Knoxville-Knox County Community Action Committee

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Agency Safety Plan (ASP)

November 2024

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1. Safety Management System Overview

1.1. SMS Introduction

Safety Management Systems (SMS) is a formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of safety risk mitigation. SMS includes systematic and proactive procedures, practices, and policies for managing risks and hazards. By bringing employees together from all levels of the agency to manage risk, SMS helps agencies detect and address safety problems earlier, share and analyze data more effectively, and measure safety performance more precisely.

Four main components make up SMS:

- **Safety Management Policy** (Section 2) is a transit agency's documented commitment to safety. The policy defines the transit agency's safety objectives and the safety accountabilities and responsibilities of its employees.
- **Safety Risk Management** (Section 3) is the process for identifying hazards and analyzing, assessing, and mitigating safety risk.
- **Safety Assurance** (Section 4) is the processes that ensures the implementation and effectiveness of safety risk mitigation and ensures that the agency meets or exceeds its safety objectives through the collection, analysis, and assessment of safety data.
- **Safety Promotion** (Section 5) is a combination of safety training and communication applied to the agency's transportation system to support SMS.

Refer to Appendix A for Definitions of terms used in this plan and refer to Appendix B for Acronyms and Abbreviations used in this plan.

1.2. Goal, Objectives, and Purpose

1.2.1. Goal

The overarching goal of this ASP is to enhance all aspects of safety within CAC Transit by guiding effective and proactive management of safety risks in our system and prioritizing capital investments using performance-based planning.

1.2.2. Objective

The objective of this ASP is to establish processes and procedures to support the implementation of SMS that meets Federal Transit Administration (FTA)-mandated requirements under the PTASP Final Rule (49 CFR Part 673) and changes to 49 U.S.C. Section 5329(d) under the Bipartisan Infrastructure Law.

1.2.3. Purpose

The ASP formalizes the SMS principles and strategies for demonstrating Safety Management Policy, Safety Risk Management, Safety Assurance and Safety Promotion through all operation and maintenance activities. The ASP defines the process for identifying, evaluating, and resolving hazards associated with operations of a bus system involved in revenue service. This process helps achieve the highest practical level of operational safety for the riding public, employees, and anyone encountering the System.

1.3. Applicability and Scope

CAC Transit as a recipients of FTA Urbanized Area Formula Grant Program funds under 49 U.S.C. § 5307 is required to comply with the PTASP Final Rule. This ASPP meets all the requirements under 49 CFR Part 673 and changes to 49 U.S.C. Section 5329(d) under the Bipartisan Infrastructure Law and encompasses the equipment, facilities, plans, procedures, operation and maintenance as they relate to CAC Transit's system.

1.4. ASP Review and Updates

CAC Transit will review and update the ASP and the safety performance targets by June 1 of each year. If any changes are made to the ASP, the update ASP will be given to the Accountable Executive for review and approval. The Accountable Executive will approve and then forward to the CAC Board for approval. CAC Transit will send the safety performance targets to the TPO at the same time as part of the ASP requirement.

2. Safety Management Policy

2.1. ASP Safety Management Policy Statement

CAC Transit recognizes management of safety as a core agency function and is dedicated to planning, designing, constructing, operating and maintaining transportation systems that optimize the safety of passengers, employees, consultants, contractors, emergency responders, and the public.

Accountability for safety begins with the Accountable Executive and permeates all levels of employees. The following safety objectives reflect the agencies' overarching safety goals and demonstrate commitment to establishing, implementing, and continually improving Safety Management Systems (SMS):

- Integrate safety management into the primary responsibilities of all employees;
- Support safety management through the allocation of resources and promotion of a safety culture that facilitates safe practices and effective employee safety reporting and communication;
- Define roles and responsibilities for all employees that contribute to safety performance and SMS;
- Implement risk-based hazard management consistent with risk acceptance levels;
- Operate an employee safety reporting program that ensures no action will be taken against any employee who discloses a safety concern unless disclosure indicates beyond reasonable doubt an illegal act, gross negligence, or a deliberate disregard of regulations or procedures;
- Comply with or exceed legislative and regulatory requirements and industry standards;
- Ensure systems and services that support operations meet or exceed agency safety standards;
- Provide safety information and training to ensure all employees are competent in safety management for tasks allocated to them;
- Establish and measure safety performance against data-driven safety performance targets; and
- Continually improve safety performance and implementation of SMS.

By applying SMS as outlined above and detailed in this ASP, CAC Transit is committed to making safety the top priority of all agency operations.

2.1.1. Safety Management Policy Communication

The Leadership Team participated in development of the Safety Management Policy Statement in July 2019. Once established, the ASP policy statement was communicated through the following means:

- The policy statement was given to all staff.
- The policy statement is provided during new hire orientation.
- The policy is periodically addressed in safety meetings.

2.2. Safety Accountabilities and Responsibilities

Under SMS, identified positions have specific responsibilities under SMS. CAC Transit has outlined below the agency position(s) and committee(s) responsible for each role described below.

