



# 2026 FTA STATE SAFETY OVERSIGHT AND RAIL TRANSIT AGENCY SAFETY WORKSHOP

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# Session 12

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# Effectively Conducting Safety Risk Assessments

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# Agenda

1. Safety Risk Assessment Overview
2. Resources
3. Exercise
4. Debrief

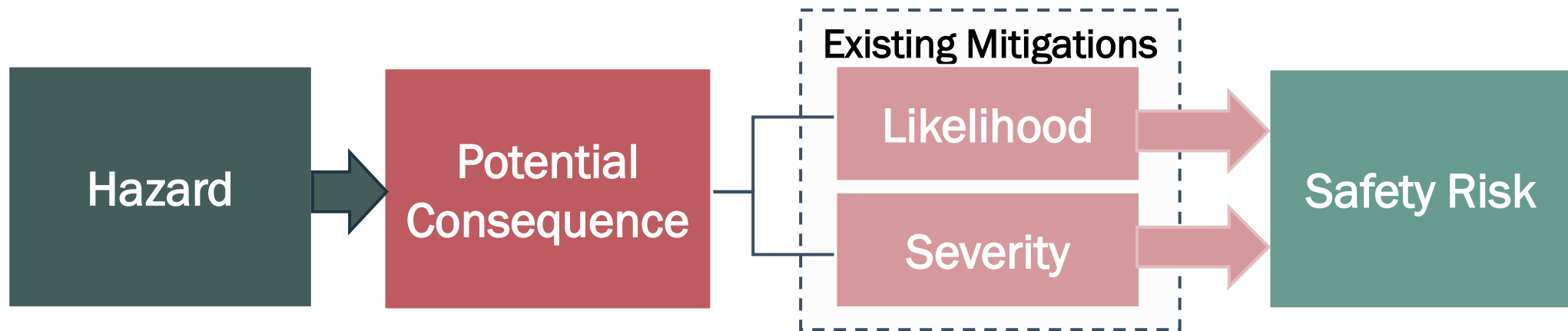


# Safety Risk Assessment

## 49 CFR 673.25

### Safety Risk Assessment

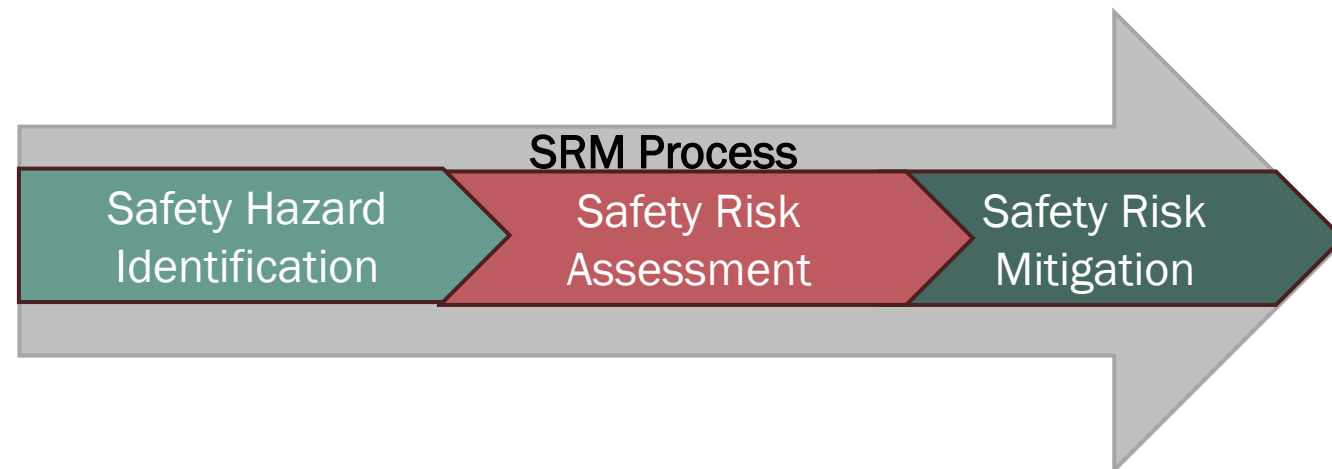
- 1) A transit agency must establish methods or processes to assess safety risks associated with identified safety hazards.
- 2) A safety risk assessment includes an assessment of the likelihood and severity of the potential consequences of identified hazards, taking into account existing safety risk mitigations, to determine if safety risk mitigation is necessary and to inform prioritization of safety risk mitigations.



