

Track Maintenance Scheduling – Link Light Rail Audit

Report #: 2023-04

Executive Summary

Audit Scope & Objective

Track maintenance scheduling for Link light rail (known as either ‘Central Link’ or ‘1 Line’) is completed through cooperation between Sound Transit (ST) and King County Metro (KCM), as defined by an Intergovernmental Agreement (IGA). ST defines the work to be done by KCM, KCM schedules the work, and ST is responsible for monitoring that the work is performed.

The scope of this audit included an assessment of track maintenance scheduling and ST oversight responsibilities to include information reporting, performance reviews, cost monitoring, and associated training. The audit also focused on the operational practices over the agency’s Enterprise Asset Management System (EAMS), which is used to manage maintenance work, personnel, and assets.

The audit objective was to assess the effectiveness of track maintenance scheduling for the Central Link light rail and determine if it is performed in compliance with applicable plans, policies, and requirements. The period of evaluation for this audit was from January 2022 through April 2023.

Audit Results

As a result of this audit, we identified **two (2) findings** related to track maintenance employee training and Sound Transit’s oversight responsibilities.

We also noted one **(1) observation** related to Sound Transit’s Link Light Rail Maintenance Management Plan and offer five **(5) recommendations** that we believe will strengthen ST’s oversight practices and maintenance plan and improve the employee training program. See [Recommendations](#) Section.

Both findings and observations are expanded upon further in this report.

Conclusion

Our audit examined four main areas of the track maintenance program. These included track maintenance scheduling, work order data reviews, oversight of third-party contracts, and on-site craft reviews.

Overall, we found that track maintenance is generally compliant with applicable industry standards, and although there are training and oversight deficiencies; we confirm that preventive maintenance work is being performed at the prescribed frequencies.

Audit Results

The following table summarizes the analysis performed during Field Work and the associated exceptions:

Criteria	Tests Performed	Results	Finding or Observation
APTA Rail Transit Track Inspection and Maintenance Standard	Compared Link Operations Plan & Link Light Rail Maintenance Management Plan to the APTA standard	Maintenance Plans are generally aligned with the APTA standard but could be improved.	Observation 1
KCM Operations & Maintenance (O&M) IGA and ST Agency Safety Plan (ASP)	Examined training plans and records for Track Maintainers	<ol style="list-style-type: none"> 1. Training plans are not approved by ST. 2. Training plans appear to be missing key certifications. 3. Employees are approximately 70% compliant with required trainings 	Finding 1
KCM Operations & Maintenance (O&M) IGA and related procedures.	Reviewed KCM invoices and supporting documentation evidencing sufficiency of management's review.	<ol style="list-style-type: none"> 1. Insufficient invoice reviews 2. Parts costs were charged to ST, which is contrary to the IGA. 	Finding 2
Link Operations Plan & Link Light Rail Maintenance Management Plan	Compared Track Maintenance Schedule to EAMS data (PM Work Orders)	Tracks are being inspected consistent with the plan requirements	N/A: No exceptions noted

Table 1. Summary Table of Audit Finding (see [Findings and Observations](#) for details).

Background

Sound Transit's Link light rail system encompasses the current Link alignment ("1 Line"), consisting of 24.65 miles of mainline track from Northgate (just north of Seattle) to Angle Lake (just south of SeaTac Airport) and includes a mix of exclusive right-of-way (at-grade, tunnel, and elevated guideway), and operations parallel to existing streets.

The 'Maintenance of Way' includes the mainline, maintenance yard and pocket tracks, switches, and structures (tunnels, floating slabs, bridges, aerial structures, culverts), and the upkeep of the entire Link System.

ST Transportation & Maintenance Department oversees operational and maintenance work performed by KCM to ensure Link light rail is maintained in a State of Good Repair¹ in compliance with expectations set forth in the IGA, and applicable policies, procedures, and requirements.

Track Maintenance Overview

The principal goal of track maintenance is to provide optimal track safety through a preventive maintenance approach, which entails performing inspections and maintenance of rail at recommended scheduled frequencies.

