Transport and Safety for School Children

International Experience

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Safe, Clean, Affordable TRANSPORT

GRSF Global Road Safety Facility

School Transportation- Challenges

- With rising household income, urban centers are expanding
- Increasing number of middle income households opting for separate school and residential locations
- Dropping off children to school using private vehicles on rise
- Poor or lack of safety facilities and traffic management /enforcement create unsafe walking and cycling environment

School Transportation- Challenges

- No special right of way provision for transport of school children
- Commercial school buses without adequate safety features
- Establishment of safe pedestrian areas in school zones

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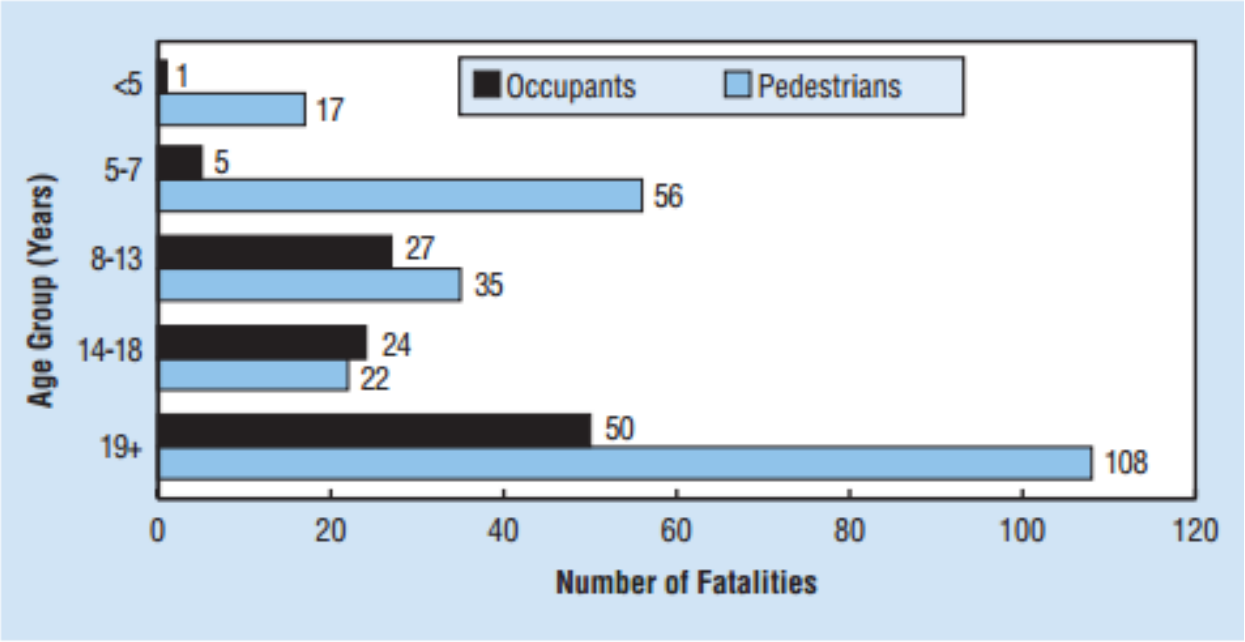
School Transport Crash Statistics

NHTSA 2009 Data

- School transport-related crashes constitute a very small portion (<1%) of total fatal crashes
- More pedestrians than occupants

Total School Bus Occupant and Pedestrian Fatalities in School Transportation-Related Crashes by Age Group, 2000–2009



Note: Occupant fatalities shown are for occupants of school buses and non-school buses used as school buses.

Orientation of school transport crashes

Total School Bus Occupant Fatalities (All Ages) in School Transportation-Related Crashes by Initial Impact Point on School Transportation Vehicle, 2000–2009

Principal Impact Point on School Transportation Vehicle	Type of Crash				Total	
	Single-Vehicle		Multiple-Vehicle			
	Crashes	Fatalities	Crashes	Fatalities	Crashes	Fatalities
Front	16	20	27	34	43	54
Right Side	7	9	6	8	13	17
Left Side	2	2	9	12	11	14
Rear	2	2	4	5	6	7
Top	0	0	1	4	1	4
Undercarriage	0	0	0	0	0	0
Non-Collision	9	9	0	0	9	9
Other/Unknown	1	1	1	1	2	2
Total	37	43	48	64	85	107

Impacts to the front of the school transportation vehicle occurred in 51 percent of fatal crashes

School Bus Safety

Safe and Comfortable School Bus

- In North America, the school bus is a specific type of government-regulated vehicle distinct from other types of buses
- Each year, school buses provide an estimated 10 billion student trips in the United States.
- Every school day, 475,000 school buses transport 25 million children to and from schools and school-related activities.
- In comparison, there are only about 60,000 general purpose public transport buses in US.

