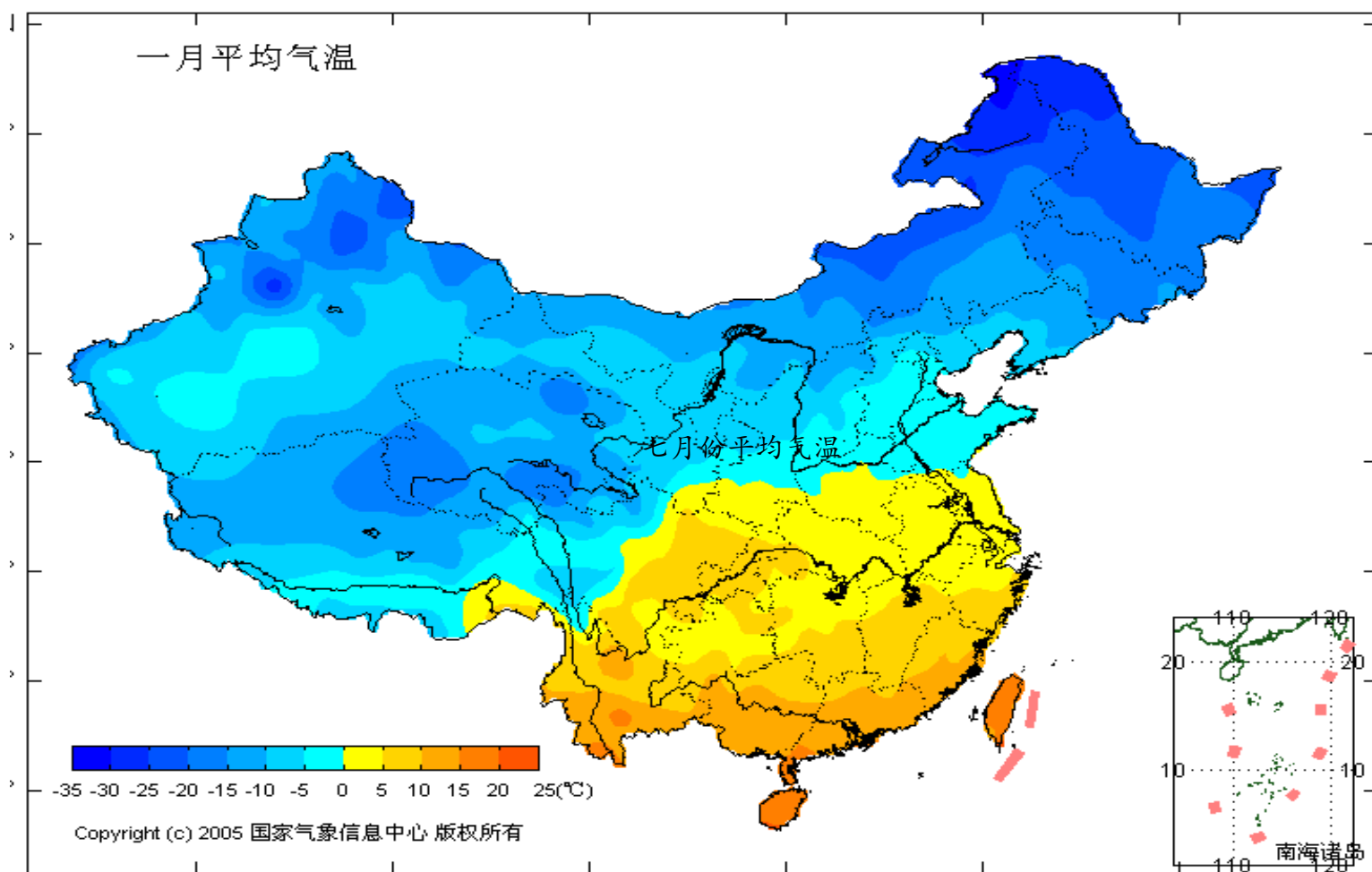


- Truck Weight

High Air Temperature



Low Air Temperature



HIGHWAY DESIGN IN





Cement Treated Layers



Batch Plant (250 tph)