The matrix below names the positions at CAC Transit responsible for the safety roles and responsibilities described in Section 2.2 of this ASP.

Knox County CAC Transit Roles & Responsibility	Barbara Kelly/ Executive Director	Karen Estes/ Transit Director	Michael Humphrey/ Asst. Transit Director	Thomas Greco/ Operations/Fleet Safety Manager	Safety Committee Members
Accountable Executive (AE)	P	S	S	N	N
Safety Manager (CSO) (SMS Implementation)	O	P	S	N	N
Safety Management Policy	O	P	S	S	N
Safety Risk Management (Hazard ID/Mitigation)	O	P	S	S	N
Safety Assurance (Audits/Inspections)	O	S	S	P	N
Safety Promotion (Communication/Training)	O	S	P	S	R
Hazard Identification & Safety Risk Assessment	O	P	P	P	R
Safety Reporting & Follow-up	O	P	S	S	R
Safety Performance Targets & Measurement	O	P	S	S	R
Accident Investigation	O	O	S	P	N

KEY

A	Approval
O	Oversight
P	Primary
S	Secondary/Support
R	Review/Comment
N	Not Applicable/No Significant Role

2.2.1. Accountable Executive

The Accountable Executive is a single, identifiable person who has ultimate responsibility and accountability for implementing and maintaining the agency's SMS and ASP. This is the same person responsible for carrying out CAC's Transit Asset Management (TAM) Plan. The Accountable Executive has control or direction over the human and capital resources needed to develop and maintain both the agency's ASP and TAM Plan. The Accountable Executive is also responsible for ensuring action is taken, as necessary, to address substandard performance in the agency's SMS. This individual is the primary decision-maker who is ultimately responsible for both Safety and TAM.

2.2.2. Safety Manager (or SMS Executive)

The Safety Manager, or SMS Executive, can also be Accountable Executive. This person will have adequate training to take responsibility for safety and act as the SMS Executive. The Safety

Manager has the authority and responsibility for day-to-day implementation and operation of the agency's SMS and must have a direct line of reporting to their Accountable Executive.

2.2.3. All Employees

In addition to the Accountable Executive and/or Safety Manager, CAC Transit has identified those with authority and responsibility for day-to-day implementation and operation of our SMS.

All CAC Transit employees are responsible for safety. Each employee is required to work safely, correct unsafe behavior, identify and report safety hazards, and abstain from performing any task that the person feels could injure themselves or others.

2.2.4. Safety Committee(s)

CAC Transit established a Safety Committee in July 2022 that meets on a quarterly basis to discuss the ASP. CAC Transit incorporates safety into other activities to ensure that the system is operated and maintained in a safe manner. The Safety Committee members include equal numbers of management and frontline employees and includes members of both operations and maintenance departments. Other CAC Transit staff members are brought in to Safety Committee meetings as necessary. The Safety Committee supports SMS by informing and assuring CAC Transit's management of safety issues affecting CAC Transit and addressing safety issues assigned to it by CAC Transit's executive management.

CAC Transit works closely with the Knoxville Sheriff's Department and the City of Knoxville's Police Department on public safety issues on a regular basis. CAC Transit is part of the E911 Radio System and works with Emergency Management on emergency preparedness issues and, upon request, for national disaster preparedness issues.

2.3. Safety Performance Targets

CAC Transit has established targets that represent a quantifiable, measurable safety performance or condition. CAC Transit will regularly monitor the system performance to ensure we are meeting the targets and improving safety outcomes. At least annually, when reviewing and updating the ASP, CAC Transit will evaluate safety performance to determine whether we should change our safety performance targets. CAC Transit's safety performance targets are categorized below by safety performance measures:

- **Performance Measure: Fatalities** – Total number of reportable fatalities and rate per total unlinked passenger trips, by mode.
- **Performance Measure: Injuries** – Total number of reportable injuries and rate per total unlinked passenger trips, by mode.
- **Performance Measure: Safety Events** – Total number of reportable events and rate per total vehicle miles, by mode.
- **Performance Measure: System Reliability** – Mean distance between failures, by mode.

Safety Performance Targets for 2025

2024 Annual Vehicle Revenue Miles: 1,159,694

Number of Fatalities	Rate of Fatalities Per 100K VRM	Number of Injuries	Rate of Injuries Per 100K VRM	Number of Safety Events	Rate of Safety Events Per 100K VRM	Total Major Mechanical Failures	Miles between Major Mechanical Failures (System Reliability)
0	0	1	0.01	1	0.01	8	131,390

CAC Transit will make the safety performance targets available to the Knoxville Regional Transportation Planning Organization (TPO) to aid in the planning process and the setting safety performance targets. CAC Transit will also send these targets to Tennessee Department of Transportation (TDOT).