SCHOOL BUS

SCHOOL BUS
STOP

SCHOOL BUS
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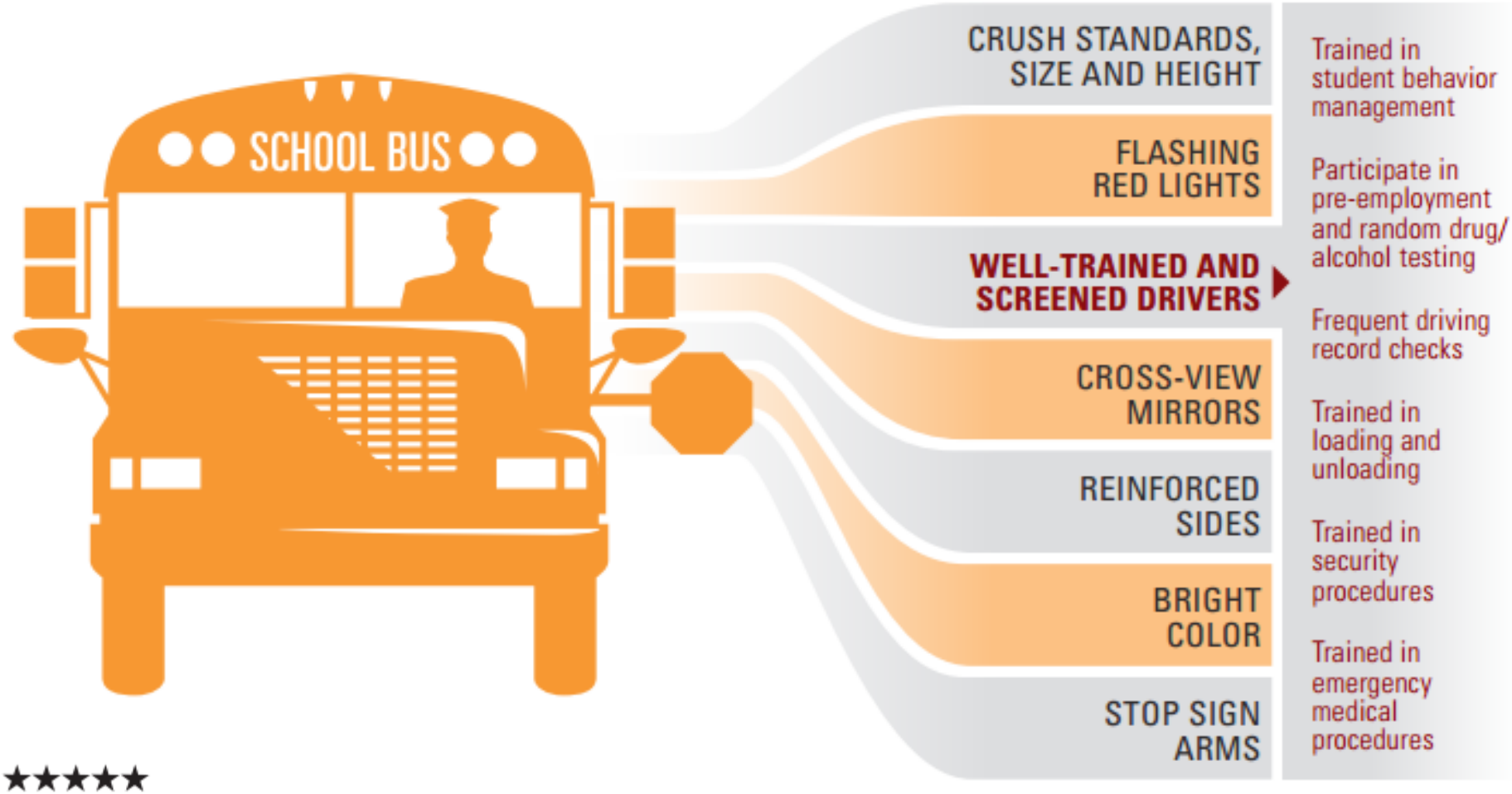