Haul Truck



Direct Dump into Paver







Vibratory and Pneumatic







Performance Issues

Rutting Can Be A Problem

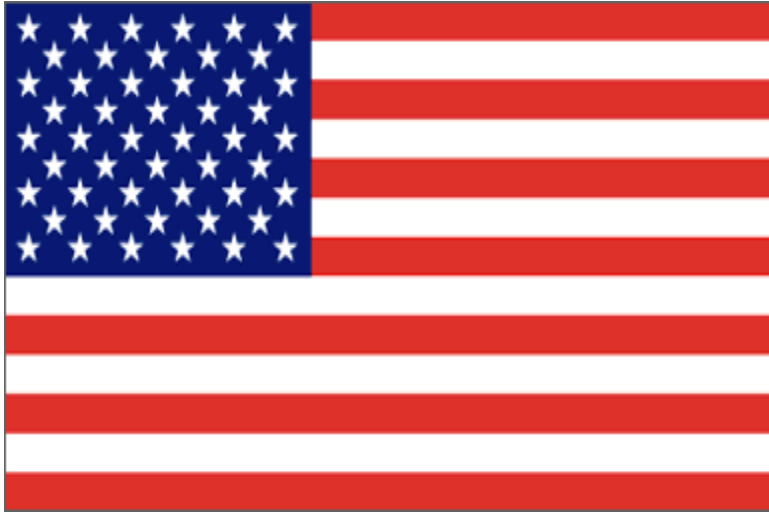












