Safety Certification Audit Report
Issued March 28, 2023

Projects: **Lynnwood, Federal Way, and Hilltop Tacoma Link Extensions**

Audit Type: **Security Audit Profiles 1000 & 2000**

PREPARED BY (TALSON):

Norman Jones – Auditor	Date:	*February 20, 2023*
Robert Farrow – Auditor		*February 20, 2023*

APPROVED BY (TALSON):

Kenneth Brzozowski – Project Manager	Date:	*March 13, 2022*

APPROVED FOR ISSUE (SOUND TRANSIT):

Patrick Johnson – ST Director, Audit Division	Date:	*March 13, 2023*

Contents

I. EXECUTIVE SUMMARY

Commencing in November 2022 and extending through February 2023, Talson Solutions, LLC (Talson) performed virtual Security Certification Audits (SCA) of Sound Transit's Lynnwood, Federal Way, and Hilltop Tacoma Link Extension projects. The audits were performed on behalf of the Sound Transit Audit Division and focused on the following areas:

Security Audit Profile 1000 –Threat Vulnerability Assessment

- Assess that threats are identified within preliminary and operating hazard analyses including mitigation actions and efforts
- Key documents to be reviewed include the Threat Vulnerability Assessment

Security Audit Profile 2000 – Design Conformance Verification

- Assess that security criteria has been incorporated into the design to support the mitigation of a Certifiable Item / Threat
- Verify threat inclusions in designs and submittals
- Key documents to be reviewed include Drawings, Specifications, and Calculations

Talson found that activities being performed generally align with the security certification processes and conform to the Agency's Safety and Security Certification Plan with noted exceptions. The sum impact of the audit testing resulted in no findings and four (4) observations: two (2) related to preliminary hazard process and presentation; and two (2) related to SSIMs certifiable item population and data entry. A summary of observation areas includes:

1. Inconsistent Threat Vulnerability Analyses (TVA) presentation and format
2. Limited traceability from TVA to SSIMS
3. SSIMS Certifiable Item IDs duplicated across different contracts
4. Certifiable Item information incomplete or mis-referenced (non-compliance)

II. SCOPE AND METHODOLOGY

The audits are conducted to ensure that system hazards are effectively identified from preliminary engineering to revenue services inclusive of certifiable item traceability and mitigation efforts. A Closeout Briefing was facilitated on January 12, 2023 with project team members, Sound Transit management and the 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
- Threat Vulnerability Assessments (TVA), not dated
- Safety and Security Information Management System (SSIMS) Project Dashboard
- Select Drawings, Specifications, and Material Requirements

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

- Review of certifiable items within SSIMS
- Prepared Audit Profile 1000 & 2000 SCA Checklist for each project, inclusive of 15% stratified sampling of certifiable items
- Assessed relevant documentation including SSCP, SSMP, and TVA
    - Reviewed consistency among different TVA presentations
    - Analyzed traceability of certifiable items between TVA and SSIMS
- Identified verification methods within the SCA Checklists along with audit results
- Communicated preliminary findings with Sound Transit
- Conducted a Closeout Briefing
- Produce draft and final reporting

Security certifiable items within Sound Transit's SSIMS database were selected for conformance testing specific to the following Certifiable Elements that included: Communication, Fire/Life/Safety, Yard and Shop, Safety/Security Plans Procedures and Training (Audit Profile 1000 only), Signaling, Stations, Guideway, Fare Collection Equipment, and Traction Electrification Systems.

Talson selected 15% of the 1,100 closed Security Certifiable Items that were populated in SSIMS during the November 2022 timeframe for Security Audit Profile 1000. A different selection (differing ID numbers)of Security Certifiable Items were selected for Audit Profile 2000 testing which resulted in approximately 330 samples reviewed. Interviews were conducted with security personnel and certification standards were reviewed for preliminary hazard consistency and integrity. Audit Profile Descriptions include the following areas of audit focus and testing:

Audit Profile 1000:

The purpose of the Safety/Security Certification Audit Profile 1000 is to ensure the completeness and integrity of SSIMS certifiable items for predefined hazards located in the Preliminary Hazard Analysis (for Safety) or the Threat Vulnerability Assessment (for Security) including potential causes, effects, and mitigation efforts ensuring that all are listed in SSIMS for resolution.

Audit Profile 2000:

The purpose of the Safety/Security Certification Audit Profile 2000 is to ensure that mitigation efforts related to construction have been incorporated into the appropriate design drawings and specifications. This documentation must be uploaded into SSIMS under each respective certifiable item that was identified in the initial hazard analysis.

