Speed Management
Speed defined:

- Rate of progress, or change in position
- Generally referred to in miles or kilometers per hours (mph or kmh)

What speed does:

- Travel at safe and appropriate speeds on our highway system serves to promote the nation’s productivity and economic well-being
Speeding

• Operating a vehicle in excess of the posted speed limit, or

• Too fast for conditions
Speeding Facts

• Speeding is one of the most prevalent contributing factors to traffic crashes

• 31% of all Fatal Crashes (2008)

• 11,674 lives lost in speeding-related crashes (2008)

• $40.4 Billion per Year (2002)

• 37% of 15-20 year old males involved in a fatal crash were speeding (2008)
Speeding-Related Fatality by Speed Limit (2007)

- 50 mph and Below
- 55 mph or less interstate
- 55 mph or more interstate
- 55 non-interstate

- I enjoy driving fast
- Impatient
- Reduce travel time
- Lack of concern of having crash

Bar chart showing the percentage of drivers reporting each reason for speeding.
Self-Reported Speeding Behavior (2002)
Speed Management

• Engineering, rational and reasonable speed limits, other techniques

• Education, public policy, public information, etc.

• Enforcement, strict enforcement of egregious violators
Speed Management

Involves a balanced program effort –

• Data driven
• Applying road design measures
• Setting appropriate limits that are safe
• Targeted enforcement efforts
• Effective media & marketing
• Cooperation of all traffic safety stakeholders
Comprehensive Speed Management Program

- Policy Development
- Technology
- Enforcement
- Partnerships & Outreach
- Education & Communication
- Speed Countermeasure Program
- Engineering
- Research & Evaluation
- Speed Management Program

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Outcomes

• Develop a State or local Speed Management Policy

• Develop a plan for integration of Speed Management into Highway Safety and Strategic Highway Safety Plans

• Develop an implementation plan for conducting speed management workshops
Speed Management: Engineering Issues
Speed Zoning Criteria (MUTCD)

- Standard
  - Engineering study
  - 5 mph multiple
- Recommendation
  - Within 5 mph of 85th percentile
  - Reevaluate every 5 years
85th Percentile Speed

- 85%: Speed at which 85% of the vehicles are traveling at or below.
- 50%: Average Speed
- 15%: Number of Drivers

Average Speed
Why 85th Percentile Speed?
5 mph higher makes few more drivers legal;
5 mph lower makes half the drivers violators
Safest Near the Average Speed

- Relative Involvement Rate
- Deviation from mean speed, mi/h

Day (Solomon, 1964) ▲ Harkey et al. (1990)
Night (Solomon, 1964) ▼ West and Dunn (1971)
Cirillo (1968) ▲ Hauer (1971)

Overtakings

85th percentile
Two Ways Engineers Can Achieve Credible Speed Limits

- Change speed limits to match user expectations and road environment
- Change the road environment to achieve desired speeds
USLIMITS: Expert Speed Zone Advisor

- Web based application
- Credible and consistent limits
- Based on Australian “XLIMITS” family
- Provides recommended limit and warnings
- Second generation based on US experts
Engineering Measures for Managing Speed

- Context sensitive design
- Traffic calming
- Roundabouts
- Perceptual measures
- Vehicle activated speed displays
- Variable speed limits
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Summary

- Realistic speed limits are a prerequisite for sustainable speed management
- Speed limits in 50-85% range appropriate
- Alter limit or alter design
- Integrate engineering with enforcement and education
- No single technique can effectively manage speed
Speed Management: Enforcement Issues
Crime

1 murder every 31 minutes
1 aggravated assault every 36.8 seconds
1 violent crime every 22.4 seconds
1 property crime every 3.2 seconds

Crash

1 fatality every 13 minutes
1 injury every 13 seconds
1 property damage crash every 7 seconds
1 law enforcement reported crash every 5 seconds

*Uniform Crime Report 2007, U.S. Department of Justice
Effect of Speed

Vehicle factors:
- mechanical failures

Driver factors:
- violating traffic law

Environmental factors:
- road hazards
- weather
- interaction with pedestrians
Deterrence

- Direct contact and education of the violator
- Visible presence affects motorists in the vicinity
Limits of Deterrence

- Presence effect reduced by $\frac{1}{2}$ every 3000 feet
- Intensity, three times normal presence required for increase in perceived apprehension
The Link Between Enforcement and Engineering

Crash Producing Violations

Safety

Deviation from mean speed, mi/h

Relative Involvement Rate

Target Enforcement

85th Percentile
Enforcement Strategies

- Self-enforcing speed limits
- Public education campaign
- Strict enforcement for that 10% (approximately) that do not comply
Total Speed Management

- Engineering
- Education
- Enforcement of 10% (approximately) who do not comply
Speed Management: Public Policy, Public Perception
What is Public Policy?


- Thomas Dye: Public policy is “Whatever governments choose to do or not do.”

- B. Guy Peters: “Stated most simply, public policy is the sum of government activities, whether acting directly through agents, as it has an influence on the life of citizens.”
Political Objectives of Speed Limits

• The broad objectives are not always easy to achieve in practice

• The basic premise of a speed limit:
  – Communicate information
  – Appropriately balances risk and travel efficiency
Political Objectives of Speed Limits

• The basic premise of a speed limit:
  (continued)
  – Assumes both that a safe and reasonable speed can be defined
  – There is a cause-and-effect relationship between speed limits (as opposed to speed) and safety
  – Neither of these assumptions is self-evident
A Community Example

- Roadway in front of the former mayor’s home posted at 25 miles per hour
- Posted speed limit is 30 mph elsewhere
- 85th percentile speed is 45 mph
- Residents to lower the limit to 25 mph everywhere
- A judge dismisses a speeding ticket
Obstacles to Public Policy in Speed Management

• Bringing together the interested parties is not the first approach that officials take in addressing speed problems
  – Decisions are made unilaterally and often without the benefit of engineering and enforcement input
Obstacles to Public Policy in Speed Management (continued)

- Residents, politicians, law enforcement and local engineers may not share a common understanding of the issues when addressing speed management.
Lowering Speed Limits is not Speed Management

• Often politically expedient as the response to speed management problems
• Shortsighted and ultimately damaging to overall speed control efforts
• Science-based, well-considered approaches to setting speed limits should be the focus
Lowering Speed Limits is not Speed Management (continued)

- Lowering the speed limit results in residents’ demand for increased enforcement
- Short term, enforcement responses follow resulting in short term compliance
Lowering Speed Limits is not Speed Management (continued)

- Requests for speed enforcement increase
- This cycle leads to frustration
- The original problem – unsafe speeds – is not addressed
Speed Management is a Local Issue

- Speed management is a local problem, needing local solutions
- The primary trouble becomes localities apply their own solutions without a consistent framework
Speed Management is a Local Issue

• These are often at odds with sound engineering and enforcement principals

• Resulting in a general confusion and lack of solid understanding of how to best manage speeds
The Better Solution: A Framework for Public Policy Response

- Professional Partnerships
- Coordinated Response
- Collect Data
- Community Meeting(s)
Summary

• Public Policy is a function of the government
• Speed Management requires a unified approach
• Speeding is a local issue requiring local solution
• Countermeasures must be developed under a national framework