U.S.A. - CHINA

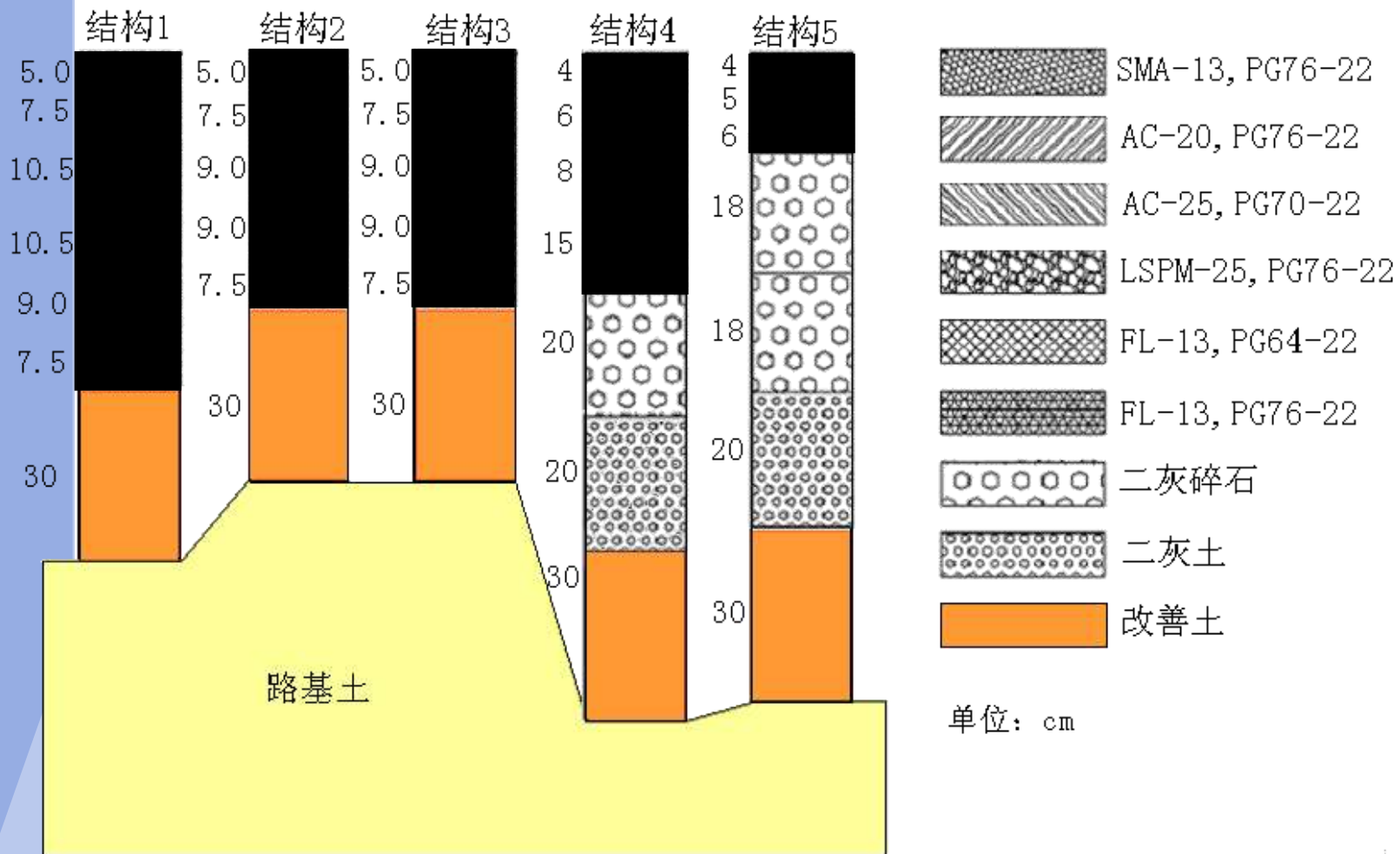
PERPETUAL PAVEMENT
EXPERIMENT

Construction Site



November 2004

TEST SECTION THICKNESS



Gauge Placement



Paving Over Gauges