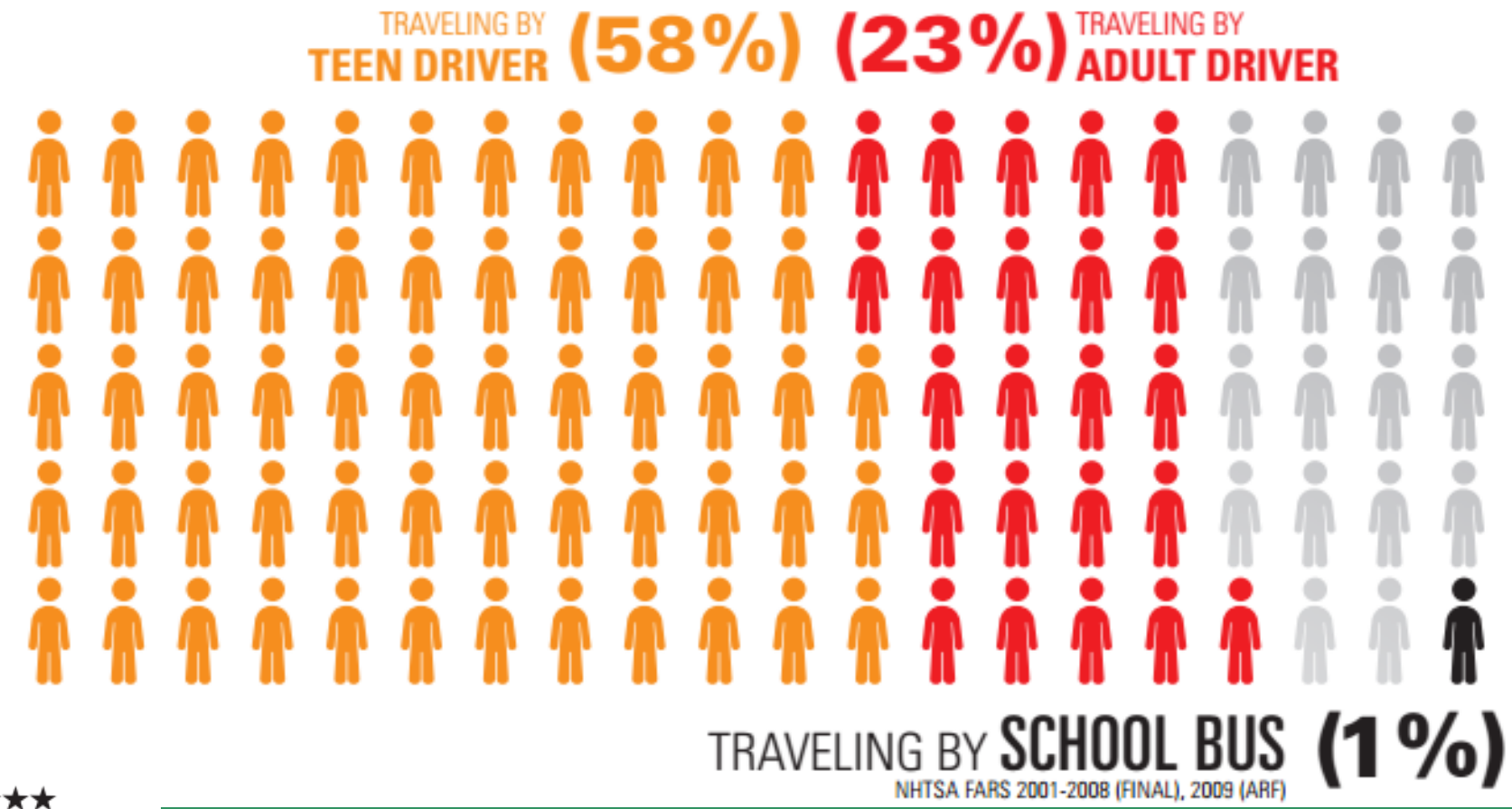
School buses are designed to be safer than passenger cars for crash avoidance and passive safety