2.4. SMS Documentation and Records

At all times, CAC Transit will maintain documents that set forth in this ASP, including those related to the implementation of its SMS and result from SMS processes and activities. CAC Transit will maintain documents that are included in whole, or by reference, that describe the programs, policies, and procedures that is used to carry out its ASP. These documents will be made available upon request by the FTA or other federal entity. CAC Transit will maintain these documents for a minimum of three years after they are created.

2.5. Employee Safety Reporting

CAC Transit has established and implemented an employee safety reporting program that allows employees and contractors to report safety conditions or hazards to senior management, which describes the protections for employees who report safety conditions or hazards, and which describes employee behaviors that may result in disciplinary action. CAC Transit implemented a standard employee safety reporting form and anonymous collection drop box in July 20, 2020.

3. Safety Risk Management

3.1. Introduction

This chapter provides detail on Safety Risk Management (SRM). SRM includes the activities that CAC Transit undertakes to control the probability or severity of the potential consequence of hazards. Major SRM sub-components include Hazard Identification and Analysis and Safety Risk Evaluation and Mitigation. Figure 1 below summarizes the six basic steps of SRM.

Figure 1. Safety Risk Management Process

1. DEFINE THE SYSTEM or ASSET

- Define the physical and functional characteristics and understand and evaluate the people, procedures, facilities, equipment, and environment.

2. IDENTIFY HAZARDS

- Identify hazards and incidents or undesired events
- Determine the causes of hazards

3. ASSESS HAZARDS

- Determine likelihood
- Determine the severity without controls
- Decide to accept risk or eliminate/control

4. RESOLVE or MITIGATE THE HAZARDS

- Assume risk or
- Implement corrective action
  - Eliminate
  - Control

5. RE-ASSESS HAZARD

- Assess mitigation or control for effectiveness
- Apply additional mitigations or controls if risk is not within acceptable levels

6. FOLLOW-UP

- Monitor for effectiveness
- Monitor for unexpected hazards

3.2. Hazard Identification and Analysis

The first step in a hazard analysis is defining the systems and sub-systems subject to hazards, followed by identifying specific physical and procedural hazards related to the identified systems and subsystems.

3.2.1. System Description

Table 1. Agency Descriptions

Agency	Number of Fixed Route Bus Vehicles	Number of Paratransit Vehicles	Number of routes	Annual Vehicle Revenue Miles	Annual Unlinked Trips
CAC Transit	0	29	N/A	983,960 (2024)	103,062 (2024)

CAC Transit

CAC Transit operates over 30 vans that provide Public Transportation and Job Access services from 5am through 9pm Monday through Saturday (except city observed holidays). Limited employment transportation is provided twenty-four (24) hours a day, seven (7) days a week. CAC Transit provides accessible, demand response public transportation services to the residents of Knox County who live within Knox County outside of the City of Knoxville, to those individuals who live within the City of Knoxville outside the KAT service area, and to those city residents who are not served by the KAT fixed route system, including those who live too far from a bus stop or who's destination is not within the KAT service area. CAC Transit receives Section 5307 funding. CAC Transit doesn't provide transit service on behalf of another transit agency.

3.2.2. Identifying Hazards

A safety hazard is:

- Any real or potential condition that can cause personal injury or death or damage to or loss of equipment or property,
- A condition that may be a prerequisite to an accident, or
- Is a situation that has the potential to do harm.

Hazards are identified through a variety of sources, including those listed below. In addition, SMS enables every employee to identify hazards through Safety Promotion efforts and non-punitive hazard reporting, described further in Section 5.

- FTA's *Hazard Analysis Guideline for Transit Projects* (January 2000)
- Accident/incident data and experience
- Accident/incident data from other bus systems with similar characteristics
- Hazard scenarios
- Applicable industry standards
- Field assessments and surveys
- Project-specific design data and drawings, reviews, testing, and start-up activities

The following tools and techniques may be used for hazard identification and analysis:

- Preliminary Hazard Analysis (PHA)
- Operational Hazard Assessment (OHA)
- Accident/Incident Analysis
- Job Hazard Analysis (JHA)

CAC Transit sources for identifying hazards are:

- Vehicle daily log sheets
- Review of vehicle camera footage
- Supervisor observations
- Incident and Accident Reports
- Employee Feedback Procedures
- Data and information from FTA and other oversight authorities
- Recommendations from the Centers and Disease Control and Prevention and State Health Authority guidelines to minimize exposure to infectious diseases.

Any identified hazard that poses a real and immediate threat to life, property or the environment must immediately be brought to the attention of the Accountable Executive and addressed

through the Safety Risk Management process with or without the full Safety Committee for mitigation where immediate intervention is necessary.

3.3. Safety Risk Evaluation

After identifying system-specific hazards, SRM assesses safety risk by first identifying the potential to do harm in the system and then analyzing options to mitigate the hazard to an acceptable level. The process seeks to identify and define as many hazardous conditions as possible and initiate the safety risk mitigation process before those conditions or associated activities cause an accident.