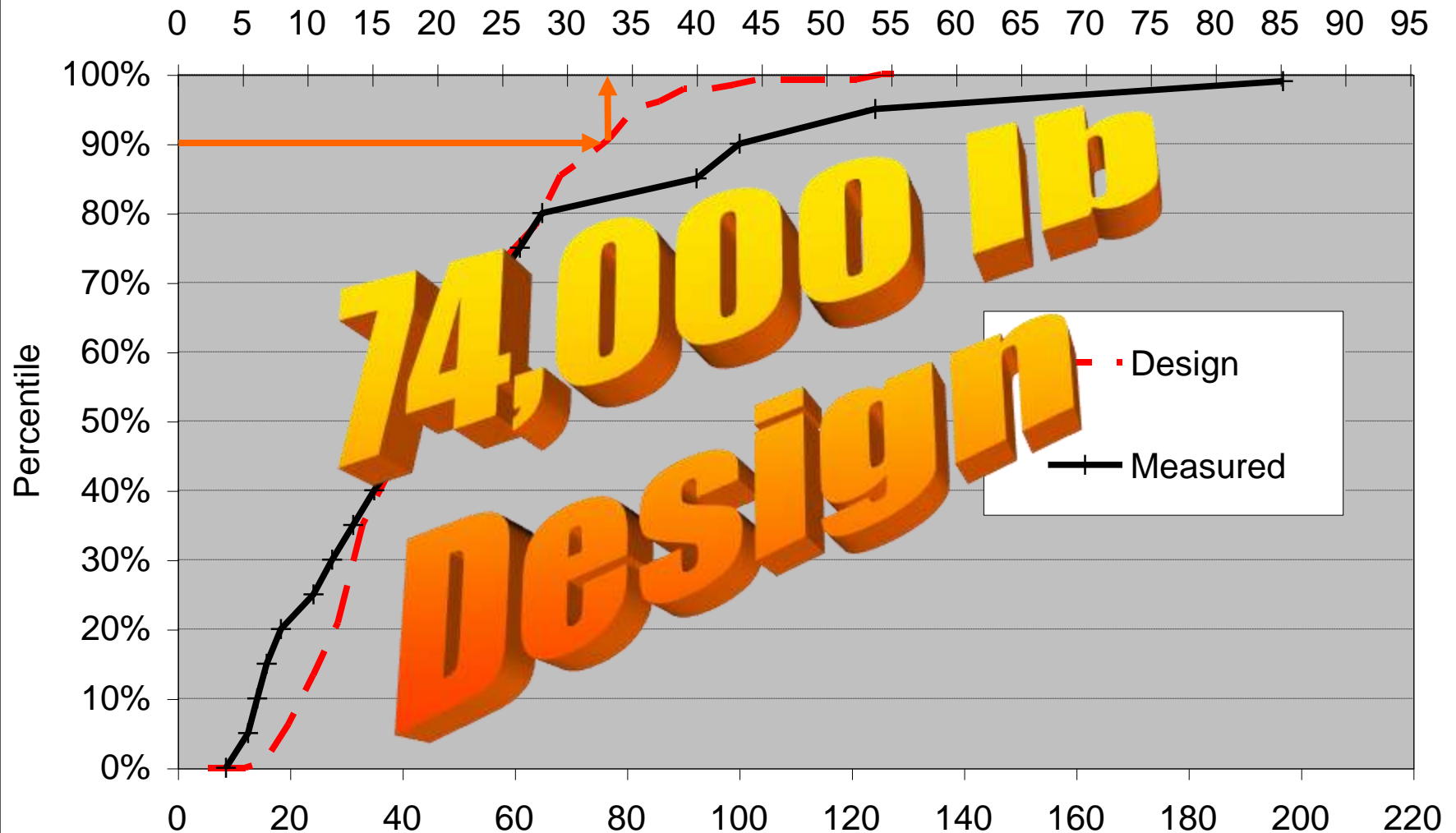




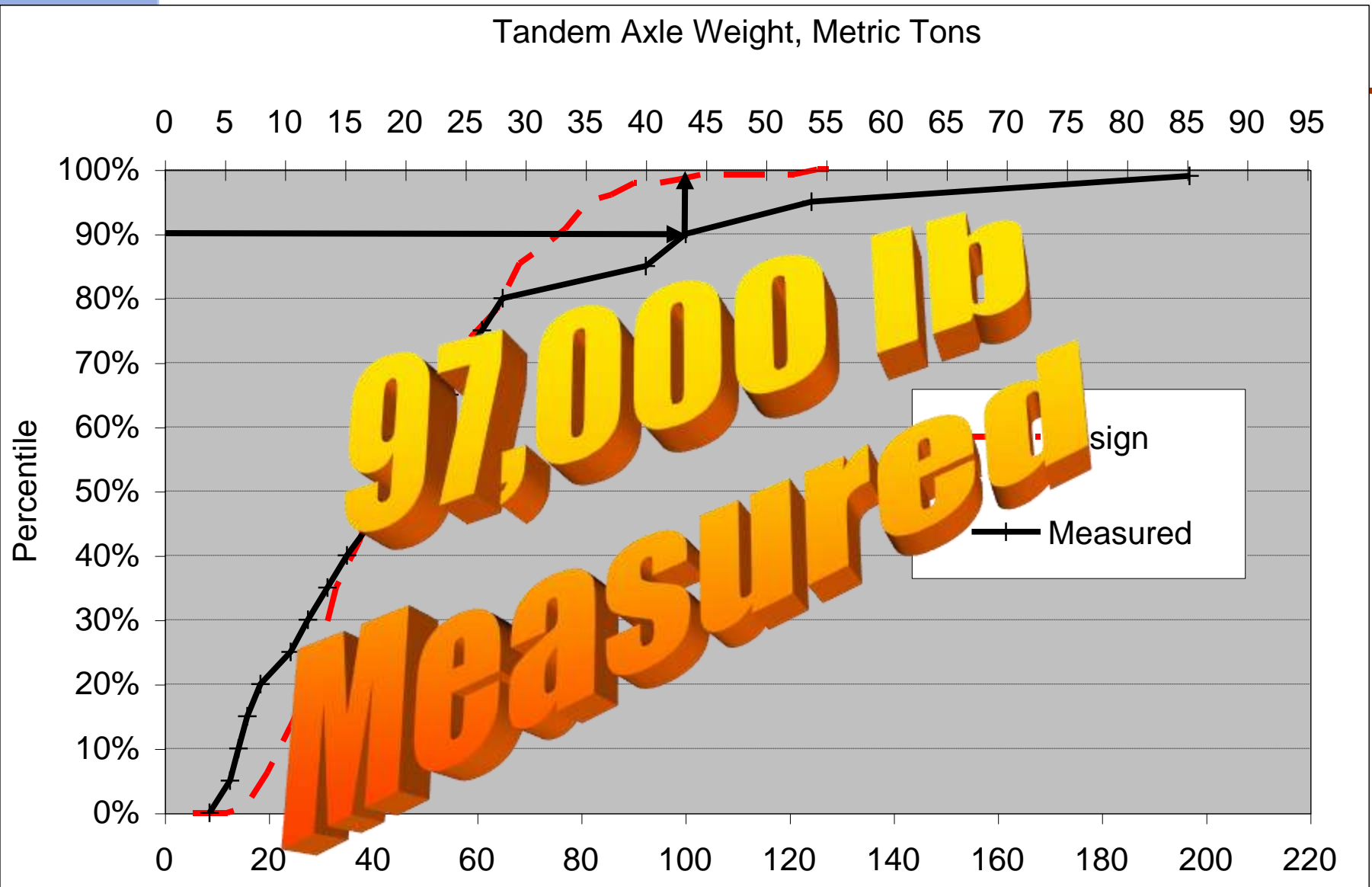
Completed
Pavement

Tandem Axle Load

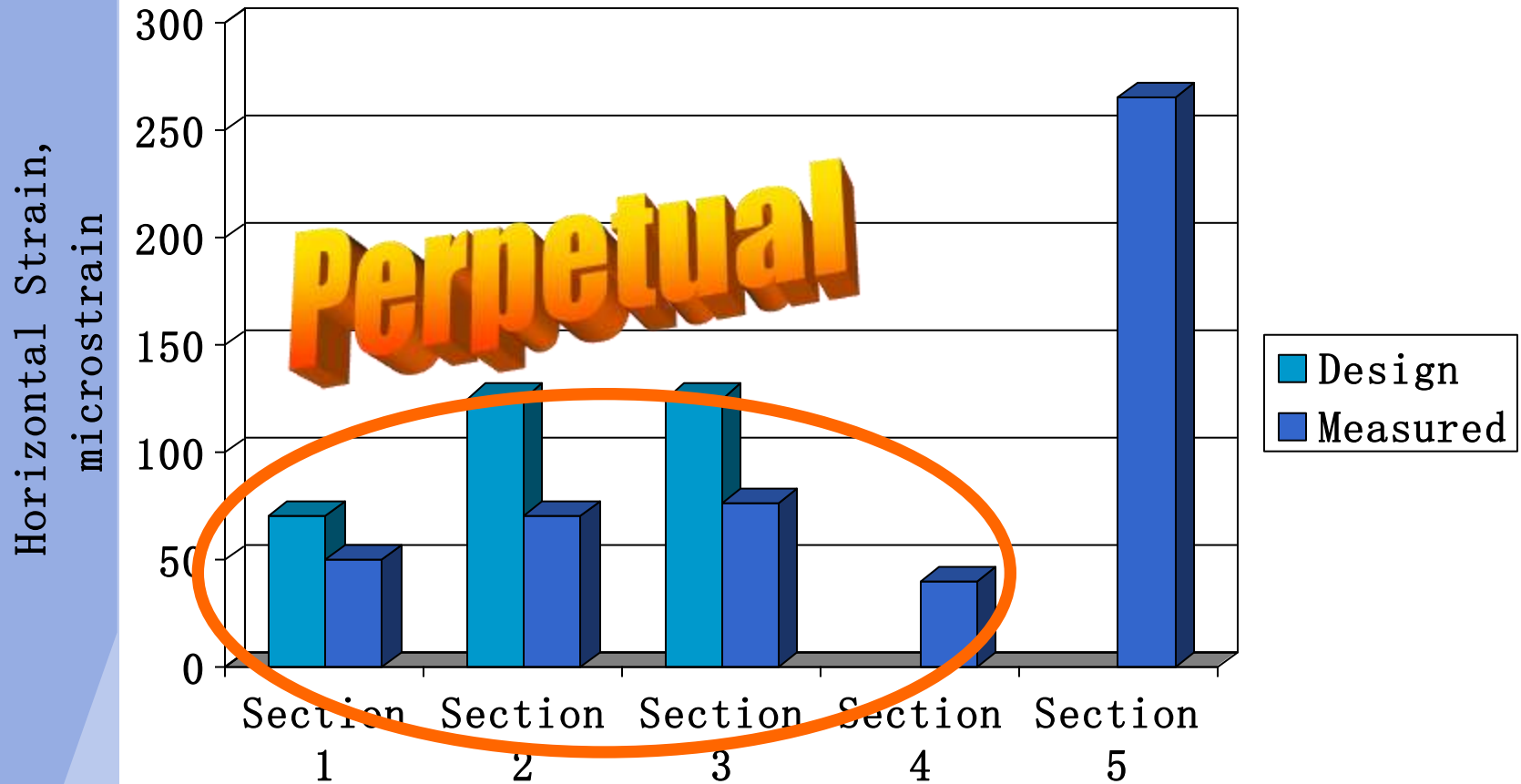