Restraints in School Buses

- Large heavy buses distribute crash forces differently than cars – protection by closely packed seats with energy absorbing seat backs
- NHTSA and NTSB research showed that seat belts were not effective in reducing injuries in severe crashes
- **However,** small school buses (< 10,000 lbs) **must** be equipped with lap/shoulder belt

School Children Fatality (children who are driven to school)



NHTSA
www.nhtsa.gov
AMERICAN SCHOOL BUS COUNCIL

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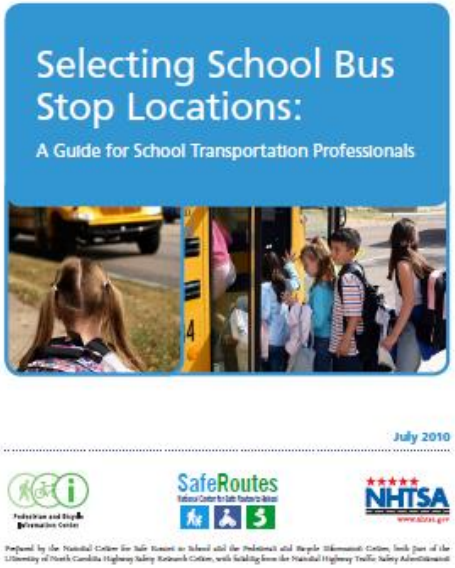
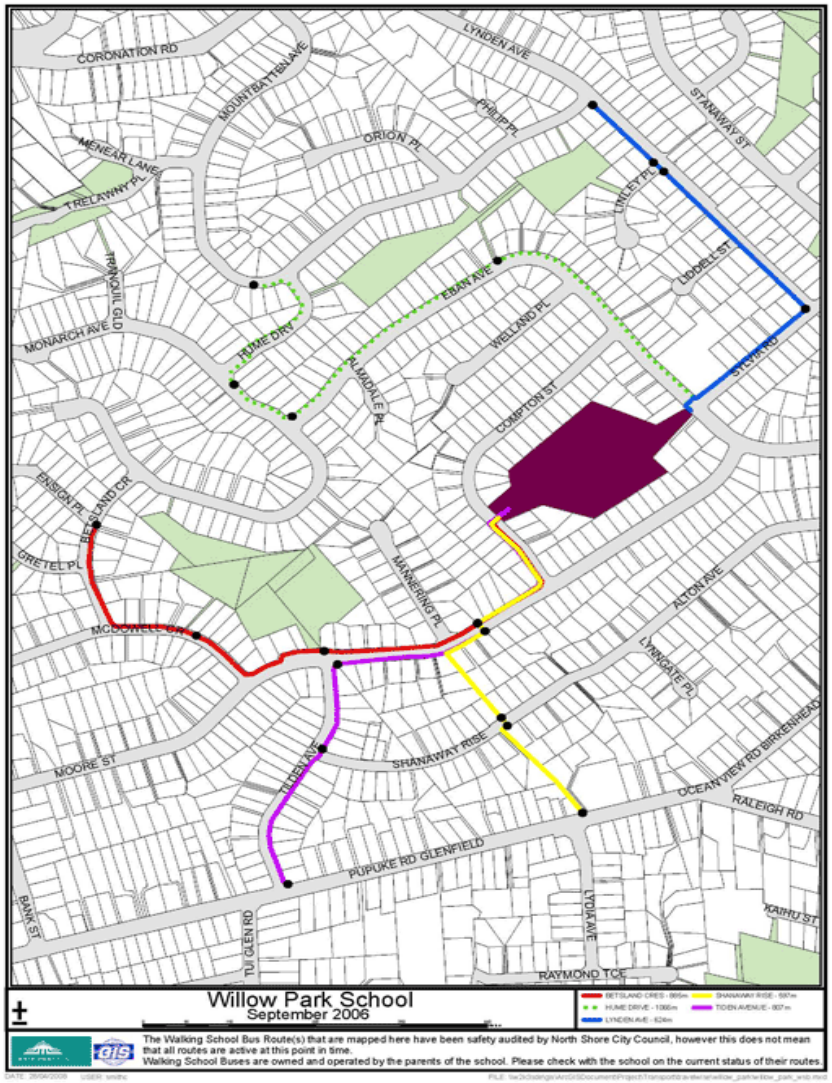
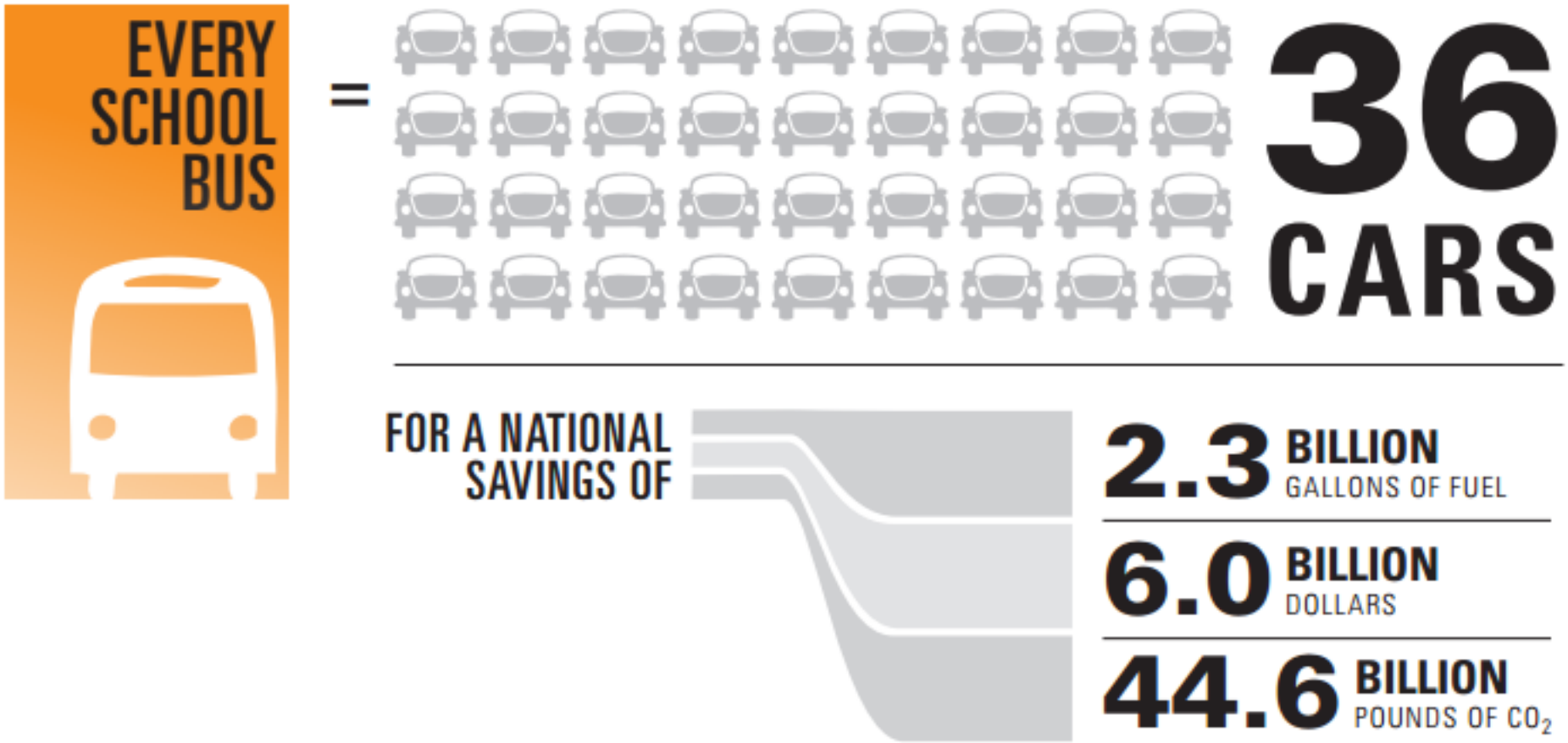
Bus stops

School Bus Routes are carefully planned to provide easy pick-up/drop-off services within a short walking distance from most school kids' homes





Environmental Benefit



Regulatory Framework

- Regulations for bus design, driver qualifications, motorist behavior around school buses and school zone
- In most developed countries, school buses are required to warn using alert signal while loading or offloading school children
- NZ has maximum 20km/h limit around school buses
- US & Canada requires motorist to stop while children get on or off the bus
- Additional speed measures apply to school zones