3.3.1. Analyzing Risk

The methodology for analyzing safety risk has two elements: evaluating hazard severity and evaluating hazard likelihood. The US Department of Defense's *Standard Practice for System Safety, MIL-STD-882E*, establishes system safety criteria guidelines for determining hazard severity and likelihood. This ASP adapts the MIL-STD-882E Risk Assessment and Hazard Risk Index matrixes to the transit environment for use in the Participating Agencies' safety risk assessment process.

3.3.1.1. Determining Severity

Hazards are rated in terms of their effect on transit customers, employees, the public, and the operating system. Hazard severity is a subjective measure of the worst credible case consequence that results from design inadequacies, component failure or malfunction, human error, environmental conditions, or operating or maintenance practice, and procedure deficiencies. The ratings are illustrated in

Figure 2. Hazard Severity DefinitionSEVERITY	CHARACTERISTICS

. The categorization of hazards is consistent with risk-based criteria for severity and reflects the principle that not all hazards pose an equal amount of risk.

Figure 2. Hazard Severity Definition**SEVERITY**	**CHARACTERISTICS**			
	People	Equipment/Services	Financial	Reputational
Catastrophic 1	Several deaths and/or numerous severe injuries *(per event)*	Total loss of equipment or system interruption, requiring months to repair	Estimated loss from the incident in excess of $500,000	Ongoing media coverage, irreparable reputational damage, government intervention (weeks – months)
Critical 2	Low number of deaths and/or serious injury* *(per event)*	Significant loss of equipment or system interruption, requiring weeks to repair	Estimated loss from the incident in excess of $100,000-$499,999	Prolonged media campaign, serious reputational damage, sustained government involvement (days - weeks)
Moderate 3	Minor injury and possible serious injury *(per event)*	Some loss of equipment or system interruption, requiring seven or less days to repair	Estimated loss from the incident in excess of $10,000-$99,999	Adverse media coverage, reputational damage, government involvement
Minor 4	Possible minor injury *(per event)*	Some loss of equipment, no system interruption, less than 24 hours to repair	Estimated loss from the incident in excess of $1,000-$9,999	Local media coverage and some reputational damage
Insignificant 5	No injury	Minor damage to equipment no system interruption, no immediate repair necessary	Estimated loss from the incident is likely less than $1,000	No adverse media coverage or reputational damage

*Per 49 CFR 673, serious injury: 1) Requires hospitalization for more than 48 hours, commencing within 7 days from the date of the injury was received; 2) Results in a fracture of any bone (except simple fractures of fingers, toes, or noses); 3) Causes severe hemorrhages, nerve, muscle, or tendon damage; 4) Involves any internal organ; or 5) Involves second or third-degree burns, or any burns affecting more than 5 percent of the body surface.

3.3.1.2. Determining Probability

The probability that a hazard will occur during the planned life expectancy of the system element, sub-system or component is described qualitatively, in potential occurrences per unit of time, events, population, items, or activity. A qualitative hazard probability is derived from research, analysis, evaluation of safety data from the operating experience of the agency or historical safety data from similar bus systems, and from expert opinion. Figure 3 summarized the hazard probability categories.

Figure 3. Hazard Probability Categories

PROBABILITY LEVEL	SPECIFIC INDIVIDUAL ITEM	FLEET OR INVENTORY	FREQUENCY
Frequent A	Likely to occur frequently in the life of a system	Continuously experienced	> 1 event / month
Probable B	Will occur often in the life of a system	Will occur frequently in the system	> 1 event / year
Occasional C	Likely to occur sometime in the life of an item	Will occur several times	> 1 event / 10 years
Remote D	Unlikely, but possible to occur in the life of an item	Unlikely, but can be expected to occur	> 1 event / 20 years
Improbable E	So unlikely, it can be assumed occurrence may not be expected	Unlikely to occur, but possible	> 1 event / 30 years

3.3.2. Assessing Risk

Together, hazard severity and probability measure a hazard's magnitude and priority for applying the control measures. Hazards are then examined, qualified, addressed, and resolved based on the severity of a potential outcome and the likelihood that such an outcome will occur. The value derived by considering a hazard's severity and probability is the Hazard Risk Index. The resulting risk index is a measure of the acceptability or undesirability of the hazard and is applied to the Risk Assessment Index.

Assignment of a Hazard Risk Index enables agency management to properly understand the amount of risk involved by accepting the hazard relative to what it would cost (schedule, dollars, operations, etc.) to reduce the hazard to an acceptable level.

Figure 4 identifies the Hazard Risk Index based upon hazard severity and probability and outlines the criteria for further action and decision authority based upon each index category. The Hazard Risk Index is used to assist the decision-making process in determining whether a safety risk should be eliminated, controlled, or accepted. This helps prioritize hazardous conditions and focus available resources on the most serious hazards requiring resolution while effectively managing available resources.