Tandem Axle Weight, Metric Tons



Tandem Axle Load



COMPARISON OF DESIGN STRAIN TO MAXIMUM MEASURED STRAIN



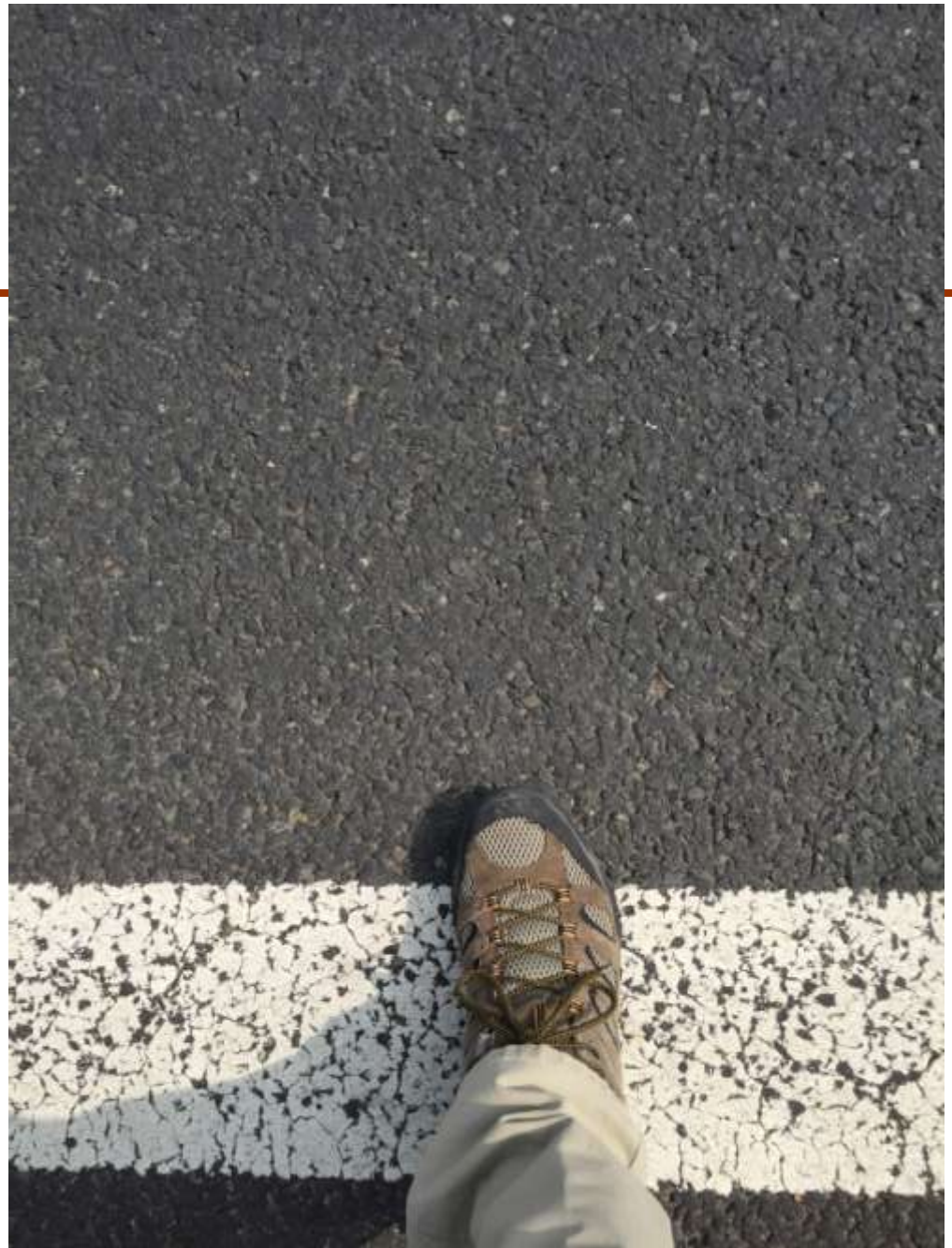
2008 Construction (2016)