Major track maintenance activities include but are not limited to ballast surfacing; major derailment repairs; tie replacement programs; turnout repairs; rail replacement programs; rail grinding and maintenance of embedded track.

Key information inputs related to scheduled maintenance functions include: the recording of work in progress, and documentation of completed preventive maintenance activities in the ST Asset Management System, known as EAMS (Enterprise Asset Management System).

EAMS is also intended to capture track defects that are discovered through routine inspection and schedules, and through KCM's Link Control Center (LCC) reports. In early 2023, the agency released supplemental reporting tools through Power BI, making it possible to measure operations quality & results, safety, serviceability, and reliability trends for track maintenance.

Track Maintenance Invoicing

Preventive maintenance involves programmed periodic upkeep intervals and activities that meet manufacturer's criteria, industry standards and operational requirements. This approach anticipates maintenance needs to maximize efficiency and minimize costs. When those track maintenance activities are completed, they are captured as part of the performance monitoring and invoicing process.

We examined data retrieved from EAMS between Calendar Year (CY) 2018 to CY 2022 and found that reported total costs that were incurred for Track Maintenance PM and Repair over

¹ IGA was awarded, \$261 million (M), of which 29% (or \$94M) represented federal drawdowns involving FTA funds.

that period was estimated \$12.4 million (M); from \$2.1M in 2018 alone to \$2.7M in 2022 (an increase of 29%)

Moreover, as part of the 2023-2025 Agency Audit Plan², contractual oversight (to include Agency Agreements) was identified as a significant area of risk stemming from ST's decentralized approach to developing, executing, and monitoring of Agreements.³

Thus, based on our risk-based audit plan, we included a review of ST's oversight surrounding contract management (performance and financial) related to track work performed and associated labor cost.

Findings and Observations

While periodic track maintenance reviews are performed at prescribed intervals, ST management could not provide us adequate documentation demonstrating proper oversight in other key areas of Track Maintenance related to the training program, performance management and cost monitoring. Both issues are expanded upon further below:

Finding #1: Lack of Formal Training Program and ST Monitoring Processes **(Rating: Serious - 4A)**

The current IGA between ST and KCM sets forth obligations related to the creation and approval of training requirements, for Link light rail. Included is the requirement that the training program will be jointly developed and approved by KCM and ST. The program is also to be reviewed and updated annually by KCM and submitted to Sound Transit for approval. Our fieldwork confirmed that KCM has established a training program, but we were unable to determine if ST has reviewed or approved it.

KCM's current training program is supposed to include elements such as job descriptions for all Rail Division positions, county-required training (to include any license, certificate or endorsement), and completion status. KCM does have a training plan and training records, which we analyzed, with an emphasis on the 'Track Maintainer' job title.

We were unable to tie the certifications in the training plan to the county-required training, which results in confusion over what a "required" class is, and what qualifies track maintenance staff to perform work.

In addition, the Link Operations Program Plan requires ST Superintendents to perform monthly verifications to ensure all required training has been completed and correct forms are filled out.

Our review of training records revealed mixed results. On one hand, approximately 76% of "required" one-time trainings and 69% of ongoing trainings were current. On the other hand,

² 2023-2025 Agency Audit Plan ([see link](#))

³ Agency Agreements Audit (Report #: 2022-18). The Internal Auditors found that the agency's "decentralized operational structure" has resulted in inadequate design of control activities that (1) would clearly establish requirements of a competent Agreement Manager (AM) and (2) subsequent monitoring and tracking of AMs to provide the mandatory training for proper accountability and oversight.

we noticed that many “not required” certifications were frequently completed, when we reviewed the titles of these classes, it is apparent that many of them should be considered for inclusion in the training plan.

Nevertheless, we see this as a positive indicator of KCM management’s attention to proper training and compliance since staff are taking these important classes, even in the absence of a training plan requirement.

Interviews conducted with key process owners comprised of ST Operations, and KCM management revealed that ST key process owners were unaware that the KCM training plan and records were available on ST SharePoint sites. This leads us to conclude that this information is not being reviewed and approved by ST.