Institutional Framework

- NZ has centralized national level institution for setting vehicle standards and licensing operators
- In US federal government provides main policy guidance on bus standards and driver regulations, individual states can fine the regulations based on local context and responsible for administering the services

Financing School Transport

- Cost of school transport services, purchasing/renting vehicles, maintenance, training, driver salaries, can be high
- In many developed countries, it is financed by local or national government or a combination.
- Procured by local government or outsourced to a transport company, local education committee is responsible for administration and supervision
- Japan- local government pays through education budget and national budget pays up to 50% for schools in remote areas
- US - service is almost always provided without charge to families. School buses purchased or leased by some school districts, others engage the service of school bus contractors

School Transport in China – Current State, Research, and Safety Initiatives to be Implemented in Mengzi City Yunnan Province

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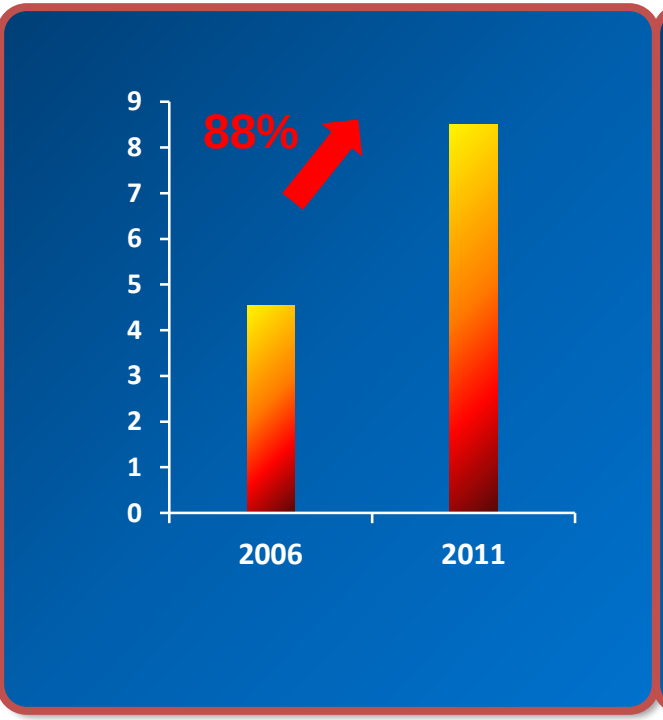
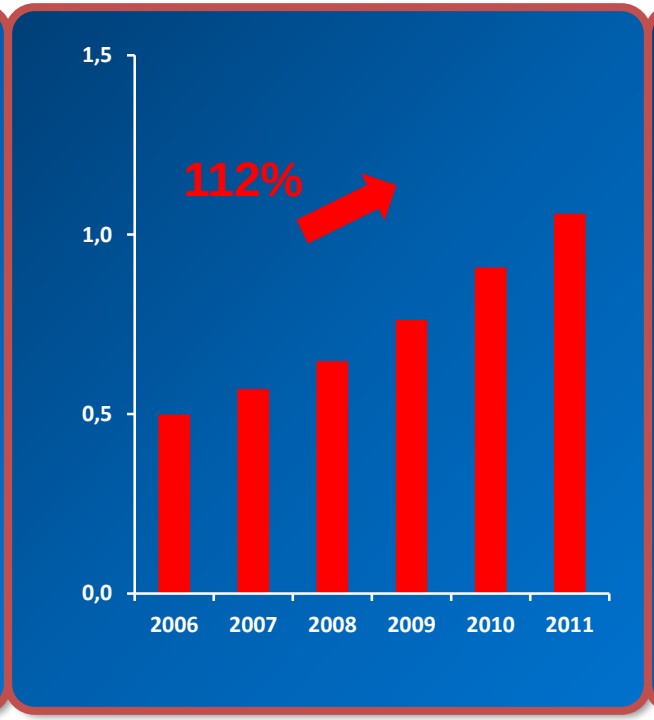
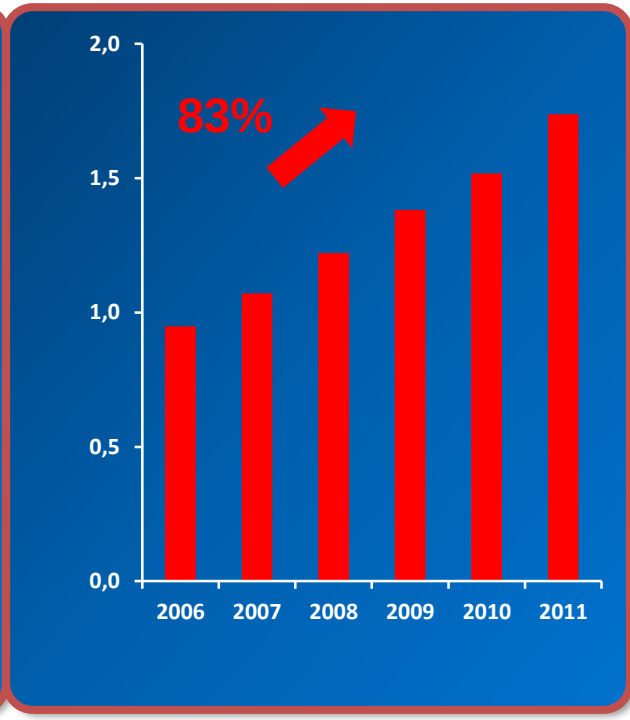
Background – Broader Road Safety Challenges in China



