



**Safety Certification Audit Report
Issued July 13, 2023**

Projects: Hilltop Tacoma Link Extensions

Audit Type: Safety and Security Audit Profiles 3000 & 4000

PREPARED BY (TALSON):

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Date: June 5, 2023

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June 5, 2023

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Date: June 15, 2023

APPROVED FOR ISSUE (SOUND TRANSIT):

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Date: June 20, 2023



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I. EXECUTIVE SUMMARY

Commencing in April 2023 and extending through June 2023, Talson Solutions, LLC (Tolson) performed a desktop Safety and Security Certification Audit (SSCA) of Sound Transit's Hilltop Tacoma Link Extension project. The audit was performed on behalf of the Sound Transit's Audit Division and focused on the following areas:

Audit Profile 3000 – Construction Conformance Verification

- Verify construction hazards are mitigated according to the hazard analyses and the "Safety and Security Requirements" SSIMS fields
- Evaluate evidence that construction conformance mitigation has been achieved, inspected, and documented
- Key documents to be reviewed include inspection reports, resident engineer summary memos, photos, product data sheets, and other notable info.

Audit Profile 4000 – Integrated and Pre-Operational Testing

- Assess the application and effectiveness of performance testing as defined in integration plans
- Verify safety and security requirements have been adequately tested and appropriately documented with review and approval
- Key documents to be reviewed include the System Integration Test Plan, approved procedures and audit records

Tolson found that activities being performed by Sound Transit generally align with the safety and security certification processes and plans with noted exceptions. The sum impact of the audit testing resulted in no findings and two (2) observations relating to the accuracy and availability of uploaded documentation.

II. SCOPE AND METHODOLOGY

The audits are conducted to ensure that system hazards are effectively identified from preliminary engineering to revenue service inclusive of Certifiable Item traceability and mitigation efforts. A Closeout Briefing was facilitated on May 31, 2023 with project team members, Sound Transit management, and Washington State Department of Transportation's Rail Safety Oversight Program Administrators. Continued discussions relating to preliminary findings, observations and potential corrective actions followed the Closeout Briefing.

Notable documentation referenced during the audit included:

- Agency Safety and Security Certification Plan (SSCP), dated August 2018
- Agency Safety and Security Management Plan (SSMP), dated February 2017
- Preliminary Hazard Analysis (PHA), dated March 23, 2017
- Safety and Security Information Management System (SSIMS) Project Dashboard

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- Construction conformance verifications and Levels 1 - 4 testing documentation¹

Talson's audit activities included the following for performance of the audit;

- Reviewed certifiable items within SSIMS
- Prepared Audit Profile 3000 & 4000 SSCA Checklist for each project, inclusive of 15% stratified sampling of certifiable items
- Assessed relevant documentation including SSCP, SSMP, and PHA
- Identified verification methods within the SSCA Checklists along with audit results
- Communicated preliminary findings with Sound Transit
- Conducted a Closeout Briefing
- Produced draft and final reporting

Safety and Security certifiable items within Sound Transit's SSIMS database were selected for conformance testing specific to the following Certifiable Elements: Yard and Shop Guideway; Traffic Control; Traction Electrification System; Fire Life Safety; Stations; Safety & Security Plans, Procedures, & Training; Communications; Signaling; and Fare Collection Equipment.

Talson selected 15% (approximately 75) of the 495 closed Security Certifiable Items that were populated in SSIMS during the April 2023 timeframe for Safety and Security Audit Profiles 3000. A different selection of certifiable items for Audit Profile 4000 testing resulted in a total of approximately 92 samples reviewed in total. Increased test and data sharing prior to the Closeout Briefing on May 31, 2023 significantly enhanced communications between Sound Transit Audit and Safety personnel.

Audit Profile Descriptions include the following areas of audit focus and testing:

Audit Profile 3000:

The purpose of the Safety/Security Certification Audit Profile 3000 is to verify that system safety aspects of projects, equipment, and operational considerations are sufficiently constructed and functioning according to designs and mitigation efforts. Conformance and component testing reports must be uploaded into SSIMs.