Finding #2: Inadequate Documentation Reviews to Support Monthly Invoices & Work Performed (Rating: Medium - 4C)

Per the IGA, performance reporting and documentation for track maintenance are key contractual obligations captured as part of the invoicing process and subject to review prior to payment. This ensures that the work performed not only conforms in all material respects with the IGA but ensures the proper accountability and safeguarding of “public funds.”

As contractually obligated, KCM will provide Sound Transit a completed monthly invoice with the required reports for work provided during the previous month.

Additionally, invoices must be accompanied by all required monthly reports, including data and information related to the performance of the Link system. Performance data includes:

- Maintenance Statistics (e.g., Mean Time between Track Failure)
- Repair reports (e.g., Corrective Maintained from total Track Inspection)

Furthermore, the “Responsibility Matrix” outlines the responsibilities to develop, implement, maintain, review, and support major functions related to the operation of Link. These include service and performance indicators.

Lastly, there is to be a financial data review to determine if the amounts billed are consistent with the actual costs KCM incurs. If not, the parties meet and confer on a timely resolution, and determine appropriate refunds or payments.

Analysis

Currently, the monthly invoicing process involves multiple submissions of various supporting documentation and monthly reports provided by KCM finance staff and craft superintendents. Key reports consist of (1) service repair reports and (2) working hours breakdown.

Based on our review of invoicing packages and interviews with staff, **we found the current process lacks the appropriate level of technical review (prior to executive review/approval) to ensure that the that the work was performed prior to payment.** This

is contrary to agency policy⁴ requiring an additional layer of technical oversight to ensure day-to-day work conforms in all material respects with the IGA.

Specifically, while EAMS has improved reporting and Power BI has increased reporting capabilities, there are still deficiencies in the type and number of required reports that accompany the monthly invoices.

As a result of these reporting and review challenges, there is an increased likelihood of financial irregularities (e.g., nonconforming services) barring any periodic technical reviews of the total cost incurred. Of the cost incurred, we also questioned the 'validity' of total parts charged to ST, which is contrary to Section 8.2.2 Parts of the IGA.

ST Management (Operations and Finance) in coordination with KCM should determine the accuracy of monthly labor charges, and appropriateness of parts costs on invoices. Any differences in charged amounts should be agreed upon and reimbursed to the respective agency, if merited (IGA Section 25 Dispute Resolution).

Observation #1: Maintenance Management Plan could be improved to ensure better alignment with Adopted Best Practices

When comparing ST Link Light Rail Maintenance Management Plan (LLR-MMP) to the APTA Rail Transit Track Inspection and Maintenance Standard, we noted some inconsistencies. For example:

- APTA standard section 3.6 *Special Inspection* states: "In the event of fire, flood, seismic activity, severe storm or other occurrence that might have damaged the track and/or structure, a special inspection of the affected track and structure must be made as soon as possible after the occurrence." We did not see this requirement included in the MMP.
- MMP Section 5.2.1 *Track & Right of Way* briefly mentions track defects as being discoverable by either the Train Operators who radio problem reports to KCM LCC, who in turn, notify Wayside, Power, and Signal (WPS) or through routine inspections by track maintenance personnel. However, there is insufficient guidance to how soon inspections and repairs are completed based on who reported the defects (APTA Section 4.3 *Condition Prioritization*).

We recommend management improve policies and maintenance plans through better alignment with the adopted best practice standard (e.g., APTA) that is specific to Track Maintenance. This will ensure sufficient guidance is provided to key process owners when carrying out their responsibilities.

⁴ PCAM Sections IV (F) indicates the assignment of an Agreement Manager who is responsible for the day-to-day management of each agreement performance and interaction with the other party.

In addition, PCAM Section B(2) assignment of a Project Manager who is the technical, subject matter expert with daily contract performance oversight.