Expressway Mileage
(100,000km)



Automobile Ownership
(100 million)



Drivers
(100 million)

Background – School Transport Safety Challenges in China

Growing Problem in China

23 December 2009- 4 fatalities
27 December 2010- 14 fatalities
16 November 2011- 21 fatalities
12 December 2011- 15 fatalities
23 December 2011- 2 fatalities
24 December 2011- 5 fatalities
9 April 2012- 3 fatalities
11 June 2012- 4 fatalities

Government Takes Note

Premier Wen Jiaobao issued a mandate to:
"By central and local government as well as community joint efforts, make the school bus a floating campus and establish a safe and worry-free green channel for kids."

Background – Initial Steps

- GoC approached Bank to address growing public concern
- Bank prepared a policy note on school bus safety,
- Hosted school transport safety workshop in Beijing, and
- funded the research that would form the basis of the "model school transport zone" in Mengzi City (part of the Yunnan Honghe Urban Transport Project).
- For their part, the government took action and within 16 months issued a report on school transport safety

Background – Government Actions Related to School Transport Safety

Regarding school transport safety, the 12th Fifth Year Plan Requires:

1）Establishment and promotion of a legal system and school bus regulations

2）Introducing clear school buses priority access rights

3）Identification of clear government responsibilities to strengthen supervision of school buses

4）Introducing mandatory seat belt laws, speed limiting devices (within school zones amongst other locations), and full-load monolithic structure vehicle school buses

5）Explore effective school bus operation and management mode in rural areas related to all modes of transport (many cyclists and walkers)

Research – Topics Addressed

- **Multimodal-** Consider all transport choices by first conducting modal split analysis (including crash frequency and severity by mode type)
- **Multisectoral-** Take a multisectoral approach and consider the impact of vehicle types, infrastructure, enforcement, driver behavioral factors, as well as the applicable policies and regulations
- **Sustainability-** Address technical aspects including maintenance practices, inspections, and financing

Implementation Activities – Risk Assessment

- Students travel accidents analysis
- Students travel risk factors analysis
- Students travel risk assessment

Implementation Activities – Policy

- Multi-departments coordination mechanism on School transport safety enhancement
- Fund-raising policy on school transport safety enhancement
- Public transportation operation methods on student travel safety enhancement
- Operation and management of special school bus
- Regulations of Students travel safety education
- Traffic enforcement policy on school transport safety

INTERNATIONAL STANDARD

ISO 39001

First edition
2012-10-01

Road traffic safety (RTS) management systems — Requirements with guidance for use

Systèmes de management de la sécurité routière — Exigences et recommandations de bonnes pratiques

Reference number
ISO 39001:2012(E)

© ISO 2012

Implementation Activities – Public Buses

- Bus route optimization planning
- Civil works along bus routes with bus specific safety provisions
- Interior facilities aimed at students passengers

Implementation Activities – School Buses

- Route planning and safety assessment
- Civil improvement works along school bus corridors
- Specific minimum and preferred qualifications for school bus drivers as well as special training and facilities
- GPS surveillance management system on buses
- Special school bus type selections and performance inspection terms, facilities, and stations
- Fund-raising mechanism for special school buses
- Demonstration route for special school buses