For example, if the potential for an accident/incident reveals a Category 1 (catastrophic) occurrence with a Level A (frequent) probability, the assessed level of risk is Unacceptable and the system safety effort is directed toward eliminating the hazard or at the very least to implementing redundant hazard control measures. A Category 1 (catastrophic) or Category 2 (critical) safety risk may be tolerable if it can be demonstrated that its occurrence is highly improbable. This approach provides a basis for logical management decision-making that considers the hazard's severity and probability.

Figure 4. Hazard Risk Index

HAZARD RISK INDICES					
Frequency Or Probability	Severity Category				
	1 Catastrophic	2 Critical	3 Moderate	4 Minor	5 Insignificant
(A) Frequent	1A	2A	3A	4A	5A
(B) Probable	1B	2B	3B	4B	5B
(C) Occasional	1C	2C	3C	4C	5C
(D) Remote	1D	2D	3D	4D	5D
(E) Improbable	1E	2E	3E	4E	5E

LEGEND

Unacceptable - Cannot be accepted as is, **must** be mitigated

Undesirable - Acceptable with Executive-level signoff

Acceptable w/ Review - Acceptable Operational-level signoff

Acceptable - Can be accepted as is.

3.4. Safety Risk Mitigation

3.4.1. Treating Risk

As safety risks are identified, whether through a formal risk assessment or informally such as through employee reporting mechanisms, hazards can be resolved by deciding to either assume the risk associated with the hazard or to eliminate or control the risk. Mitigation to bring a hazard to an acceptable level of risk is applied in the following order of precedence, listed from most effective at the top of the list to least effective mitigations at the bottom:

- Avoidance
- Elimination
- Substitution
- Engineering Controls
- Warnings
- Administrative Controls such as Operations and Maintenance Procedures
- Personal Protective Equipment and Guards

3.4.2. Hazard Tracking

Once mitigations are agreed upon for identified hazards, mitigations are tracked through the agency's safety certification process to ensure all concerns raised have been addressed and mitigated properly. This hazard tracking and certification process may be done through reports, logs, worksheets and/or similar methods that allow for updating if changes occur that impact the findings of the safety analysis. CAC Transit uses a hazard tracking worksheet in Microsoft Excel to capture and track hazards from analysis through implementation. Refer to Appendix C for a blank copy of the hazard tracking worksheet.

4. Safety Assurance

4.1. Overview

Safety assurance includes safety reviews, evaluations, audits, and inspections, as well as data tracking and analysis and investigations. Safety Assurance encompasses the processes within the transit agency's SMS that ensure the implementation and effectiveness of SRM and ensures that the agency meets or exceeds its safety objectives through collection, analysis, and assessment of information. Each transit agency will conduct an annual review of the effectiveness of its safety risk mitigations through its safety assurance efforts. CAC Transit's review of the effectiveness of safety risk mitigations occurs concurrently with the Safety Committee meetings. Additional reviews occur on an as needed basis. Where more information is needed, the Safety Manager may assign monitoring activities to one or more managers (operations, maintenance, human resources). Related policies and procedures are updated when existing mitigation measures are shown to be ineffective, inappropriate, or not implemented as intended and new mitigation measures are determined. Documentation of safety assurance discussions are noted safety committee meeting minutes.

4.2. Safety Performance Monitoring and Measurement

SMS generates data and information that senior management need to evaluate whether implemented safety risk mitigations are appropriate and effective, and how well an agency's safety performance fits with their established safety objectives and safety performance targets. Safety performance monitoring will occur through routine monitoring of operations and maintenance activities. It also includes risk monitoring to track implementation and success of mitigations and controls put in place to manage risk.

CAC Transit will establish audit and evaluate safety in compliance with this ASP and SMS. The programs will:

- Monitor compliance and sufficiency of procedures for operations and maintenance
- Monitor operations to identify ineffective, inappropriate, or unimplemented safety risk mitigations
- Conduct investigations of safety events to identify causal factors
- Monitor information from safety reporting systems
- Document audit outcomes
- Collect and track safety data

4.2.1. Procedure Compliance Monitoring.

CAC Transit has processes in place to monitor the entire transit system for compliance with operations and maintenance procedures, including:

- Review of the Vehicle Operator Daily Log sheets;
- Periodic review of onboard camera footage by the Operations Manager to investigate specific accidents/incidents;
- Review of employee input through the Employee Feedback Procedure;
- Incident and Accident investigation reports provided by supervisors to Transit Director;
- Fleet Safety Manager review of Pre-Trip Inspection reports;
- Information from scheduled preventative maintenance inspections provided by Knox County Fleet Service to Fleet Safety Manager;

During safety committee meetings, observations from the above processes are compared against mitigations recorded in the Hazard Log to determine where procedure adjustments are needed to ensure compliance.

4.2.2. Risk Mitigation Monitoring.

Risk mitigations are determined during the Safety Risk Management process and are recorded in the Hazard Log. The Safety Manager delegates risk mitigation monitoring activities through appropriate management staff. Managers either use existing processes, such as those listed above, or direct subordinate supervisors to track specific metrics on a daily, weekly, monthly or periodic basis. Where existing processes do not capture the related metrics, supervisors use job performance observations or other assigned activities to collect the information.

