Turbulence
Joint Safety Implementation Team

Detailed Implementation Plan
For
Cabin Injury Reduction During Turbulence

DRAFT

Statement of Work: Reduce turbulence injuries to flight attendants (FAs) and passengers through improved situational awareness, turbulence encounter management procedures (before, during and after encounter), enhanced communication and identification and installation of effective cabin design safety features.

This project encompasses six safety enhancements, three of which are R&D (and are detailed in the Cabin Injury Reduction Research Detailed Implementation Plan) and three of which are immediately implementable. All six safety enhancements employ changes in procedures or equipage based upon industry best practices and documented in an Advisory Circular (AC).

Lead Organization for Overall Project Coordination (LOOPC): ATA Cabin Operations Committee/Flight Safety Committee

SAFETY ENHANCEMENT 81: Cabin Design – Galley Handholds – New Production

Score (InjryRdx%): 2007: 0.04 2020: 0.09 Full: 0.09 '07 Impl: 40%

Total Resource Requirements:

	Government		Manufacturers		Operators		Total
	FTE	$M	FTE	$M	FTE	$M	FTE/$M
2007	0.10	0.02			0.80	0.26	0.9/$0.28M
2020	0.15	0.03			1.20	0.24	1.35/$.27M
Totals	0.25	0.05			2.00	0.50	2.25/$.55M

Completion Date: 30 months after CAST approval of Safety Enhancement

Output 1: Determine best design for handholds in aircraft galleys.

Resources: ATA, Cabin Operations Committee (LOOC), airlines (designated engineering representative), aircraft cabin vendors, aircraft manufacturers, FA unions, FAA/AFS-200 (Cabin Safety), FAA/AIR, and FAA/CAMI.

Timeline: Completed 6 months after CAST approval of Safety Enhancement

Actions:

- **ATA/Airlines/Manufacturers/FA Unions --** Examine and evaluate current aircraft cabin interior products to identify those that provide optimum stability of occupants during all levels of turbulence for use in new aircraft.

Output 2: Establish best practices for procedures and national training materials for FAs' use of the handholds and publish in new AC (see SE 78) and FAA Order 8400.10.

Resources: FAA/AFS-200, Cabin Safety (LOOC)

Timeline: Completed 18 months after CAST approval of Safety Enhancement.

Actions:

- **FAA/AFS-200** -- Identify industry best practices for procedures and training of FAs in use of handholds in galleys.
- **FAA/AFS-200** -- Consolidate industry best practices and publish in new cabin safety AC to provide guidance for air carriers to use to develop procedures and training programs.
- **FAA/AFS-200** -- Create national training materials on turbulence (video or other products) based on best practices.

Output 3: Install recommended products in new production aircraft.

Resources: Airlines, manufacturers

Timeline: Ongoing

Actions:

- **Airlines/Manufacturers** -- Include handholds in galley packages for all new production aircraft.

Output 4: Revise FA and pilot procedures, upgrade training programs and implement new procedures and training.

Resources: Airlines

Timeline: Completed 30 months after CAST approval of Safety Enhancement.

Actions:

- **Airlines** -- Implement new turbulence procedures and turbulence training for the use of handholds as recurrent training**.**

Performance Goals & Indicators for Safety Enhancement/Outputs:

- **Goals:** New production aircraft are equipped with galley handholds as they go into service and air crews are proficient in their use.

    - **Indicators:** All new production aircraft are equipped with galley handholds as they go into service and air crews are proficient in their use.

SAFETY ENHANCEMENT 82: Cabin Design – Galley Handholds – Retrofit

Score (InjryRdx%): 2007: 0.11 2020: 0.14 Full: 0.14 '07 Imp: 80%

Total Resource Requirements:

	Government		Manufacturers		Operators		Total
	FTE	$M	FTE	$M	FTE	$M	FTE/$M
2007						1.18	/$1.18M
2020						0.29	--/$.29
Totals						1.47	/$1.47M

Completion Date: 60 months after CAST approval of Safety Enhancement

Output 1: Evaluate currently available handholds and select those most cost-effective for retrofit installation.

Resources: ATA, Cabin SafetyCommittee (LOOC), airlines (designated engineering representative), aircraft cabin vendors, aircraft manufacturers, and FA unions, FAA/AFS-200 (Cabin Safety), FAA/AIR, and FAA/CAMI.

Timeline: Completed 6 months after CAST approval of Safety Enhancement.

Actions:

- **Airlines** -- Evaluate currently available handholds and select those most cost-effective for retrofit installation.

Output 2: Install recommended products in legacy aircraft.

Resources: Airlines, manufacturers

Timeline: Completed 66 months after CAST approval of Safety Enhancement.

Actions:

- **Airlines** -- Install handholds in existing galleys of legacy aircraft.

Performance Goals & Indicators for Safety Enhancement/Outputs:

- **Goals:** Equip all legacy aircraft with galley handholds.
    - **Indicators:** All legacy aircraft are equipped.

