Safety Management Systems (SMS)

SMS Framework for

Public Transportation in Idaho

January 2016

Safety Management Systems

As part of FTA's new National Public Transportation Program, FTA developed the Safety Management System (SMS) Framework, a "formal, top-down, organization-wide approach to managing safety risks and assuring the effectiveness of safety risk mitigations."

The purpose behind the SMS is to "improve public transportation safety and provides transit agencies with a structure for understanding and addressing safety risks through proactive and timely organizational decision-making…[The system] proactively detects safety concerns and organizational factors, and corrects them using data-driven prioritization."

Why SMS?

Public Transit Agencies

Examine how organizational factors contribute to:

- Incidents
- Accidents
- Near misses

Organizational Factors

- Allocating resources
- Defining & establishing operational procedures
- Frontline personnel supervision
- Staff selection & training
- Service delivery operations monitoring
- Human performance issue resolution

Program Adaptability

SMS can be adjusted to fit any transit agency regardless of:

- Mode
- Size
- Complexity
- Environment
  - Rural
  - Small Urban
  - Urban

Accountable Executive

- Safety accountability resides with the top executive
- Significant role in developing and sustaining an SMS and a positive safety culture
- Tasked with allocating resources
- Explicit lines of decision-making accountability
- Individual with ultimate responsibility for a transit agency's day-to-day operations

SMS Components

1. Safety Management Policy

Written foundation of a public transportation agency's safety management system.

Safety Management Policy Elements

A. Safety Management Policy Statement

B. Safety Accountabilities and Responsibilities

C. Integration with Public Safety and Emergency Management

D. SMS Documentation and Records

A: Safety Management Policy Statement

Frames the fundamentals of how an SMS will build, operate and address six crucial aspects:

- Signed by the highest executive in an agency
- Clear statement about providing resources for managing safety during service delivery
- Commits the agency to an employee safety reporting program
- Defines conditions under which exemptions from disciplinary actions are applicable
- Spells out unacceptable operational behaviors
- Communication plan

B: Safety Accountabilities & Responsibilities

- Defines the accountabilities and responsibilities for the performance of the SMS.
- Accountable Executive is identified
- Executive & Senior Manager responsibilities, authorities and accountability is defined.
- Subject Matter Expert (SME) identified for the implementation and day-to-day operations of the SMS.

C: Public Safety & Emergency Management Integration

- Integration of programs that have input into, or output from, the SMS
- Coordination with both external organizations and internal departments for dealing with:
  - Emergencies
  - Abnormal operations
  - Returning to normal operations
- Address the various internal and external programs that may affect safety management
- Index of the plans and procedures that support the transit agency's public safety and emergency management activities.

D: SMS Documentation & Records

- Documentation of SMS implementation
  - Tools required for day-to-day SMS operation
  - Management of new or revised safety requirements

- Must be readily available to those with:
  - Accountabilities for SMS performance
  - Responsibilities for SMS implementation and operation

2. Safety Risk Management

Safety hazards and concerns in transit operations are identified, evaluated and mitigations are put in place to manage their safety risk.

Safety Risk Management Elements

A. Hazard Identification and Analysis

B. Safety Risk Evaluation

A: Hazard Identification & Analysis

- Identify and address hazards **before** they escalate into incidents or accidents.

- Potential hazard identification sources:
  - Employee safety reporting program
  - Industry data
  - Accident reports
  - Inspections
  - Governmental sources (FTA, NTSB, oversight agency)
  - Compliance programs
  - Observations of operations
  - Internal safety investigations
  - Committee reviews
  - Customer and public feedback and complaints

A: Hazard Identification & Analysis (cont.)

- Subject matter experts from relevant departments should be involved in a hazard analysis.

- Key attributes of effective hazard identification:
  - Comprehensive data sources
  - Training on the proper identification & reporting of safety concerns
  - Focus on the collection of safety concerns to identify exact hazards
  - Promote & support safety concern reporting & hazard identification

B: Safety Risk Evaluation & Mitigation

- Activities and tools to evaluate safety risks associated with identified hazards
  - Expressed and measured by the predicted probability and severity of a hazard's potential consequences.

- Mitigations to reduce safety risk exposure
  - Actions taken to reduce the likelihood and/or severity of the potential consequences of a hazard.

3. Safety Assurance

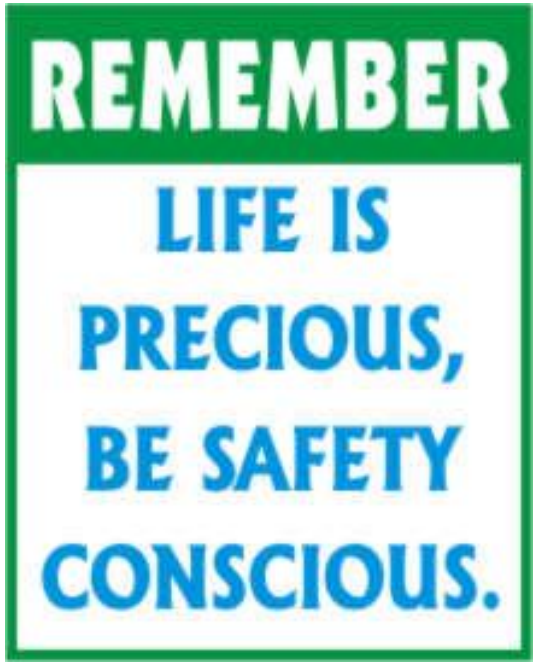
Ensures that mitigations are implemented, adhered to, appropriate, effective and sufficient in addressing the potential consequences of identified hazards.