# The Importance of Safety Risk Assessment

## Why conduct an SRA?

- Required Safety Risk Management element under 49 CFR 673.25
- Helps to define the scope of the risk
- Assists in the identification of stakeholders to ensure relevant parties are included in the discussion
- Supports effective prioritization of hazards instead of a reactive approach
- Identifies existing mitigations and their effectiveness
- Allows for an analytical approach to developing new mitigations
- Documents analysis for future SRM consideration



# The Importance of Safety Risk Assessment, cont.

## Why are we discussing it today?

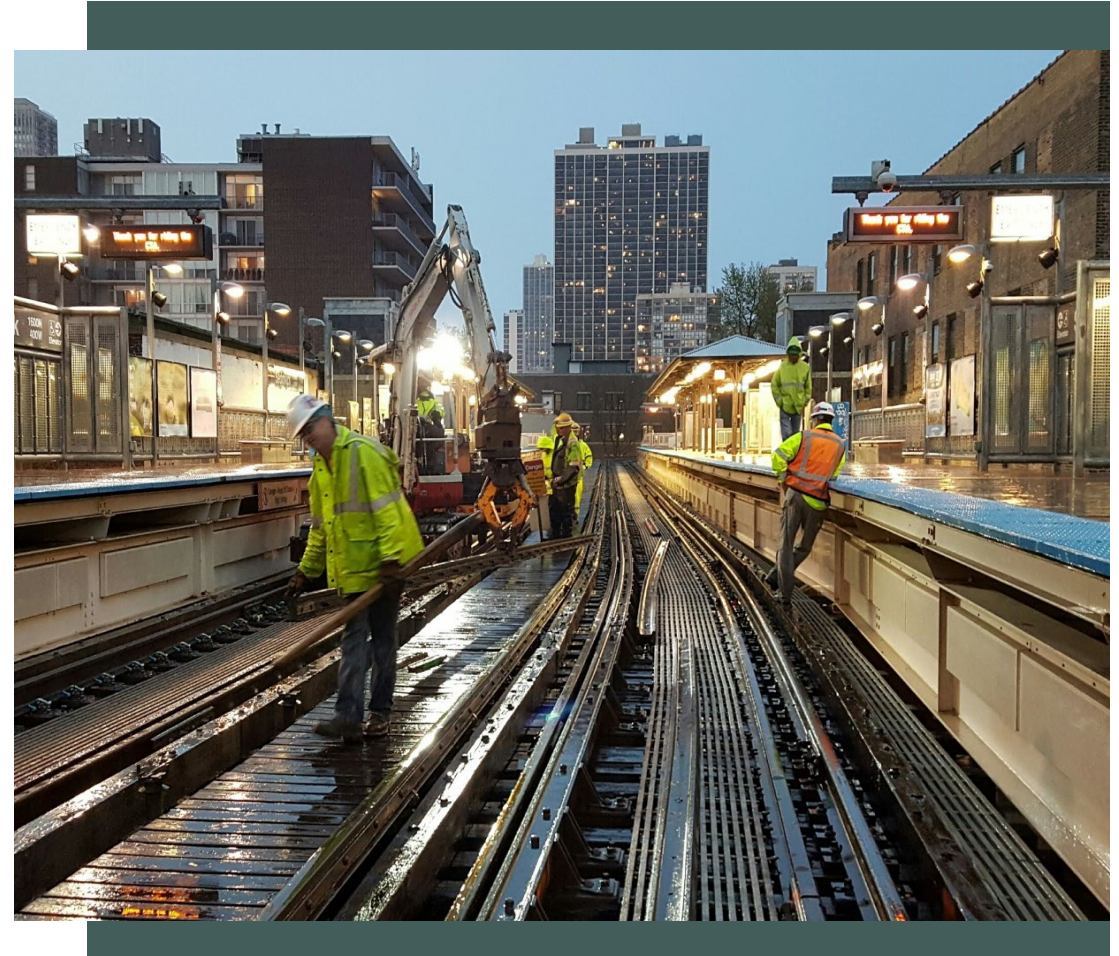
- As SMS processes continue to mature, Safety Risk Assessments will be an important tool to address emerging hazards
- Effective review and analysis of completed Safety Risk Assessments are crucial in ensuring that hazards are effectively prioritized, and appropriate mitigations are developed
- Numerous Safety Advisory responses have lacked all the required components of a Safety Risk Assessment



