

Model AV Operational Safety Plan for Carriers



U.S. Department of Transportation
Federal Motor Carrier Safety Administration

Mike Lukuc

Federal Motor Carrier Safety Administration

2023

ANALYSIS,
RESEARCH, &
TECHNOLOGY
FORUM

VIRTUAL EVENT

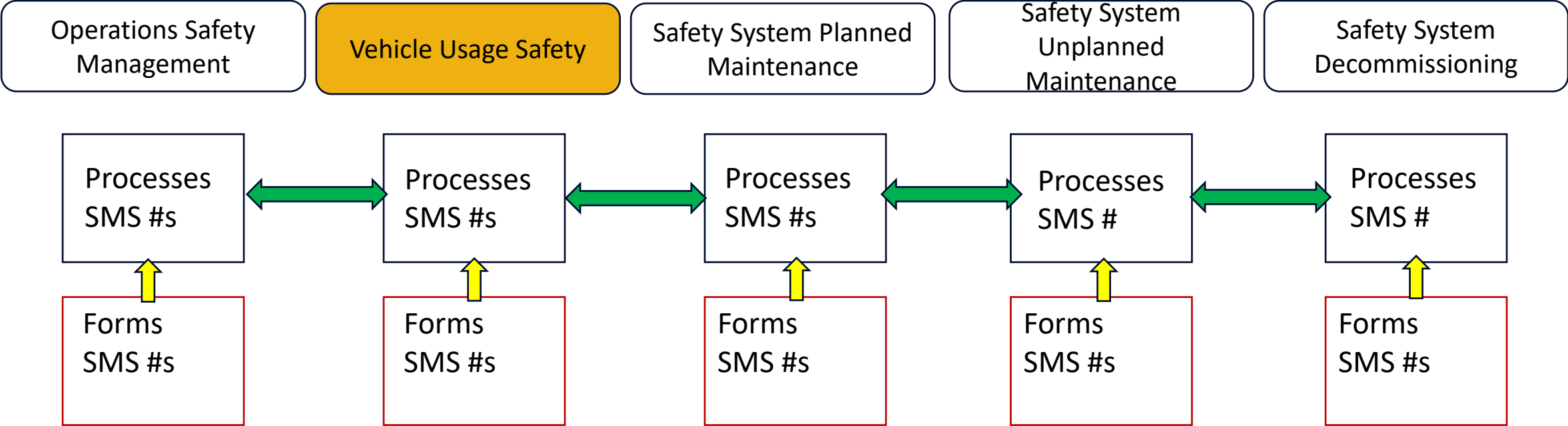


Model ADS Operational Safety Plan for Motor Carriers

Objective: to develop and publish a model operational safety plan as a template for carriers operating ADS-equipped commercial motor vehicles (CMVs)

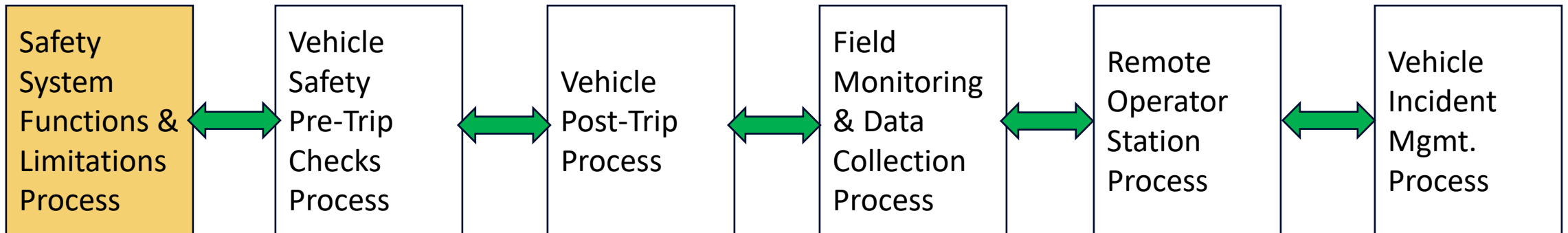
Safety Management System

For Motor Carrier Operation



Model ADS Operational Safety Plan for Motor Carriers

Vehicle Usage Safety Processes



Model ADS Operational Safety Plan for Motor Carriers

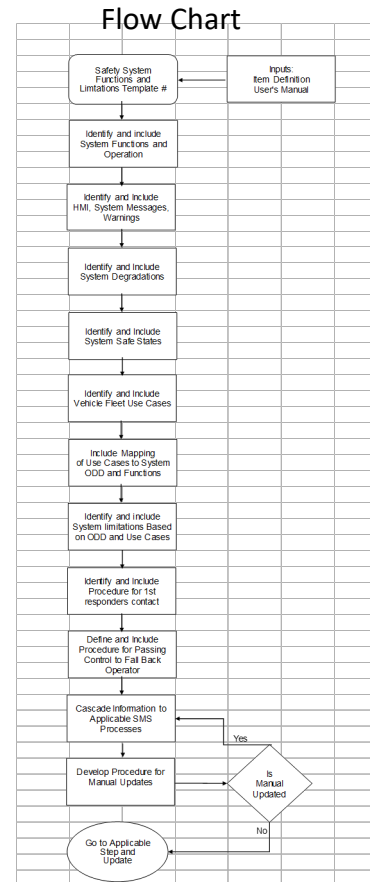
Example: Safety System Functions & Limitations Process

Safety Management System	Document #: SMS-P 09	Rev: 0
Document Title: Safety System Functions and Limitations Process		Page 1 of 4

REVISION HISTORY			
REV	Description of Change	Author	Effective Date
0	Initial Release		

REFERENCE DOCUMENTS	
Document Number	Document Title
ISO 26262	Road Vehicles – Functional Safety