Verification testing done through assessing data with the SSIMS dashboard utilized 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.

Security Audit Profile 1000 Verification Testing Results:
Integrity sampling of preliminary hazards within the TVA resulted in 100% of *Acceptable* testing for all three (3) projects assessed.

Security Audit Profile 2000 Verification Testing Results:
Summary details of the testing performed in conjunction of Audit Profile 2000 resulted in the following for the three projects:

Lynnwood Link Extension
Talson concluded that, of the 66 security certifiable items sampled, thirty-four (34) were deemed *Conditionally Acceptable (52%)* requiring corrective actions. The *Conditionally Acceptable rating was mostly due to missing references and/or documents within SSIMS.*

LLE Security Audit Profile 2000 Summary of Preliminary Audit Findings						
Total CIs	IDs Sampled	Acceptable	Unacceptable	Conditionally Acceptable	Not Applicable	Comments
337	66	32	0	34	0	Missing Security Requirements, References, and Docs

Federal Way Link Extension
Talson concluded that, of the 64 security certifiable items sampled, thirty-seven (37) were deemed *Conditionally Acceptable (58%)* requiring corrective actions. The *Conditionally Acceptable rating was mostly due to missing references and/or documents within SSIMS.*

FWLE Security Audit Profile 2000 Summary of Preliminary Audit Findings						
Total CIs	IDs Sampled	Acceptable	Unacceptable	Conditionally Acceptable	Not Applicable	Comments
325	64	27	0	37	0	Missing Security Requirements, References, and Docs

Hilltop Tacoma Link Extension

Talson concluded that, of the 36 security certifiable items sampled, nine-teen (19) were deemed *Conditionally Acceptable (53%)* requiring corrective actions. The *Conditionally Acceptable rating was mostly due to missing references and/or documents within SSIMS.*

HTLE Security Audit Profile 2000 Summary of Preliminary Audit Findings						
Total CIs	IDs Sampled	Acceptable	Unacceptable	Conditionally Acceptable	Not Applicable	Comments
237	36	17	0	19	0	Missing Security Requirements, References, and Docs

III. FINDINGS

The audit resulted in no findings.

IV. OBSERVATIONS

The audit resulted in the following a total of four (4) observations:

Observation No. 1

TVA formats were not consistent between the Lynnwood Link Extension (LLE) project and the Federal Way Link (FLWE) and Hilltop Tacoma Link Extension (HTLE) projects. The fields used to categorize the different attributes of each mitigation strategy were different - most notably:

- FWLE/HTLE had TVA ID numbers per asset while LLE had no TVA ID numbers;
- FWLE/HTLE identified assets while LLE did not;
- FWLE/HTLE identified Certifiable Item names (neither identified a CI number for traceability);
- FWLE/HTLE separated elements by tabs;
- LLE had more extensive ratings;
- All were visually formatted differently.

Observation No. 2

Traceability from all three TVAs to SSIMS was limited. As noted in Observation No. 1, TVA ID numbers were either non-existent or based on an identified asset which is too broad to distinguish among 500 – 1,000 items. Without utilizing a proper ID numbering scheme, or subsequent markings on the TVA, assurance that all TVA items have been resolved and certified is not demonstrated.

- ✓ For example, Talson identified two items on the LLE TVA (Excel Line Nos. 642 and 643), with the element name "Lynnwood Station". Talson was unable to locate a correlating Certifiable Item in SSIMS because no such element name exists in the SSIMS LLE dashboard. The below screenshot is taken from the LLE TVA and is not traceable to the LLE SSIMS dashboard:

642				Lynnwood Station	Civil Work	Fencing	Area around exposed stream under property accessible to unauthorized persons.	Some loss of equipment or system interruption requiring more than 24 hours but less than 14 days to repair	Loitering/Transient
643				Lynnwood Station	Civil Work	Fencing	Area around exposed stream under property accessible to unauthorized persons.	Some loss of equipment or system interruption requiring more than 24 hours but less than 14 days to repair	Trespassing