Positive Practices

We found that Sound Transit has implemented systemic improvements around track maintenance scheduling. Specifically, to meet current challenges, ST Operations has authorized the reclassification of one Maintenance Planner for KCM in line with IGA.⁵ According to KCM, this position will develop and maintain a living maintenance calendar to increase proficiency and collaborate with ST Link Ops to ensure KCRail is adhering to compliance criteria set by ST.

In a collaborative effort, KCM and ST have implemented a data-driven approach through the establishment of real-time reporting metrics, dashboards, and visualization of track maintenance work for increased oversight and analysis of track defects. This is followed by on-site reviews of all crafts and oversight of third-party contracts related to the facilitation of rail geometry testing and other related work.

This data is used to better inform preventive maintenance scheduling.

These processes have been enhanced through the issuance of the Link Operation Program Plan (Rev. 1, January 2023), which details Sound Transit's oversight activities of KCM Operation and Maintenance of the Link System.

Recommendations:

- 1. Review and Approval of Training Program:** ST and KCM management should jointly reassess the nature of work currently performed by those staff identified and criticality of training required. In the interim, ensure training is completed in line with KCM's training program.

Disclosure: Additional details regarding the findings, observations and recommendations were provided to the primary stakeholders and are available upon request.

- 2. Enhance the current training matrix⁶ to include formal training that are required by applicable requirements and industry practices.** This should be done in coordination and approved by Sound Transit Oversight in line with the IGA (as intended) and as part of KCM and ST's safety management system (SMS).
- 3. Assignment of a Technical Reviewer/Subject Matter Expert** within ST Operations who would serve as the in-house subject matter expert required to perform technical reviews of the appropriate exhibits related to track maintenance prior to payment.

⁵ Sound Transit Contract RTA GA 0158-19

⁶ **Adopted best practice** for management's consideration and development of a formal training matrices may be the Part 243 OJT Matrix ([see link](#)).

4. **Formal approvals** by both the Project Manager and appropriate Department Head (i.e., segregation of duties) certifying the accuracy of supporting documentation as part of the monthly review process and labor cost monitoring.
5. **Update oversight policy requirements** to reflect appropriate level of monitoring controls and reporting requirements (newly created BI reports). Material departures from IGA reporting requirements should also be documented in policy requirements to reflect appropriate monitoring and reporting controls activities (automated and manual).

Methodology

Standards

We conducted this performance audit in accordance with our charter and Generally Accepted Government Auditing Standards (GAGAS or “Yellow Book”) issued by the United States Government Accountability Office (GAO) and with the International Standards for the Professional Practice of Internal Auditing” The Institute of Internal Auditors’ (IIA) International Professional Practices Framework (IPPF or “Red Book”) which includes the Core Principles for the Professional Practice of Internal Auditing, the Code of Ethics, the International Standards for the Professional Practice of Internal Auditing (the Standards), and the Definition of Internal Auditing.

These standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Additionally, the Audit Division is also committed to following safety oversight standards set forth by the Federal Transit Administration (FTA), Federal Railroad Administration (FRA); as well as all other relevant requirements or standards for auditing.

Audit Processes

Our audits are risk-based and focus on the areas with the highest potential risk impacts or likelihood at the time of observation. Each audit starts by examining the current processes in place relative to (1) Laws or Regulatory Requirements, (2) Agency Policies and Procedures and (3) Industry Best Practices. During the “Planning” phase, we assess the engagement-specific conditions and risk, which informs the engagement objectives and scope. At this time, relevant controls to mitigate these risks are also identified.

The audit “Field Work” phase then examines the design of the identified controls to determine if the intent meets the regulations, policies, etc. If the controls are designed to adequately mitigate the risk (control environment), we move on to assess the degree to which the controls are mitigating the risk (control activities). Any areas identified where the control environment or activities do not adequately mitigate the identified risk are identified as an exception.

Exceptions are then defined as Findings if they are significant or Observations if they are an opportunity for improvement.

All Findings are risk-rated based on potential likelihood and impact based on attributes outlined in *Appendix B: Risk Rating Matrix*.

Diversity, Equity, and Inclusion Review

This audit considered Diversity, Equity, and Inclusion (DEI) through the lenses of distribution of assets and workforce development.