- Purpose**
The purpose of this procedure is to identify and communicate to the organization the safety system functions and limitations. The output of this process supports the safety system training manual (TBD # Document) and elements of the Pre-Trip Check process (SMS-F 01).
- Scope**
This procedure applies to all safety systems used on the fleet vehicles including systems provided by the vehicle OEM or systems that are retrofitted on the vehicle.
- Definitions and Acronyms**
 - Operating Design Domain:** The environmental conditions, geographical areas, road types, and use cases within which the system is design to operate at full or limited function.
 - Safe State:** A state of vehicle operation where the residual risk is deemed acceptable.
 - Use Case:** An operating scenario of the vehicle usage/drive cycle



5. Responsibilities

- 5.1. It is the responsibility of the manager of system safety to implement and manage this procedure. This includes:
- 5.1.1. Identify the safety system functions, HMI communications, and safe states applicable to the vehicle fleet
 - 5.1.2. Identify the use cases of the vehicle fleet; this includes the elements of the ODD (roads, environment, traffic scenarios, ...) and the safety system limitations.
 - 5.1.3. Manage and update the documents covering 5.1.1 and 5.1.2
 - 5.1.4. Cascade the information from 5.1.1 and 5.1.2 to the applicable processes of the SMS
 - 5.1.5. TBD

8. Safety Records

The following safety records shall be generated and managed in accordance with organization's applicable procedure.

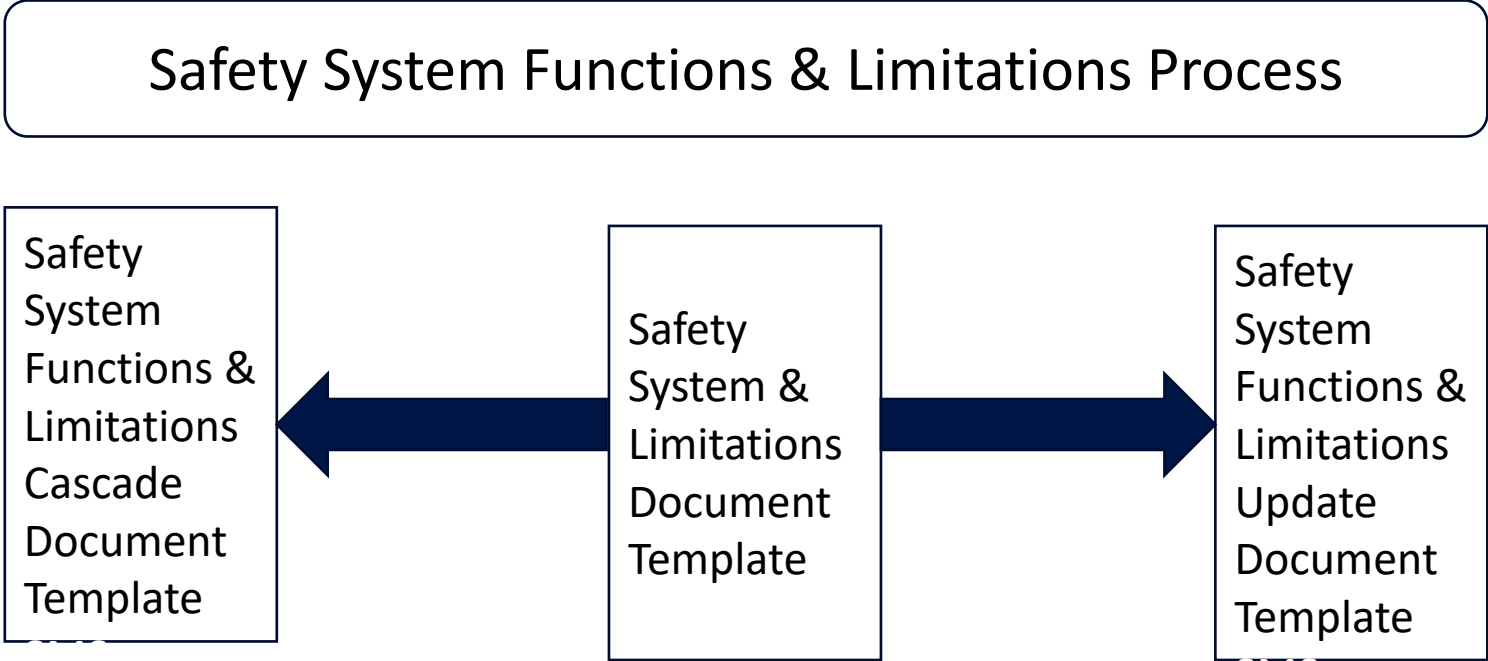
Required Record	Owner
SMS-F 02: Safety system functions and limitations document	Manager of system safety
SMS-F 02A: Safety system functions and limitations document update	Manager of system safety
SMS-F 03: Safety System functions and limitations cascade document	Manager of system safety

9. Forms

- 9.1. SMS-F 02: Safety System Functions and Limitations template
- 9.2. SMS-F 02A: Safety System Functions and Limitations form
- 9.3. SMS-F 03: Safety System Functions and Limitations Cascade form

Model ADS Operational Safety Plan for Motor Carriers

Supporting Documents and Templates



Timeline and Milestones

FMCSA (Internal) Milestone and Deliverable Dates	Projected Date
Definition of the CMV AV ADS Architecture, Use Cases, ODD, and Operation Phase	February 17, 2023
SMS Process Input Document Templates Developed	April 17, 2023
SMS Process Output Document Templates Developed	November 10, 2023
Apply Processes to Hypothetical Fleets	December 22, 2023
Final Report Delivered to FMCSA	February 28, 2024

Contact Information

Mike Lukuc

General Engineer, Technology Division

Mike.Lukuc@dot.gov