# Hazard, Consequence Identification

## Examples

- Hazards
  - Intentional Trespass
  - Unintentional Trespass
- Consequences
  - Injury
  - Death
  - Property Damage
  - Operator Mental Distress
  - Public Relations Damage
  - Litigation

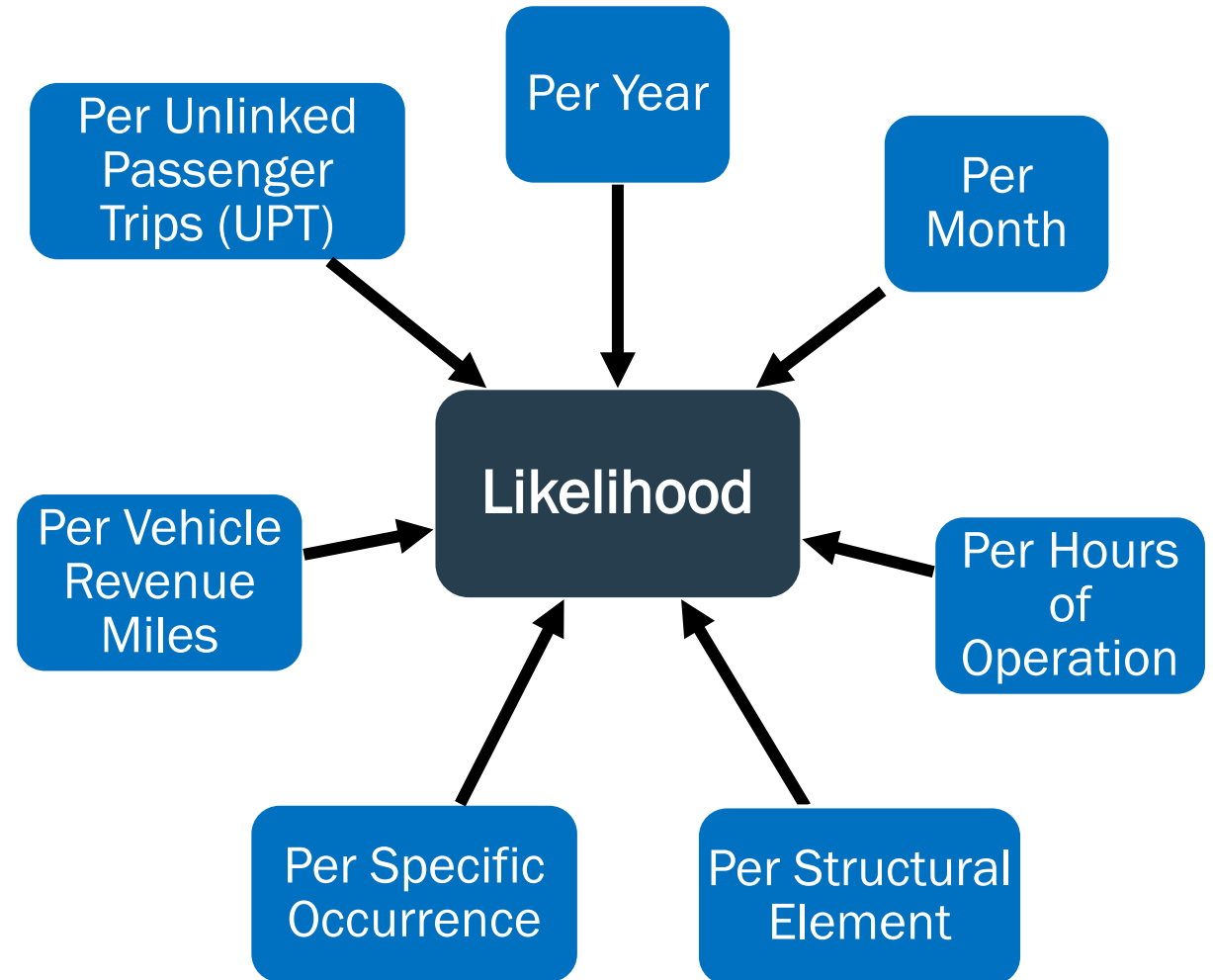


# Assessing Likelihood

## Likelihood

- How likely is a potential consequence?
- Likelihood can be estimated:
  - Using quantitative and qualitative data
  - Using lagging and leading indicators
- Likelihood risk is “scored” or normalized using established likelihood scales.
  - Likelihood scales can use different denominators – such as time, service provided, or service consumed – to account for the type of consequence and available information.

See [Sample Safety Risk Assessment Matrices for Rail Transit](#) on the PTASP TAC for more details.