The Safety Committee reviews performance of individual safety risk mitigations during quarterly safety committee meetings based upon information obtained through monitoring activities. If a specific risk mitigation is not implemented or performing as intended, the committee will propose a course of action to modify the mitigation or take other action to manage the risk. The Safety Manager will approve or modify the proposed course of action and execution will be handled through the appropriate Director.

The Safety Manager also monitors CAC Transit operations on a large scale to identify mitigations that may be ineffective, inappropriate, or not implemented as intended by:

- Reviewing accidents and incidents;
- Monitoring employee safety reporting through the Employee Feedback Procedure;
- Analyzing operational and safety data from the Vehicle Operator Daily logsheets to identify emerging safety concerns.

4.2.3. Monitoring Investigations to Identify Causal Factors.

When management becomes aware that a safety event has occurred, supervisors conduct investigations and complete all required forms. Once completed, all packets are submitted to the Safety Manager for review. During the review, the Safety Manager shall determine and document the causal factors contributing to the event. If the event details indicate an existing mitigation was not followed or was not effective or a potential new, previously unidentified hazard may exist, he/she will document the new hazard on the proper packet form. Additionally, the Safety Manager determines whether:

- The accident or incident was preventable or non-preventable;
- Employee(s) require discipline or retraining;

4.2.4. Monitoring Information from Internal Reporting Programs.

The Human Resources Manager receives and manages all submissions from the Employee Feedback Procedure. An information copy of any submissions containing safety related issues are forwarded to the Safety Manager. All passenger complaints or incidents should be taken by dispatch representatives and referred to the Safety Manager when involving safety related issues. When received, the Safety Manager reviews these reports and, when appropriate, ensures concerns are investigated. Where the Safety Manager identifies a potential hazard, the complaint/incident is discussed and analyzed through the Safety Risk Management process during safety committee meetings.

5. Safety Promotion

5.1. Introduction

CAC Transit will utilize Safety Promotion to communicate and disseminate safety information to strengthen the safety culture. Safety Promotion includes safety lessons learned, reporting systems, recommendations based on safety metrics, and safety training. The goal is to foster a positive safety culture where employees receive ongoing training and updates of safety progress; feel comfortable reporting safety issues or concerns; and understand why safety is important and how they impact safety.

5.2. Safety Communication and Culture

5.2.1. Safety Communication

CAC Transit will communicate safety and safety performance information throughout the agency's organization that, at a minimum, conveys CAC Transit's safety management policy statement in Section 2.1 above; covered employee safety reporting program procedures and policies; and information on hazards and safety risks relevant to employees' roles and responsibilities. The communication will be used to inform employees of safety actions taken in response to reports submitted through an employee safety reporting program.

5.2.2. Dissemination of Lessons Learned

CAC Transit will review lessons learned from incidents, accidents and reported hazards and provide feedback regarding findings. This communication is an important step in letting employees know that they are important to the agency.

5.3. Competencies and Training

CAC Transit will establish and implement a safety training program for all employees and contractors directly responsible for safety in the agency's public transportation system. The training program must include refresher training, as necessary. Safety training will also be part of new-hire training and specific job safety training. Training and competencies of all staff will be documented and tracked.

CAC Transit requires training in the following safety-related areas:

- Safety training, annual
- Driver training, including safe operation of lift and wheelchair securement

5.4. Contractor Safety (as applicable)

When contracting for services that have a safety component and/or may impact safety or assessed risk, procurement language and specification requirements will be included, as applicable. Contractors will demonstrate job-appropriate competencies and training that meet or exceed the requirements of the agency.

5.5. Safety-Related Agency Documents

- Accident/Incident Immediate Reporting Guide
- Fleet Maintenance Plan, 2017
- Transit Asset Management Plan, 2024
- Vehicle Operator Manual, 2024