In our performed analytics we noted **no instances** of uneven distribution of assets across the system or uneven distribution of maintenance services to specific assets for reasons not related to operational or safety reasons. Currently there appears to be no inequitable distribution of assets or service related specifically to Track Maintenance Scheduling services performed.

Appendices

Appendix A: Sound Transit's Title VI notice of rights

Sound Transit conducts Title VI equity analyses for service and fare decisions to ensure they are made as equitably as possible.

More information on Sound Transit's Title VI notice of rights and the procedures to file a complaint may be obtained by:

- Phone: 888-889-6368; TTY Relay 711;
- Email: stdiscriminationcomplaint@soundtransit.org;
- Mailing to Sound Transit, Attn: Customer Service, 401 S. Jackson St. Seattle, Washington 98104-2826; or
- Visiting our offices located at 401 S. Jackson St. Seattle, Washington 98104.

A complaint may be filed directly with the Federal Transit Administration Office of Civil Rights, Attention: Complaint Team, East Building, 5th Floor – TCR, 1200 New Jersey Avenue, SE, Washington, DC 20590 or call 888-446-4511.

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Approved for release by:

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Appendix B: Audit Finding Risk Rating Process

To aid process owners in prioritization of the audit findings resulting from the audit, a level of audit risk will be assigned by assessing two factors: 1.) the probability that the associated problem will occur at some point in the future, and 2.) the impact or severity of that problem in relation to the overall business process.

Using the same Risk Assessment Matrix already in used throughout the agency and based on the MIL-STD-882-E; audit findings are qualitatively assessed based on the worst credible case that is anticipated from the result of human error, design inadequacies, component failure or a malfunction.

Risk Rating Scale						
	Severity	Catastrophic (1)	Critical (2)	Major (3)	Marginal (4)	Negligible (5)
Probability	Frequent (A)	High (1A)	High (2A)	High (3A)	Serious (4A)	Medium (5A)
	Probable (B)	High (1B)	High (2B)	Serious (3B)	Serious (4B)	Medium (5B)
	Occasional (C)	High (1C)	Serious (2C)	Serious (3C)	Medium (4C)	Low (5C)
	Remote (D)	Serious (1D)	Medium (2D)	Medium (3D)	Low (4D)	Low (5D)
	Improbable (E)	Medium (1E)	Medium (2E)	Low (3E)	Low (4E)	Low (5E)
	Eliminated (F)	Eliminated				

Resolution Requirements				
Risk Score	Risk Level	Risk Rating	Minimum Actions	Risk Acceptance / Responsibility
1A, 1B, 1C, 2A, 2B, 3A	High	Unacceptable	Stop work & immediate correction required to reduce risk.	Not Acceptable. Executive Team is informed.
1D, 2C, 3B, 3C, 4A, 4B	Serious	Undesirable	Mitigation strategy required to reduce risk within 30 days of identification of risk.	Acceptable with risk controls and monitoring. Director-level committee review and approval.
1E, 2D, 2E, 3D, 4C, 5A, 5B	Medium	Acceptable w/ review	Monitor and consider actions to further reduce risks.	Acceptable with risk controls and monitoring. Technical Level committee review and approval.
3E, 4D, 4E, 5C, 5D, 5E	Low	Acceptable	Acceptable without further mitigation. May be accepted by the business unit in coordination with Audit and Safety.	Acceptable without further mitigation. May be acceptable by the business unit with coordination with Audit and Safety.
N/A	Eliminated	Eliminated	No actions needed.	N/A