Audit Profile 4000:

The purpose of the Safety/Security Certification Audit Profile 4000 is to verify that levels 3 and 4 system integration testing documentation has been conducted according to plan, approved, and uploaded into SSIMs.

¹ Levels 1 and 2 testing ensure specific components and machinery are operating safely and effectively. Levels 3 and 4 testing ensure that multiple components are operating in alignment with the overall central systems in place.

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Verification testing was done through assessing data within the SSIMS dashboard utilizing the following ratings as part of the audit process and are noted within the Audit Checklist:

- **Acceptable:** No deviation from the implemented SSCP or SSMP standards.
- **Conditionally Acceptable:** Minor deviation of the implemented SSCP /SSMP standard and unlikely to result in a nonconforming product or service.
- **Unacceptable:** A significant breakdown or partial breakdown in processes that resulted in a nonconforming product or service. Corrective action must be documented formally and include a root cause analysis.

Ratings below “Acceptable” may or may not equate to the assignment of an audit finding, based on the judgement of the auditor. If an audit finding is assigned, justification for the finding will be listed in Section III of the audit report

Safety Audit Profile 3000 Verification Testing Results:

Sampling of construction conformance testing Certifiable Items within SSIMs resulted in:

- *Acceptable* testing for 29 out of 40 (73%)
- *Conditionally Acceptable* testing for 11 out of 40 (27%)

| Safety Audit Profile 3000 Summary of Preliminary Audit Findings | | | | | | |
|---|-------------|------------|--------------|--------------------------|----------------|------------------------|
| Total CIs | IDs Sampled | Acceptable | Unacceptable | Conditionally Acceptable | Not Applicable | Comments |
| 262 | 40 | 29 | 0 | 11 | 0 | Doc Reference / Upload |

Security Audit Profile 3000 Verification Testing Results:

Sampling of construction conformance testing Certifiable Items within SSIMs resulted in:

- *Acceptable* testing for 32 out of 36 (89%)
- *Conditionally Acceptable* testing for 4 out of 36 (11%)

| Security Audit Profile 3000 Summary of Preliminary Audit Findings | | | | | | |
|---|-------------|------------|--------------|--------------------------|----------------|------------------------|
| Total CIs | IDs Sampled | Acceptable | Unacceptable | Conditionally Acceptable | Not Applicable | Comments |
| 233 | 36 | 32 | 0 | 4 | 0 | Doc Reference / Upload |

Safety and Security Audit Profile 4000 Verification Testing Results:

Sampling of integration testing Certifiable Items within SSIMs resulted in:

- *Acceptable* testing for 2 out of 16 (13%)
- *Conditionally Acceptable* testing for 14 out of 16 (87%)

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| Safety and Security Audit Profile 4000 Summary of Preliminary Audit Findings | | | | | | |
|--|-------------|------------|--------------|--------------------------|----------------|-------------------------------|
| Total CIs | IDs Sampled | Acceptable | Unacceptable | Conditionally Acceptable | Not Applicable | Comments |
| 66 | 16 | 2 | 0 | 14 | 0 | Missing Testing Documentation |

III. FINDINGS

The audit resulted in no findings.

IV. OBSERVATIONS

The audit resulted in the following two (2) observations:

Observation No. 1

Certifiable item forms within SSIMs had missing references to uploaded documents and listed files (Level 1 and 2 testing) that were not uploaded or located. These have been marked as Conditionally Acceptable within the Talson prepared Audit Checklist and shared with Sound Transit staff. A summary of the missing or incomplete information noted within SSIMs includes:

- Safety Audit Profile 3000: 11 (27%) out of 40 samples had missing or incomplete documentation
- Security Audit Profile 3000: 4 (11%) out of 36 samples had missing or incomplete documentation
- Safety and Security Audit Profile 4000: 14 (87%) out of 16 samples had missing or incomplete documentation

Talson notes that due to advanced sharing of Certifiable Items testing results with Sound Transit, most, if not all of the missing or incomplete documentation has been adequately uploaded and/or addressed by the date of issuance of this Final Report.

The screenshot below is taken from SSIMS Construction Verification Field. It indicates that there are Level 1 and 2 testing that are required to be uploaded but were not found in SSIMs.