Implementation Activities – School Zone Traffic

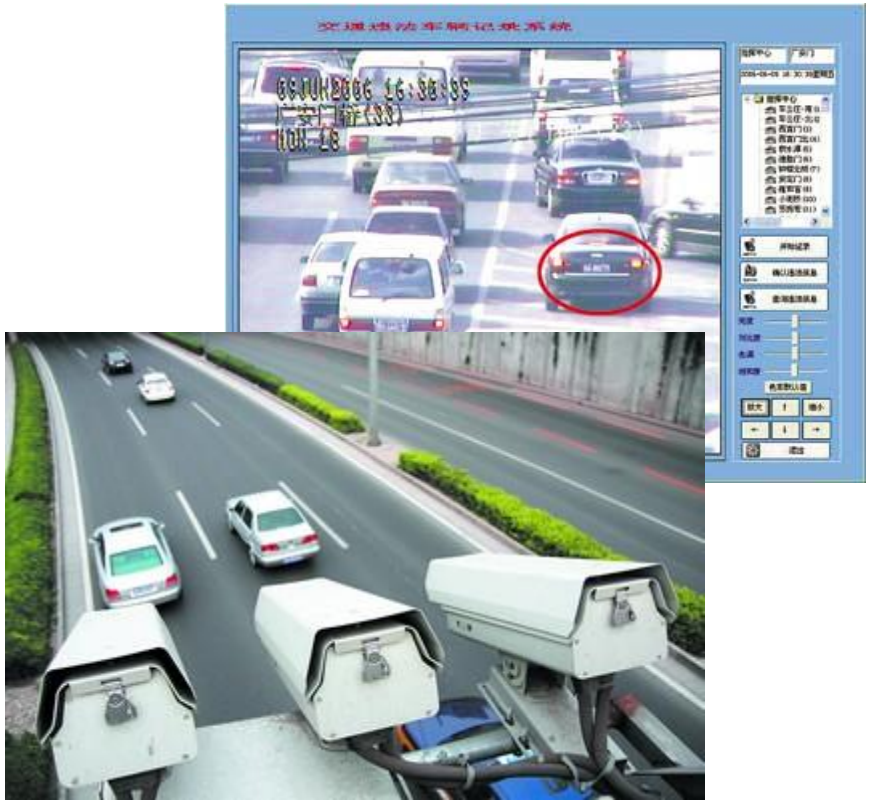
- Define school traffic impact area (appropriate radial distance from school for walking and cycling with school bus or special public transport outside of area)
- Establish a safety evaluation framework for school traffic impact area
- Systematic improvement of technology and research on school traffic impact area environment

Implementation Activities – Education

- Develop age-appropriate teaching materials
- Develop special teaching aids for educators
- Develop traffic safety demonstration courses for primary and middle school students (introduce road safety at an early age and then reinforce concepts)

Implementation Activities – Enforcement

- Law enforcement system based on demand analysis (place police in high traffic/high risk probability areas)
- Develop an enforcement plan specifically for school buses
- Special law enforcement system for school zones and high school traffic corridors



School zone safety in India (Kerala State)

Development of School Safety Zones (100m) along the project corridors:

- 115 schools selected
- Lack of signage and road markings around the school zone
- Schools selected from each road division
- Students channeled to footpaths
- 100m school zone demarcated
  - School-zone signs and “Slow Down” road markings
  - Demarcated bus boarding points and bus-bays
  - Pedestrian facilities such as: sidewalks with guardrails, pelican crossing signals, footbridges in busy areas, etc.
  - Engagement of local communities to participate in road safety programs

School zone safety in India (Kerala State)

- Kerala Road Safety Authority is implementing awareness raising in 10,000 schools across the state. Phase 1 targeting 1,000 schools along the northern district began in June 2014
- Communication on road safety awareness through Bank funded road project (Kerala State Transport Project)
- Program trains one teacher from each school as the road safety officer in collaboration with the local traffic police.

Early Results

- With students avoiding highway it allowed a free flow of vehicles
- Police and traffic wardens could effectively regulate morning and evening traffic
- Concept well received by all the community especially the institutions along the highways

Thank You!