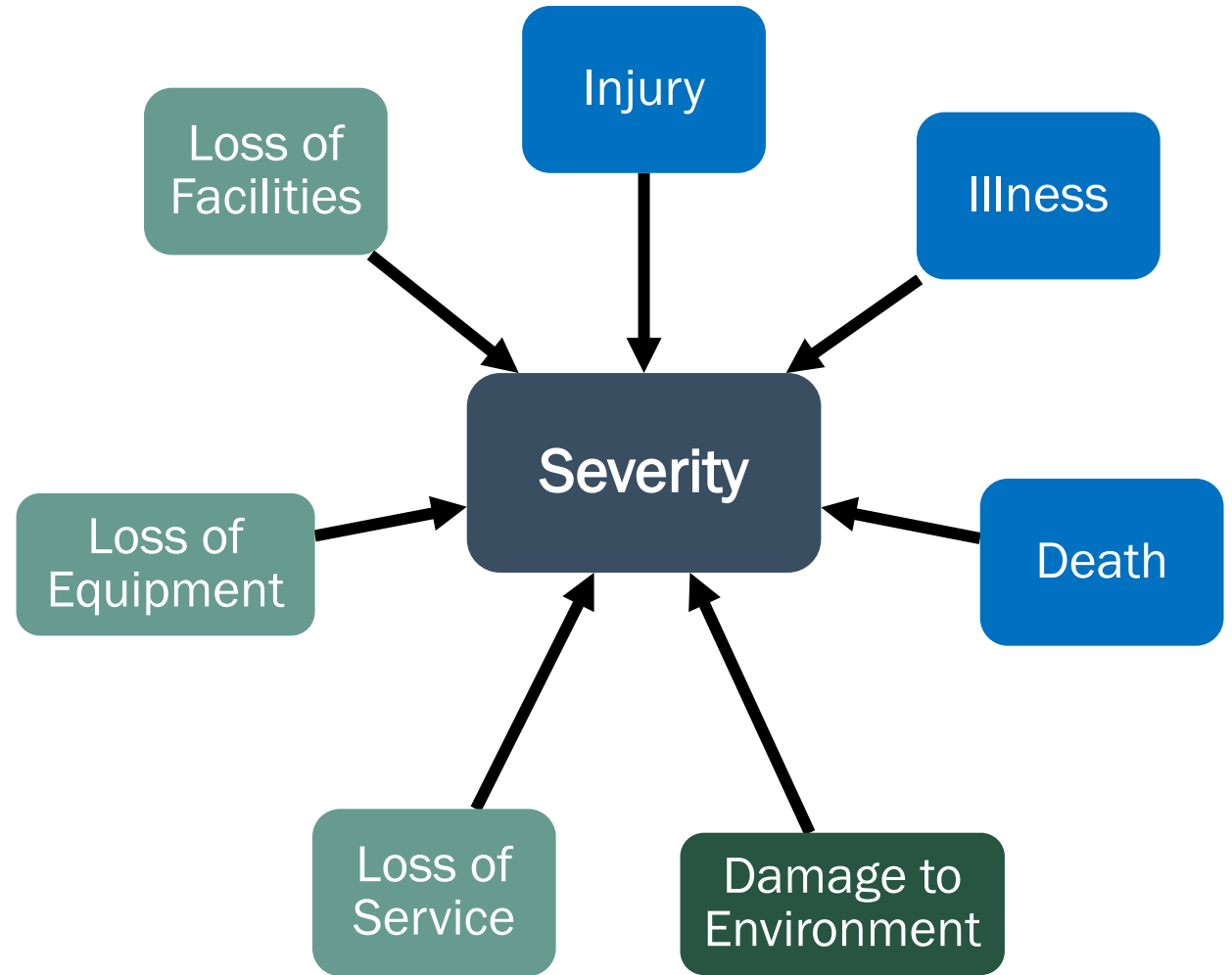


# Assessing Severity

## Severity

- How serious might be the effects of a potential consequence?
- Severity considers the impacts on **people**, the **system**, and the **environment**.
  - Severity also considers the gravity of damage, duration of impact, and cost.
- Examples:
  - The seriousness of injuries from a fall from the platform.
  - The amount of time it takes for power restoration after an outage.
  - The cost to replace equipment lost to storm surge.

See [Sample Safety Risk Assessment Matrices for Rail Transit](#) on the PTASP TAC for more details.



# Safety Risk Assessment and Data

## The Importance of Data

- Data is a critical building block in a successful safety risk assessment process.
- Data helps agencies determine:
  - Which potential consequences of a hazard should be assessed,
  - The potential severity of the consequence, and
  - The likelihood of occurrence.
- The ability to access and use information and data is critical.



# Prioritizing Safety Risk

RISK ASSESSMENT MATRIX				
SEVERITY LIKELIHOOD	Catastrophic (1)	Critical (2)	Marginal (3)	Negligible (4)
Frequent (A)	High	High	High	Medium
Probable (B)	High	High	Medium	Medium
Occasional (C)	High	Medium	Medium	Low
Remote (D)	Medium	Medium	Low	Low
Improbable (E)	Medium	Low	Low	Low

# Identifying Mitigations

## Safety Risk Mitigation

- The objective is to consider whether mitigations or strategies can:
  - Reduce risk by affecting the likelihood and/or severity, or
  - Eliminate the risk altogether, if possible.
- Mitigations can be through design changes or operational in nature.
- Agencies should consider potential cost/benefit of mitigations.
- Agencies should also consider how they will track mitigations and measure their effectiveness prior to implementation.

Mitigations	
Possible Controlling Measures and Remarks	Residual Risk Rating