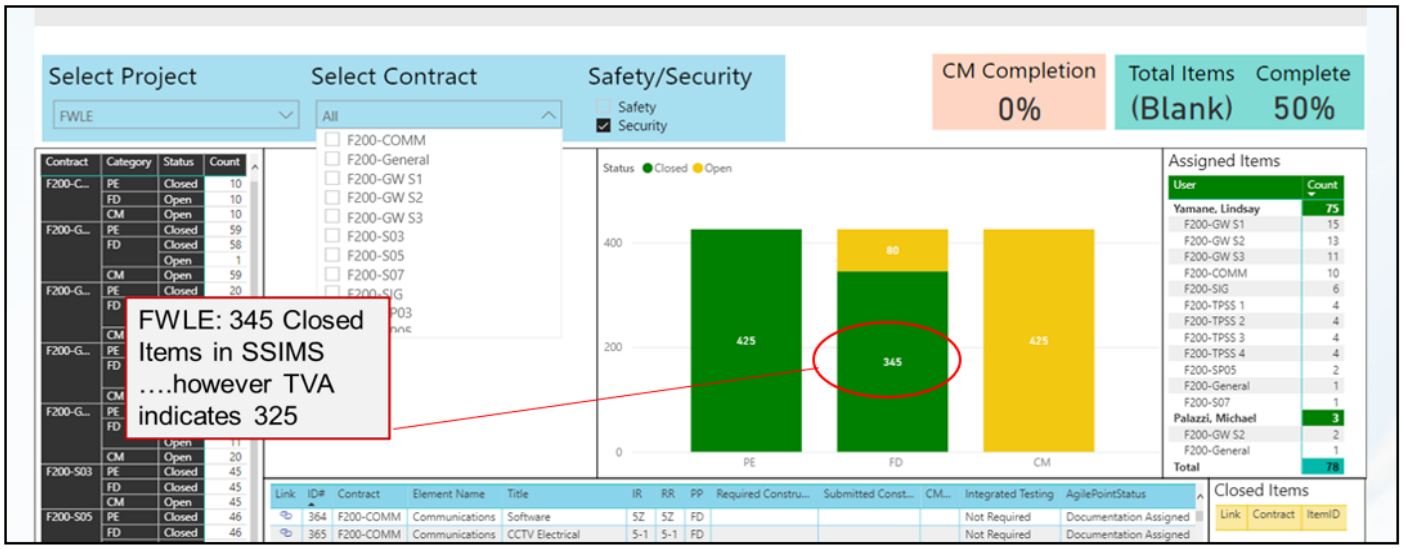
Observation No. 3

Closed Certifiable Item quantities varied amongst the TVA and SSIMS for: (1) Lynnwood Audit Profile 1000 & Audit Profile 2000 and (2) Federal Way AP 2000. The yellow highlighted rows within the below charts summarize noted differences:

AP 1000	TVA Closed CIs	SSIMS Closed CIs
LLE	438	445
FWLE	425	425
HTLE	237	237

AP 2000	TVA Closed CIs	SSIMS Closed CIs
LLE	337	370
FWLE	325	345
HTLE	237	237

The following screenshot is further example of the what is visible in the SSIMS dashboard for the status of Final Design (AP 2000 testing) versus the TVA for the FWLE project:

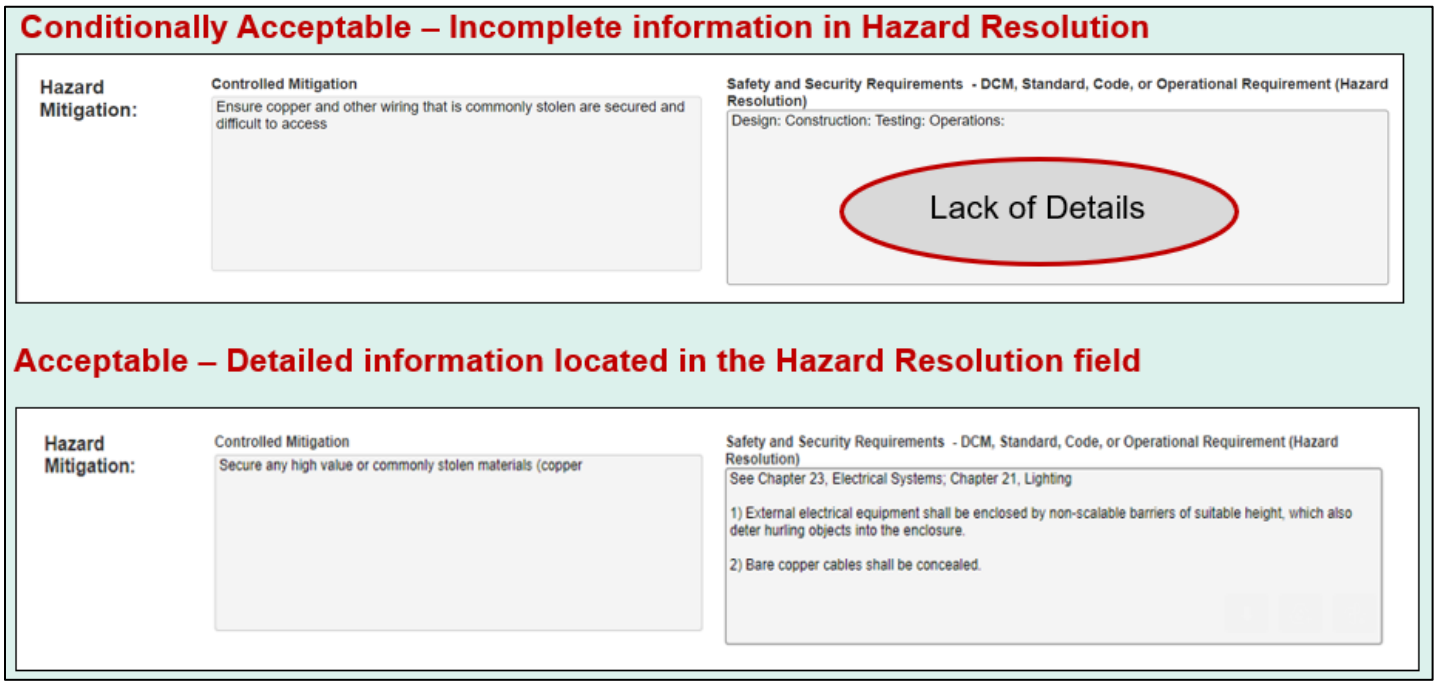


Observation No. 4

Through review of SSIMS, there were a total of 90 (54%) Security Certifiable Items that Talson identified as Conditionally Acceptable across the Audit Profile 2000 testing. The largest group of Conditional Acceptable items were due to the Safety and Security Standards field left blank and/or Design Conformance Manual not being referenced.

AP 2000 Conditional Acceptable	LLE	FWLE	HTLE
Safety and Security Standards Info Missing	19	26	12
Missing/Incorrect Referenced Document	13	11	5
Reference to CI That is Not Complete	2	0	2
Total	**34**	**37**	**19**
Percentage of Sample	**52%**	**58%**	**53%**

The following depicts a random screen shot of the Safety and Security Standards field left blank or not appropriately noted of “No Details Required” for a selected Certifiable Item in comparison to the Safety and Security Standards field completed appropriately.



V. CONCLUSIONS / REQUIREMENTS

Talson found that the overall certification activities align to the Agency's Safety and Security Certification Plans with minor exceptions for suggested enhancements. Comments regarding the noted observations should be provided within fifteen (15) days after the issuance of the Final Audit Report.

VI. AUDIT RESPONSE FORM (ARF)

This audit report identified no findings and four (4) 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 15 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.

VII. DISTRIBUTION:

Safety and Security Audit Dates:	November 2022 – February 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 • Kimberly Farley, DCEO & Chief System Officer • Ron Lewis, Executive Director, DECM • Tracy Reed, Deputy Executive Project Director, DECM • Eddie Shumway, Project Manager, DECM • David Wright, Chief Safety Officer, Safety • Erin Brumbaugh, Deputy Director, TSS • Jodi Mitchell, Deputy Director, Safety Business Process, TSS • Eric Beckman, Executive Director, PSO • Heather Wright, Deputy Director, Audit • Michael Flood, Senior Auditor, Audit • Bien Mai, Manager, TSS • Mike Pallazzi, TSS Manager • Steve Misczuk, Safety & Security Specialist • Molly Hughes, WSDOT SSO • Andrew Royer, WSDOT SSO • Nathan Galer, Construction Manager, DECM • Madeleine Greathouse, Project Director, DECM • Randy Harlow, Executive Project Director, Lynnwood Link, DECM • Nathan Monroe, Principal Construction Manager, DECM • Linneth Riley-Hall, Executive Project Director-FWLE, DECM • Sepehr Sobhani, Deputy Executive Project Director-FWLE, DECM	
Attachments:	• Security APs 1000 Checklists (LLE, FWLE & HTLE) • Security APs 2000 Checklists (LLE, FWLE & HTLE) • SCA ARF	