SMA

- Basalt





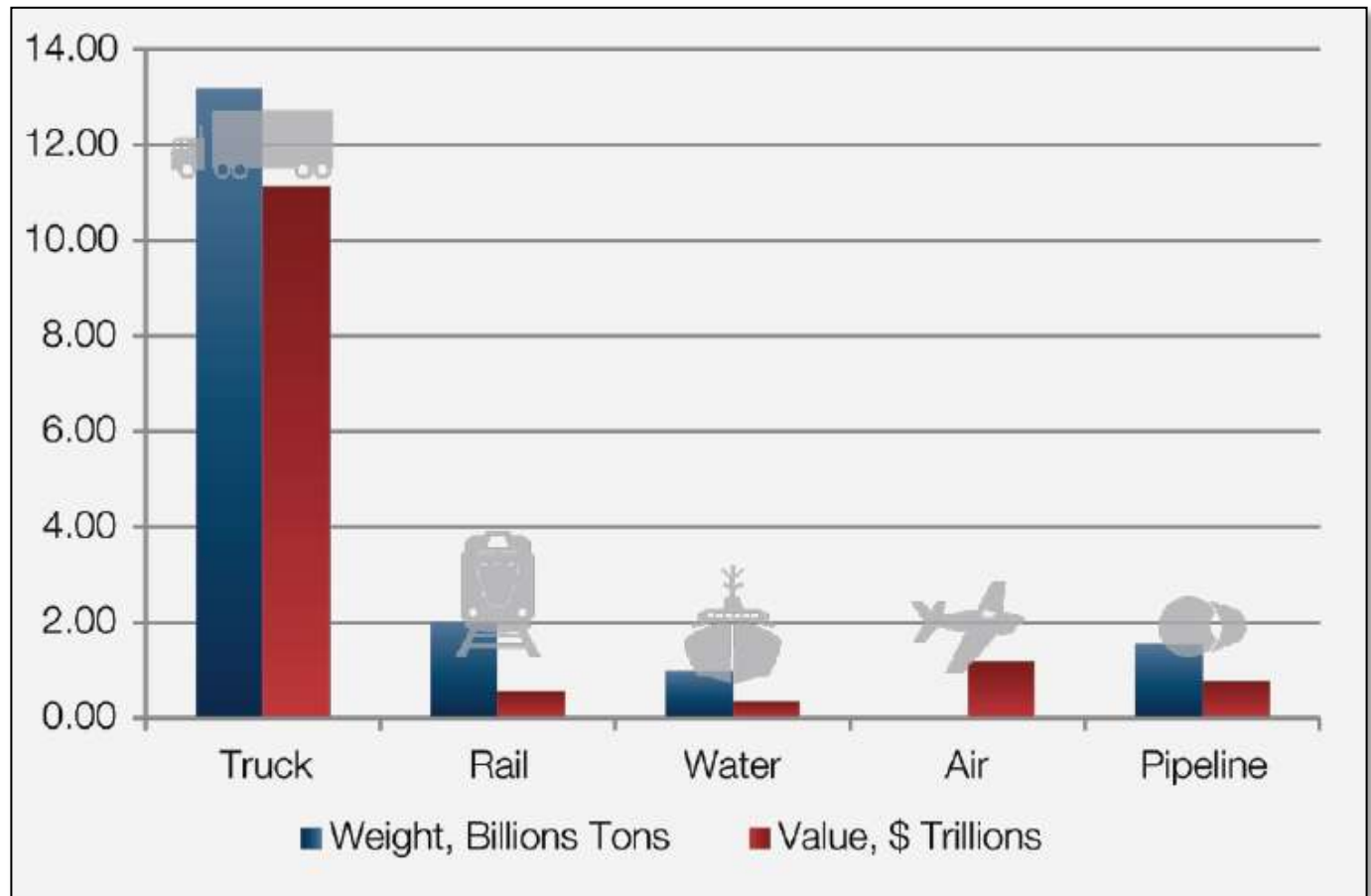
**Transportation
is the KEY to
Economic Activity**