Safety Assurance Elements

A. Safety Performance Monitoring and Measurement

B. Management of Change

C. Continuous Improvement



A: Safety Performance Monitoring & Measurement

- Generates data and information needed to evaluate:
  - Appropriate and effectiveness of implemented safety risk mitigations
  - Performance within established safety objectives and performance targets

- Safety Performance monitoring activities:
  - Monitoring:
    - Employee safety reporting program
    - Service delivery activities (must include field observations)
    - Operational & maintenance data
  - Conducting:
    - Safety surveys
    - Safety audits, inspections & reviews
    - Safety Investigations

B: Management of Change

- Defining when a change must be evaluated through the Safety Risk Management processes.
- Changes meeting criteria are reviewed to verify existing mitigations are sufficient or if new mitigations are necessary.
- Field monitoring activities are leveraged to support unplanned changes that are identified.

C: Continuous Improvement

- Evaluations of the Safety Management System:
  - Ensures effectiveness and efficiency
  - Supports meeting safety objectives and performance goals
  - Streamlines identification of weaknesses, which should always be addressed in a timely manner.

- Overall safety performance annually reviewed

4. Safety Promotion

Provides visibility of executive management's commitment to safety, and fosters improved safety performance by increasing safety awareness though safety communication and training.

Safety Promotion Elements

A. Safety Communication

B. Competencies and Training

A: Safety Communication

- Two-way feedback loop between frontline employees and management about safety information about safety information.
  - Personnel aware of safety priorities and initiatives.
  - Ensures feedback is captured and acted upon appropriately
  - Actively and routinely communicated, focusing on raising awareness of hazards and potential safety risks
  - Encourages employees to report concerns
  - Demonstrates management commitment

B: Competencies & Training

- Employee training is the most critical driver for a successful Safety Management System implementation
  - Shapes employee perception of management's commitment to safety
  - Enables the consistent application of employee skills in achieving safety and performance objectives

- Formal training should develop safety data management competencies

SMS Implementation & Maturity

Implementation occurs over time and builds maturity through a series of steps that lead to confidence that safety risk is being identified, evaluation and mitigated.

Implementation Phases

Phase 1: Planning, Organization, & Policy Development

Phase 2: Safety Risk Management

Phase 3: Safety Assurance

Phase 1: Planning, Organizing, & Policy Development

- Generate a blueprint of how to meet and integrate SMS requirements into the agencies service delivery operations
- Create an accountability framework for the development of SMS implementation activities
- Develop safety policy documents

Phase 1 Checklist

- Person and/or assemble team responsible for the development of the implementation plan appointed.
- Implementation gap analysis by reference to the components and subcomponents of the FTA SMS Framework conducted.
- Implementation plan established describing the development of organizational structures and deployment of resources required for managing safety, detailing tasks with owners and due dates.
- Accountable Executive and the safety management accountabilities of managers identified.
- Safety Management Policy Statement draft completed.
- Departments involved with the integration of emergency plans, procedures, and/or protocols that direct both internal emergency response to transit related events and external emergency response with local emergency services for community-wide emergency activities are identified
- Blueprint of essential activities and tolls of the Safety Risk Management Process and the Safety Assurance Process are developed.
- Safety management training needs based on audience groups is identified.
- Infrastructure for safety management communication is developed.

Phase 2: Safety Risk Management

- Establish and implement Safety Risk Management activities and tools so a transit agency can identify and analyze hazards and evaluate safety risks.

- Correct potential shortcomings, from an SMS viewpoint, in activities and tools that an agency already has in place.

Phase 2 Checklist

- Criteria and guidance for the activities and tools for hazard identification and analysis are established
- Employee safety reporting program established
  - Non-punitive aspects of the employee safety reporting program are clearly identified
  - Behaviors that are exempt from discipline are identified
- Safety risk matrices for probability and severity are developed and adopted
- Safety risks associated with service delivery operations have been evaluated
- Criteria for the elevation of safety risks to executive management (as necessary) are established
- Hazard identification, analysis, safety risk evaluation, and mitigation documentation are developed
- Training for hazard identification, analysis, safety risk evaluation and mitigation are developed, training has been delivered to relevant personnel, and relevant documentation of training material.
- Start of employee safety reporting program has been communicated
- Completion of the tasks above has been communicated to relevant personnel throughout the agency

Phase 3: Safety Assurance

- Implement essential Safety Assurance activities and tools that allow a transit agency to monitor safety performance during service delivery operations

- Manage operational change

- Provide for continuous improvement of Safety Management System

Phase 3 Checklist

- Safety performance monitoring and measurement activities developed
- Safety performance indicators and safety performance targets established
- Trigger thresholds for engaging in change management activities defined
- No service delivery operations will be initiated in the changed environment until initial evaluation has been conducted ensured
- Criteria for SMS continuous improvement developed
- SMS assessments established
- Internal SMS assessment activities defined
- Safety assurance and oversight activities carried out by external agencies are identified
- Safety performance and monitoring, management of change, and continuous activities documented
- Training on safety performance and monitoring, management of change, and continuous activities, including the training material in relevant documentation is developed and delivered.

Successful maturity of SMS

All agency employees can unequivocally answer these five questions:

1. What are our most serious safety concerns?
2. How do we know this?
3. What are we doing about it?
4. Is what we are doing working?
5. How do we know what we are doing is working?

Useful Resources & Contacts

FTA Resources and Information:

FTA Office of Transit Safety & Oversight Website

FTA Safety Management Systems (SMS) Website

SMS Framework PDF

For more information or assistance contact:

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Or visit our website at:
http://itd.idaho.gov/public_transportation/safety_program.html