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| | |
|--|---|
| Construction Verification: | Construction Submission: |
| Construction Certifications Required <ul style="list-style-type: none"> ✓ Materials ✓ Build/Field Installation ✓ Commissioning/Testing Level 1 and 2 | Construction Certifications Submitted <ul style="list-style-type: none"> ✓ Materials ✓ Build/Field Installation ✓ Commissioning/Testing Level 1 and 2 |

The screenshot below is taken from Talson’s AP 3000 Security Audit Checklist. It indicates that Level 1 and 2 testing that are required to be uploaded but were not found in SSIMs.

| | | | |
|-----|--|-------------|---|
| 26. | SSIMS ID-436 (T100-T23) Communications / Keycard Reader Access | D via SSIMS | Required Construction Documentation Materials: T100-REC-03815 SUB 281300-004.002 1.05 OMF Access Control System Shop Drawings T100-CRE-07476 281300 1.05 Access Control System Product Data Build/Field Installation: T100 Construction Verification SSVR (T23) Acceptable (see page 2) Commissioning / Testing (Level 1 and 2): Conditional Acceptable (Level 1 and 2 data not uploaded) |
|-----|--|-------------|---|

Observation No. 2

Regarding testing of Audit Profile 4000, Talson noted that two (2) closed Certifiable Items were missing required testing documentation within SSIMs. Although the items were marked as 100% complete under integrated testing columns, there was no uploaded documentation indicating the results. Talson discussed the matter with the Sound Transit Safety and Security Manager and determined that the certifiable items were still marked as open. The 100% completed testing notation was due to reporting limitations within SSIMs. Talson will follow-up at a to be determined later date to verify adequate support for completed testing. Additional samples will also be selected for further audit testing on other certifiable items that were not marked as closed.

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V. CONCLUSIONS / REQUIREMENTS

Talson found that the overall certification activities align to the Agency's SSCP with minor exceptions for suggested enhancements. Comments regarding the noted observations should be provided within thirty (30) days after the issuance of the Final Audit Report.

VI. AUDIT RESPONSE FORM (ARF)

This audit report identified no findings and two (2) observations that requires a response from the appropriate Sound Transit staff.

Observations can be addressed separately, but a management corrective action should be submitted within 30 days of the final distribution of this report and corresponding ARFs. Verification of conforming corrective action and root cause explanation will be reviewed by Talson upon submission of the ARFs by Sound Transit.

Below are the definitions of both a Finding and an Observation, along with the acceptable response requirements.

Definitions:

A. **Findings** indicate areas where Sound Transit or another entity is non-compliant with its own established policy, plan, procedure and/or regulation and which must be corrected, and documented in writing on a corrective action plan. Action plans should also include a specific, measurable amount of time it will take to correct the issue and reduce risk.

B. **Observations** do not mean the issue is deficient, however, the auditor has determined that the issue poses the potential risks of becoming a finding in the future if recommended changes are not put in place to prevent occurrence.

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VII. DISTRIBUTION:

Safety and Security Audit
Dates:

April 2023 – June 2023

Organization:

Sound Transit

(Auditee)

Responsible Party:

Branden Porter, Director, Transportation Safety & Security *(Auditee)*

Talson Auditor(s):

Ken Brzozowski, Norman Jones, and Robert Farrow

(Auditor)

Report To:

- Branden Porter, Director, Transportation Safety & Security

Distribution List:

- Mary Cummings, DCEO & Chief Administrative Officer
- Ron Lewis, Executive Director, DECM
- David Wright, Chief Safety Officer, Safety
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- Eric Beckman, Executive Director, PSO
- Heather Wright, Deputy Director, Audit
- Michael Flood, Senior Auditor, Audit
- Bien Mai, Manager, TSS
- Molly Hughes, WSDOT SSO
- Andrew Royer, WSDOT SSO
- Madeleine Greathouse, Project Director, DECM
- Matt Edgette, Construction Manager, DECM
-

Attachments:

- Safety & Security AP 3000 Checklists
- Safety and Security AP 4000 Checklist
- SCA ARF