Informal document No. **GRSP-36-10**
(36th GRSP, 7-10 December 2004
agenda item A.2.)

Transmitted by the expert from the United States of America

NHTSA COST/BENEFIT ANALYSIS OF LATCH IMPLEMENTATION
(Docket NHTSA-98-3390-27)

Benefits

CRS/Vehicle	Fatality Benefits	Injury Benefits
Rigid/Rigid	36 – 47	1231 – 2893
Nonrigid/Rigid	36 - 50	1235 – 2929

- Of the estimated 68 lives lost annually due to misuse, adoption of LATCH is expected to prevent 30-33 fatalities.
- In the event of a crash, the tether will prevent head excursion and reduce the chance of serious head injury. The tether anchorages will save an estimated 6-17 additional lives

Costs

Consumer Cost of Various Types of Child Restraint Systems ($1996)

System	Per Child Restraint	Total Annual Cost*
Rigid Connector	$33.87 - $43.87	$132 - $171 Million
Nonrigid Connector	$9.62 - $21.09	$38 - $82 Million

*Assumes 3.9 million child restraint sales (excludes booster seats)

Consumer Cost of Rigid Vehicle Anchorages

	Per Vehicle	Total Annual Cost
Vehicles with Rear Seats*	$6.62	$60 Million
Vehicles with No or Limited Rear Seats**	$2.82 - $5.62	$25 Million
		$85 Million Total

*Assumes 9 million light vehicles (passenger cars and light trucks) with adequate rear seats; assumes 2 rear seating positions with full LATCH and a third seating position with a tether anchorage

**Assumes 6 million light vehicles (passenger cars and light trucks); 3 million light vehicles with no rear seat and 1 LATCH system in the front seating position, and 3 million vehicles with inadequate rear seats and one front and one rear seating position equipped with LATCH.

Estimated Average Costs ($1996)

Restraint Type	Per Child Restraint	Per Vehicle	Total Annual Cost	Cost Per Equivalent Fatality (Millions)
CRS Nonrigid/ Vehicle Rigid	$17.19	$5.67	$152 Million*	$2.1 - $3.7

*NHTSA believed that sales of child restraints with (1) rigid connectors and (2) the nonrigid connector system with a single strap would be limited because few manufacturers indicated they would produce these types of systems. The estimate of most likely costs ($17.19) was based on an average of nonrigid connector systems with dual straps. The average vehicle costs ($5.67) were weighted by the number of seating positions required to be equipped with rigid anchorages. Total annual costs were estimated to be [$17.19 x 3.9 million child restraints + $5.67 x 15 million vehicles] = $152 million. **This total cost, and subsequently, the cost per equivalent fatality, would be much higher assuming the adoption of rigid connectors on child restraints.**

Ease of Use

- CLEPA cites broad information regarding ease of use of ISOFIX versus conventional
    - 2003 GDV Rigid ISOFIX Study; 120 person study
        - 84% found ISOFIX "easier"
        - 81% found ISOFIX had greater stability
        - 82% found ISOFIX "better protection feeling"
        - 75% found additional mass acceptable
- NHTSA has not performed an in-depth consumer study to analyze the "ease of use" of LATCH
    - CLEPA cites Docket NHTSA-2003-15998-1 as source of feedback regarding LATCH
        - The objective of the July 2003 meeting with vehicle manufacturers and child restraint manufacturers was to identify compatibility issues that have arisen in the beginning of LATCH implementation
        - NHTSA is confident that comparable findings with respect to ease of use, stability and other areas for LATCH would be seen as with the GDV study, and without the issue of added mass considerations
- Insurance Institute for Highway Safety Ease of Use Study
    - Installation was generally easier and less complex with LATCH-compliant systems than routing the seat belts through child restraints to attach them to cars.
    - BUT, LATCH doesn't always make it a simple click-in operation to install a restraint.
    - Study
        - 6 different child restraints (2 rigid, 4 flexible)
        - 10 vehicles
        - Easy fits for all restraints in 3 vehicles
        - Difficult to secure any of the seats in 2 of the vehicles
        - Both rigid LATCH seats could not be installed in Hyundai Santa Fe
        - One of the rigid LATCH seats could not be installed in the Cadillac CTS
        - www.iihs.org/news_releases/2003/pr061103.htm