Perform propagation study for frequency range; perform radio coverage test of system; add supplemental repeaters, provide redundant equipment.	IID
Design pedestrian walkways in accordance with MUTCD, ADA and other relevant codes and standards; install appropriate signage, roadway markings or barriers; and enforce operator rules and procedures.	IID
Utilize reroute measures or suspend services as necessary.	IVC

# Bringing it all Together

## Example Components of an SRA

- Hazard
- Potential Consequences
- Existing Mitigations
- Likelihood
- Severity
- Initial Safety Risk Rating
- Further Mitigations
- Final Safety Risk Rating



# Safety Risk Assessment and Decision Making

## Decision Making

- Safety risk assessments create a snapshot of information available at the time and promote informed discussion about safety risk and the level of safety risk the agency is willing to accept.
- Key agency stakeholders are part of the safety risk conversation and support decisions on whether and how to address safety risk.
- A safety risk assessment is just one factor that goes into decision-making.



# Observations from Safety Advisory and GD Responses

## Concerns with responses

- Agencies utilizing overly complicated / impractical SRA procedures
- Safety Advisory responses not addressing the advisory's concerns
- Agencies skipping directly from hazard identification to risk mitigation
- Likelihood and severity ratings not supported or directly contradicted by agency's data



# Observations from Safety Advisory and GD Responses

## What lessons can we learn?

- When conducting a safety risk assessment, utilize the input of subject matter experts when appropriate.
- Consider factors related to potential mitigations including time to implement, complexity, cost versus benefit, and resulting impacts on systems.
- While developing mitigations, consider how to monitor their effectiveness.
  - Data analysis, surveys, training evaluations, etc.