Appendix A – Definitions

Accident	An Event that involves any of the following: A loss of life; a report of a serious injury to a person; a collision of public transportation vehicles; a runaway train; an evacuation for life safety reasons; or any derailment of a rail transit vehicle, at any location, at any time, whatever the cause.
Accountable Executive	A single, identifiable person who has ultimate responsibility for carrying out the Agency Safety Plan of a public transportation agency; responsibility for carrying out the agency's Transit Asset Management Plan; and control or direction over the human and capital resources needed to develop and maintain both the agency's Agency Safety Plan, in accordance with 49 U.S.C. 5329(d), and the agency's Transit Asset Management Plan in accordance with 49 U.S.C. 5326.
Agency Safety Plan (ASP)	The documented comprehensive agency safety plan for a transit agency that is required by 49 U.S.C. 5329 and 49 CFR 673.
Assessment	An estimation of the size/scope of risk or quality of system or procedure.
Cause	Events that, result in a hazard or failure. Causes can occur by themselves or in combinations.
Change	To modify, alter, or make different.
Safety Manager (CSO)	An adequately trained individual who has responsibility for safety and reports directly to a transit agency's chief executive officer, general manager, president, or equivalent officer. A Safety Manager may not serve in other operational or maintenance capacities, unless the Safety Manager is employed by a transit agency that is a small public transportation provider as defined in this part, or a public transportation provider that does not operate a rail fixed guideway public transportation system.
Configuration Management	A management process for establishing and maintaining consistency of a product's performance, functional and physical attributes with its requirements, design, and operational information throughout its life.
Control	Anything that mitigates the risk of a hazard's effects. A control is the same as a safety requirement. All controls are written in requirement language.
Effect	The effect is a description of the potential outcome or harm of the hazard if it occurs in the defined system state.
Equipment	A complete assembly, operating either independently or within a sub-system or system, that performs a specific function.
Equivalent Authority	An entity that carries out duties similar to that of a Board of Directors, for a recipient or subrecipient of FTA funds under 49 U.S.C. Chapter 53, including sufficient authority to review and approve a recipient or subrecipient's Public Transportation Agency Safety Plan.
Event	Any Accident, Incident, or Occurrence.
Hazard	Any real or potential condition that can cause injury, illness, or death to people; damage to or loss of a system, equipment, or property; or damage to the environment. A hazard is a condition that is a prerequisite to an accident or incident.
Hazard Tracking	A closed-loop means of ensuring that the requirements and mitigations associated with each hazard that has associated medium or high risk are implemented. Hazard tracking is the process of defining safety requirements, verifying implementation, and re- assessing the risk to make sure the hazard meets its risk level requirement before being accepted.

Human Factors	A multidisciplinary effort to generate and compile information about human capabilities and limitations and apply that information to equipment, systems, facilities, procedures, jobs, operations, environments, training, staffing, and personnel management for safe, comfortable, efficient and effective human performance.
Incident	An event that involves any of the following: A personal injury that is not a serious injury; one or more injuries requiring medical transport; or damage to facilities, equipment, rolling stock, or infrastructure that disrupts the operations of a transit agency.
Investigation	The process of determining the causal and contributing factors of an accident, incident, or hazard, for the purpose of preventing recurrence and mitigating risk.
Maintenance	Any repair, adaptation, upgrade, or modification of equipment or facilities. This includes preventive maintenance.
Mitigation	Actions taken to reduce the risk of a hazard's effects.
National Public Transportation Safety Plan	The plan to improve the safety of all public transportation systems that receive Federal financial assistance under 49 U.S.C. Chapter 53.
Occurrence	An Event without any personal injury in which any damage to facilities, equipment, rolling stock, or infrastructure does not disrupt the operations of a transit agency.
Oversight	To validate the development of a defined system and verify compliance to a pre-defined set of standards.
Performance Measure	An expression based on a quantifiable indicator of performance or condition that is used to establish targets and to assess progress toward meeting the established targets.
Performance Target	A quantifiable level of performance or condition, expressed as a value for the measure, to be achieved within a time period required by the FTA.
Probability	An expression of often an event is expected to occur.
Process	A set of interrelated or interacting activities which transforms inputs into outputs.
Public Transportation Agency Safety Plan (PTASP)	A safety plan based on the Safety Management System approach. The FTA's PTASP Final Rule (49 CFR Part 673) requires States and certain operators of public transportation systems that receive Federal financial assistance under 49 USC Chapter 53 to develop and implement ASPs.
Public Transportation Safety Certification Training Program	The certification training program established either for Federal and State employees, or other designated personnel, who conduct safety audits and examinations of public transportation systems, and employees of public transportation agencies directly responsible for safety oversight, established through interim provisions in accordance with 49 U.S.C. 5329(c)(2), or the program authorized by 49 U.S.C. 5329(c)(1)
Qualitative Data	Subjective data that is expressed as a measure of quality; nominal data.
Quantitative Data	Objective data expressed as a quantity, number, or amount; allows for more rational analysis and substantiation of findings.
Requirement	An essential attribute or characteristic of a system. It is a condition or capability that must be met or passed by a system to satisfy a contract, standard, specification, or other formally imposed document or need.