Federal Highway Act, 1956



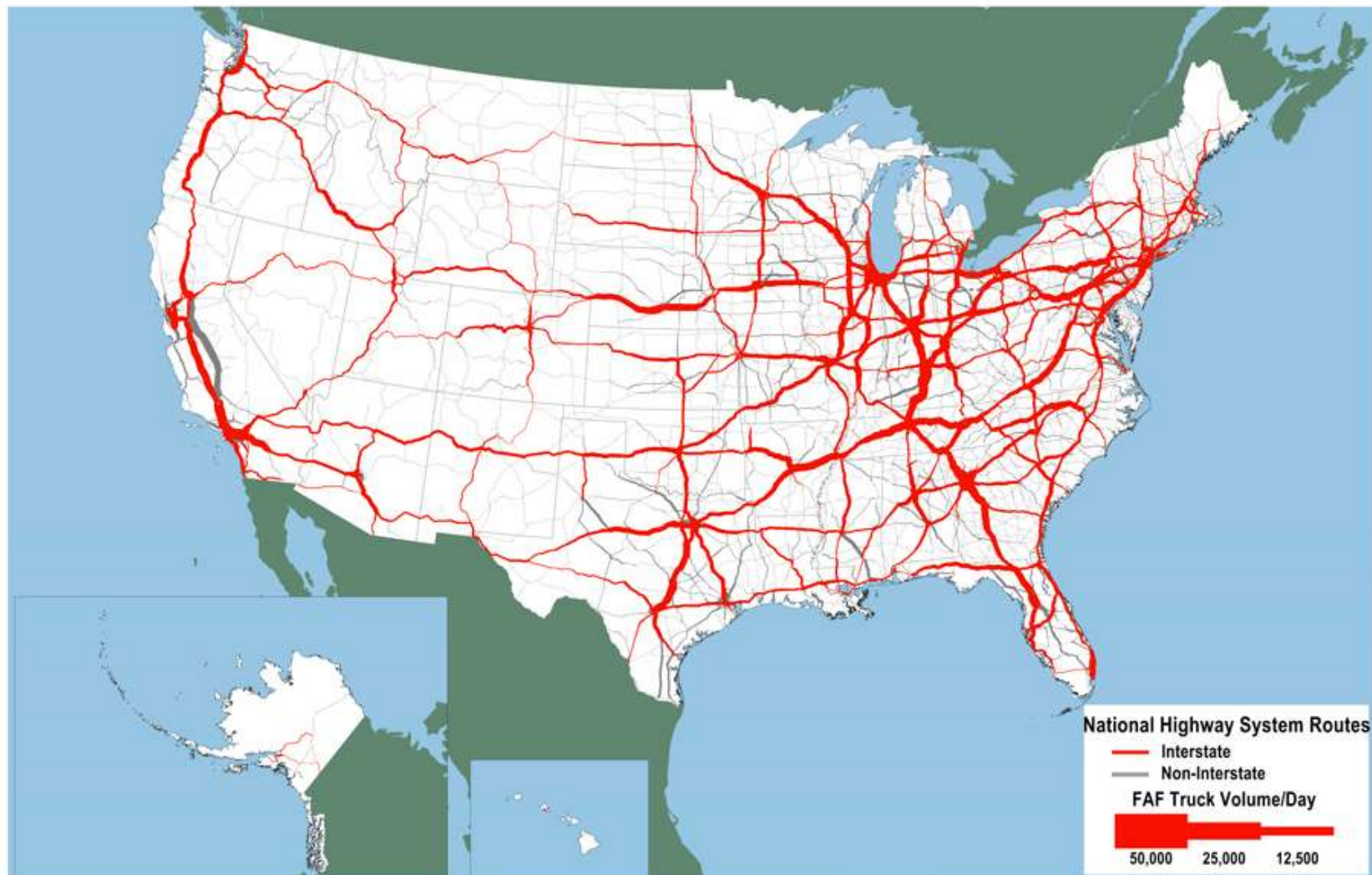
THE INTERSTATE HIGHWAY SYSTEM

FREIGHT

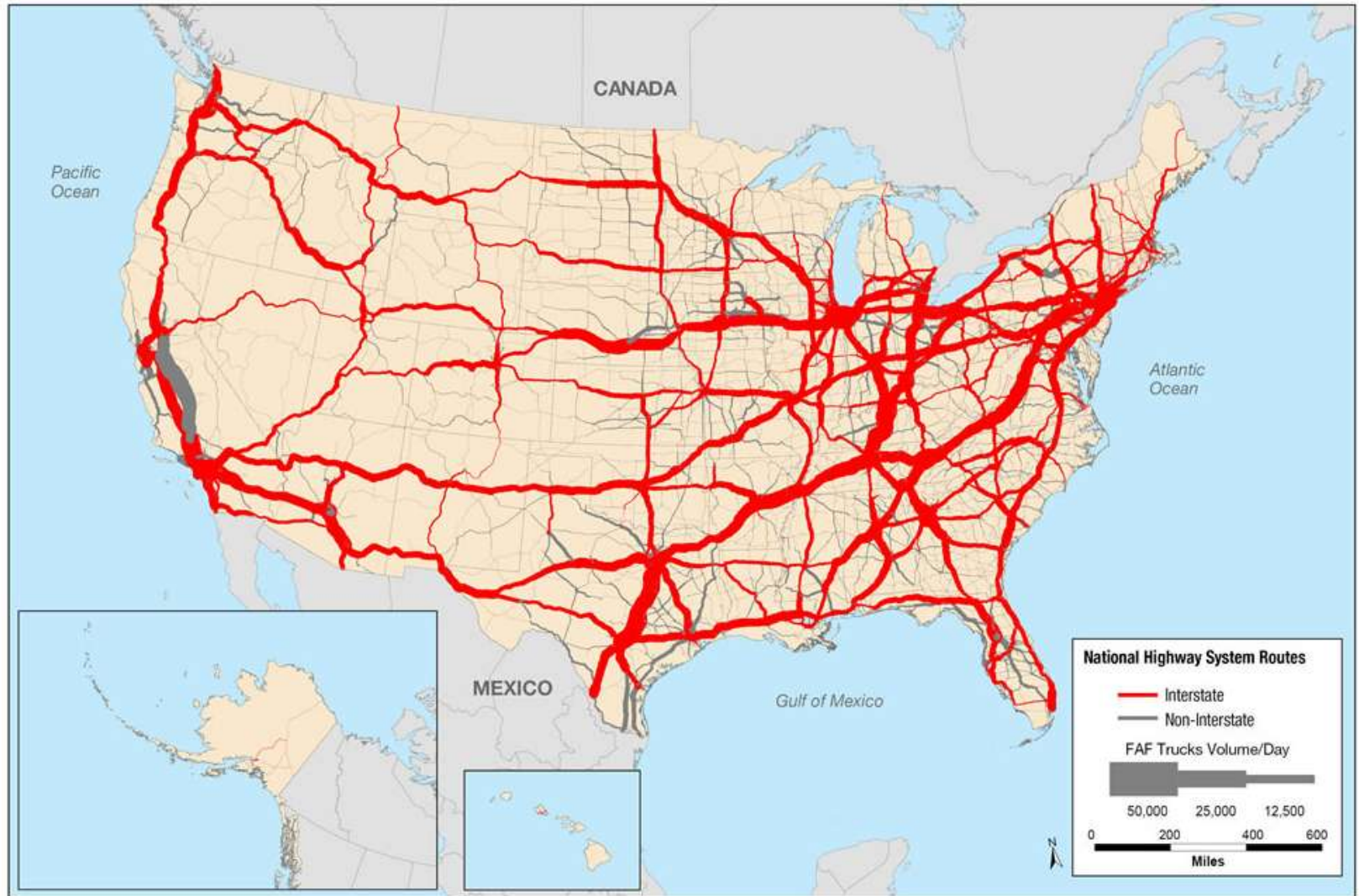


- Trucks Carry the Load

Truck Volumes 2007



Truck Volumes 2040



Today's Trucks in U.S.



- Cost per mile \$1.27
- Cost per Ton-Mile \$0.053

Canadian Size Truck



- Cost per mile \$1.62
- Cost per Ton-Mile \$0.034

Mexican Size Truck



- Cost per mile \$1.72
- Cost per Ton-Mile \$0.030

Less CO₂

- 80,000 lbs.
75.7 g/t-mi
- 88,000 lbs.
72.0 g/t-mi
- 138,000 lbs.
56.5 g/t-mi
- 160,000 lbs.
51.8 g/t-mi

The **BIGGER**
the truck the

**96
Million
Tons**

LOWER
the
CO₂



Critical Commerce Corridors

America's Transportation Network

INTERSTATE 2.0

- Heavy Truck Lanes
- Light Vehicle Lanes
- Physical Separation



INTERSTATE OF FUTURE





Critical Commerce Corridors