# Resources

## Implementing Safety Risk Assessment Approaches



<b>Publication Date</b>	June 2021
<b>Format</b>	Webinar
<b>Intended Audience</b>	Bus and rail transit agencies
<b>Purpose</b>	Webinar presentation and recording provides transit agencies and states with sample approaches to implementing safety risk assessment. Guest transit agency speakers share their experiences and answer questions from participants.

# Resources

## Safety Risk Assessment in Practice



<b>Publication Date</b>	April 2022
<b>Format</b>	Webinar
<b>Intended Audience</b>	Bus and rail transit agencies
<b>Purpose</b>	Webinar presentation and recording reviews key challenge areas for Safety Risk Assessment in practice and provides examples of ways agencies can address these challenges.

# Resources



The screenshot shows the Federal Transit Administration website. The header includes the FTA logo and name, a search bar, and navigation links for 'About', 'Funding', and 'Regulations & Programs'. The breadcrumb trail reads: Home / Regulations and Programs / Safety / Public Transportation Agency Safety Program. The main content area is titled 'PTASP Technical Assistance Center and Resource Library'. It contains a description of the TAC, a 'Resource Library' section with a list of links, and a 'Related Documents' section. A smaller PTASP logo is also present on the right side of the page content.

**Federal Transit Administration** Search

About Funding Regulations & Programs

Home / Regulations and Programs / Safety / Public Transportation Agency Safety Program

PTASP Overview

FAQs

PTASP Technical Assistance Center and Resource Library

Agency Safety Plan (ASP) Directory

Webinars

### PTASP Technical Assistance Center and Resource Library

The PTASP Technical Assistance Center (TAC) is available to help the transit industry meet PTASP requirements. Email [PTASP-TAC@dot.gov](mailto:PTASP-TAC@dot.gov) for one-on-one technical assistance and Agency Safety Plan (ASP) voluntary technical reviews.

### Resource Library

This resource library offers technical assistance tools, organized by Safety Management System (SMS) components, along with PTASP general requirements and ASP development, review, and certification. Most resources apply to all agency types, but some are specific to bus or rail modes, as noted in resource titles. An asterisk\* after a resource title indicates that the resource incorporates the requirements of the PTASP final rule published in April 2024.

#### Related Links

- [Dear Colleague Letter: Infrastructure Investment and Jobs Act Changes to PTASP...](#)
- [PTASP Webinars](#)
- [PTASP Workshops](#)
- [Agency Safety Plan \(ASP\) Directory](#)

#### Related Documents

- [PTASP Final Rule Fact Sheet](#)

#### General

- [PTASP Frequently Asked Questions](#)
- [Accessing and Using National Transit Database Safety and Security Event Data Guide](#)
- [ASP Documentation and Recordkeeping](#)
- [Certifying Compliance with the Public Transportation Agency Safety Plans Regulation](#)

# Breakout Exercise

## Conducting a Safety Risk Assessment

1. **Identify the Hazard & Potential Consequence:** What is the hazard and the potential consequences?
2. **Analyze Likelihood:** Frequent, Probable, Occasional, Remote, or Improbable?
3. **Analyze Severity:** Catastrophic, Critical, Marginal, or Negligible?
4. **Risk Evaluation:** Plot the Initial Risk Rating on the Matrix.
5. **Propose Mitigations:** How can the risk be mitigated to a level the agency is willing to accept?
6. **Post-Mitigation Risk:** Plot the Residual Risk on the Matrix considering proposed mitigations.
7. **Mitigation Effectiveness:** What measures could you track to determine if the mitigations, once implemented, are effective?

# Safety Risk Assessment Matrix

Severity	1 Catastrophic	2 Critical	3 Marginal	4 Negligible
Likelihood				
A – Frequent				
B – Probable				
C – Occasional				
D – Remote				
E – Improbable				

# Contact Information

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