Reportable Event	A safety or security event occurring on transit right-of-way or infrastructure, at a transit revenue facility, at a transit maintenance facility, during a transit related maintenance activity or involving a transit revenue vehicle that results in one or more of the following conditions, as defined in the National Transit Database Safety and Security Reporting Manual (2019): • A fatality confirmed within 30 days of the event • An injury requiring immediate medical attention away from the scene for one or more person(s) • Property damage equal to or exceeding $25,000 • Collisions involving transit revenue vehicles that require towing away from the scene for a transit roadway vehicle or other non-transit roadway vehicle • An evacuation for life safety reasons
Risk	The composite of predicted severity and likelihood of the potential effect of a hazard in the worst credible system state. (1) **Initial.** The composite of the severity and likelihood of a hazard considering only verified controls and documented assumptions for a given system state. It describes the risk at the preliminary or beginning stage of a proposed change, program or assessment. (2) **Residual.** The risk that remains after all control techniques have been implemented or exhausted and all controls have been verified. Only verified controls can be used to assess residual risk.
Risk Acceptance	Agreement by the appropriate management official that he/she understands the safety risk associated with the change and he/she accepts that safety risk.
Safety	Freedom from unintentional harm.
Safety Assurance	Processes within a transit agency's Safety Management System that functions to ensure the implementation and effectiveness of safety risk mitigation, and to ensure that the transit agency meets or exceeds its safety objectives through the collection, analysis, and assessment of information.
Safety Culture	The product of individual and group values, attitudes, competencies, and patterns of behavior that determine commitment to, and the style and proficiency of, an organization's safety management. In addition, the four key components of a safety culture are reporting culture (encourage employees to divulge information about all hazards that they encounter), just culture (employees are held accountable for deliberate violations of the rules but are encouraged and rewarded for providing essential safety-related information), flexible culture to changing demands), and learning culture (willing to change based on safety indicators and hazards) uncovered through assessments, data, and incidents).
Safety Management Policy	A transit agency's documented commitment to safety, which defines the transit agency's safety objectives and the accountabilities and responsibilities of its employees in regard to safety.
Safety Management System (SMS)	The formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of a transit agency's safety risk mitigation. SMS includes systematic procedures, practices, and policies for managing safety risks to the lowest acceptable level practicable.
Safety Promotion	A combination of training and communication of safety information to support SMS as applied to the transit agency's public transportation system.

Safety Requirement	A control written in requirements language.
Safety Risk Management (SRM)	A process within a transit agency's ASP for identifying hazards and analyzing, assessing, and mitigating safety risk. SRM is a formalized, proactive approach to system safety and applied to all changes to ensure all risks are identified and mitigated prior to the change being made. It provides a framework to ensure that once a change is made, it continues to be tracked throughout its lifecycle.
Serious Injury	Any injury which: (1) Requires hospitalization for more than 48 hours, commencing within 7 days from the date of the injury was received; (2) Results in a fracture of any bone (except simple fractures of fingers, toes, or noses); (3) Causes severe hemorrhages, nerve, muscle, or tendon damage; (4) Involves any internal organ; or (5) Involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface.
Severity	The measure of how bad the results of an event are predicted to be. Severity is determined by the most probable outcome.
Source (of a hazard)	Any potential origin of system failure, including equipment, operating environment, human factors, human-machine interface, procedures, and external services.
State Safety Oversight Agency (SSOA)	An agency established by a State that meets the requirements and performs the functions specified by 49 U.S.C. 5329(e) and the regulations set forth in 49 CFR part 674.
System	An integrated set of constituent pieces that are combined in an operational or support environment to accomplish a defined objective. These pieces include people, equipment, information, procedures, facilities, services, and other support services.
Transit Asset Management Plan	The strategic and systematic practice of procuring, operating, inspecting, maintaining, rehabilitating, and replacing transit capital assets to manage their performance, risks, and costs over their life cycles, for the purpose of providing safe, cost-effective, and reliable public transportation, as required by 49 U.S.C. 5326 and 49 CFR part 625
Validation	The process of proving that the right system is being built, i.e., that the system requirements are unambiguous, correct, complete, and verifiable.
Verification	The process that ensures that the system requirements have been met by the design solution and the system is ready to be used in the operational environment for which it is intended.

Appendix B – Acronyms and Abbreviations

ADA	Americans with Disabilities Act
CAP	Corrective Action Plan
CFR	Code of Federal Regulations
FHA	Fault Hazard Analysis
FTA	Federal Transit Administration
JHA	Job Hazard Analysis
Knox County CAC TRANSIT	Knox County Community Action Committee Transit
MPO	Metropolitan Planning Organization
OHA	Operational Hazard Assessment
OSHA	Occupational Safety and Health Administration
PHA	Preliminary Hazard Analysis
PM	Preventative Maintenance
PTASP	Public Transportation Agency Safety Plan
SMS	Safety Management Systems
SRM	Safety Risk Management
TAM	Transit Asset Management
TDOT	Tennessee Department of Transportation

Appendix C – Hazard Tracking Worksheet

Preliminary Hazard Analysis													
General Description			Hazard Cause / Effect			Risk Index			Corrective / Mitigation Action		Risk Index		
Reference	Overall System	Hazard	Potential Causes	Operational Effects	Safety Effects	Severity	Probability	Risk	Design Mitigations	Operational Mitigations	Resolution Severity	Resolution Probability	Resolution Risk
Use a number to track hazard, ie Bus #1	BUS (or other system)	Trip and Fall on Bus	Wet floor Hard brassing Human error (standing on moving vehicle	Delay of service	Minor to sever injury	3	B	3B	Slip resistant Flooring Handholds placed regulary	Driver Training	3	C	3C