Programmatic approach
Organizational strategy

The Turbulence JSIT identified the ATA Cabin Operations Committee as the project lead for Cabin Injury Reduction During Turbulence. The project lead will coordinate and assist with the implementation of the activities outlined in this Detailed Implementation Plan and will, when requested, provide progress reports to the CAST. Implementation of this project is viewed as a shared responsibility and tasks will be divided between FAA and organizations/persons in industry. The Lead Organization for Overall Project Coordination (LOOPC) is the ATA Cabin Operations Committee. The Lead Organization for Output Coordination (LOOC) is FAA/AFS-200, Cabin Safety. The roles and responsibilities of the LOOPC and LOOC are described in the CAST approved JSIT Process Document.

Implementation Activities

Data has consistently shown that most turbulence related injuries occur to FAs and passengers who are not properly secured. Over the years Government and industry efforts have addressed this issue in an attempt to reduce turbulence injuries to FAs and passengers. These efforts have lacked overall coordination and consequently have not been effective as indicated by the increasing trends in FA injuries. Central to the organizational strategy will be the integration of these various efforts combined with current data to develop comprehensive guidance. The Lead Organization in Output 1 and 2, working through the Principal Operation Inspectors, will initiate a process to determine existing best practices to be considered in the development of future guidance. Human factors research will further enhance the guidance for FA security and passenger seatbelt compliance.

Key Products and Milestones

Safety Enhancement 81: Cabin Design – Galley Handholds – New Production.		
Output 1: Determine best design for handholds in aircraft galleys.		
Action	**Responsible Party**	**Completion Date**
Examine and evaluate current aircraft cabin interior products to identify those that provide optimum stability of occupants during all levels of turbulence for use in new aircraft.	**ATA/Airlines/ FA Unions/ Manufacturers/ FAA-CAMI**	**6 months from CAST Approval.**
Output 2**:** Establish best practices for procedures and national training materials for FAs use of the handholds and publish in new AC (see SE78) and FAA Order 8400.10.		
Action	**Responsible Party**	**Completion Date**
Identify industry best practices for procedures and training of FAs in use of handholds in galleys.	**FAA/AFS-200**	**8 months from CAST approval.**
Consolidate industry best practices and publish in new cabin safety AC to provide guidance for air carriers to use to develop procedures and training programs.	**FAA/AFS-200**	**18 months from CAST approval.**
Create national training materials on turbulence (video or other products) based on best practices.	**FAA/AFS-200**	**18 months from CAST approval.**
Output 3: Install recommended products in new production aircraft.		
Action	**Responsible Party**	**Completion Date**
Include recommended handholds in galley packages for all new production aircraft.	**Airlines/ Manufacturers**	**Ongoing from 24 months after CAST approval.**
Output 4: Revise FA and pilot procedures, upgrade training programs and implement new procedures and training.		
Action	**Responsible Party**	**Completion Date**
Implement new turbulence procedures and turbulence training for use of handholds as part of annual recurrent training.	**Airlines**	**30 months from CAST approval.**

Safety Enhancement 82: Cabin Design – Galley Handholds – Retrofit.		
Output 1: Evaluate currently available handholds and select those most cost-effective for retrofit installation.		
Action	**Responsible Party**	**Completion Date**
Evaluate currently available handholds and select those most cost-effective for retrofit installation.	**Airlines**	**6 months from CAST Approval.**
Output 2**:** Install recommended products in legacy aircraft.		
Action	**Responsible Party**	**Completion Date**
Install handholds in existing galleys of legacy aircraft.	**Airlines**	**66 months from CAST approval.**

Risk Description and Risk Mitigation Plan:

RISK DESCRIPTION	RISK MITIGATION PLAN
R1 – Changing corporate culture will be difficult and ATA may not be able to insure full compliance with the standards developed.	M1 - Insure corporate buy-in of plan.
R6 – Government does not maintain monetary support of turbulence effort within responsible Government organization.	M6 – CAST and Industry assist responsible Government agency by advocating funding and prioritization for continued turbulence funding. Industry provides guidance for needs and priorities to support aviation safety.
R7 – Responsible Government organization priority shifts away from turbulence.	M7 – CAST and Industry assist the responsible Government organization by advocating funding and prioritization for continue turbulence funding. Industry provides guidance for needs and priorities to support aviation safety.
R10 – Unfavorable airline economics and competition for funds with other needs.	M10.1 – Develop cost/benefit analysis to encourage airlines to implement in time to impact 2007 AvSP goals. M10.2 – Manufacturers/OEMs provide low cost upgrades for incentive.

Impact on Non-Part 121 or International Applications

Cabin equipage will become standardized between domestic and international carriers over time. Procedures may remain distinct between international and domestic carriers except as they demonstrate lower injuries and lower operator costs which would induce international carriers to adopt.