Risk Matrices

Severity	Catastrophic (1)	Critical (2)	Major (3)	Marginal (4)	Negligible (5)
System Disruption / Operations	> 24 hrs Substantial or total loss of operations	12 – 24 hrs Partial shutdown of operation	4 – 12 hrs Prolonged disruption of operations	1 – 4 hrs Brief disruption of operations	<1 hour Minor to No disruption
Financial	>\$5,000,000	\$1,000,000 – 4,999,999	\$249,999 – 999,999	\$10,000 – 249,999	< \$10,000
Reputational	Prolonged negative media coverage for >30 days and / or irreparable reputational damage, resulting in government intervention	Ongoing negative media coverage for >14 days but ≤ 30 days causing serious reputational damage, resulting in government intervention.	Ongoing negative media coverage >7 days but ≤14, causing major reputational damage and possible government intervention	Ongoing negative media coverage for ≥ 24 hours but ≤ 7 days, causing some reputational damage	Negative media coverage for ≤ 24 hours, causing minor reputational damage
Injury	Several deaths (≥3) and / or numerous (≥3) serious injuries (excluding suicides or by natural causes)	1 -2 deaths and/or 2 or more serious injuries	Multiple minor injuries and possible serious injury (Ambulance transport)	Minor injury such as bruising, abrasions, bleeding; possible medical services required	No injuries
Equipment	Total loss of equipment or system interruption requiring more than 30 days to repair.	Significant loss of equipment or system interruption requiring more than 14 days but less than 30 days to repair.	Some loss of equipment or system interruption requiring more than 24 hours but less than 14 days to repair.	Minor system loss of equipment or system interruption requiring less than 24 hours to repair.	Minor damage to equipment or minor system interruption with no immediate repair necessary.
Regulatory	Cease and desist orders are delivered by regulators. Critical assets and facilities are forced by regulators to be shut down.	Governmental, regulator investigations, and enforcement actions, lasting longer than a year. Violations that result in multiple large non-financial sanctions; OR Regulators force the removal and replacement of management positions. Regulators begin agency monitoring activities.	Violations that result in significant fines or penalties above and beyond what is codified or a regulator enforces non-financial sanctions; OR Significant new and updated regulations are enacted as a result of an event.	Violations that result in fines or penalties	Self-reported or regulator identified violations with no fines or penalties

Probability Level	Likelihood of event in specific item	MTBE in Operating Hours **	Occurrence in time
Frequent (A)	Will occur frequently.	<1,000 oh	1 per week, likely to occur several times per month
Probable (B)	Will occur several times.	1,000 – 100,000 oh	1 per month, likely to occur several times per year
Occasional (C)	Likely to occur sometime.	100,000 – 1,000,000 oh	Once per year, likely to occur several times within 10 years
Remote (D)	Unlikely but possible to occur.	1,000,000 – 100,000,000 oh	1 per 10 years or likely to occur several times within 100 years
Improbable (E)	So unlikely, occur may not be experienced.	> 100,000,000 oh	1 per 100 years
Eliminated (F)	Risk removed / eliminated	Never	N/A

Appendix C:

Prepared by: Karl Shoemaker and George McGinn

Date: 6/15/23

Audit: Track Maintenance Scheduling – Link Light Rail Audit (AUD-PA-2023-04)

Management Response:

Management agrees/disagrees/**partially agrees**⁷ with the audit report finding⁸

Finding 1: Lack of Formal Training Program and ST Monitoring Processes (Rating: Serious - 4A)

Management Response / Action Plan:

ST released the R1 of the Link Operations Program Plan in January 2023. Within section 2.2, Table 1 indicates Training Reviews will be performed on a semi-annual basis. Within the Audit Report, under Finding #1, paragraph 4 states; “the Link Operations Program Plan requires ST Superintendents to perform monthly verifications to ensure all required training has been completed and correct forms are filled out.”. This portion of the finding is inaccurate. Since the release of the Link Operations Program Plan R1, this month of June is the 6th month in which the review of the KCM Training Program is due.

⁷ If the responsible party **agrees** with the finding, an estimate timeline for corrective action is strongly suggested to be part of the response. If the responsible party **disagrees** with the finding, a statement of reason for the disagreement should be part of the response. If the disagreement represents unreasonable risk acceptance, the Audit Director will communicate the risk to Deputy CEO. If the Deputy CEO accepts the unreasonable risk acceptance by the auditee, the Director will communicate such acceptance to the Finance & Reporting Committee.

⁸ Each audit finding must have a management response.

In November 2022, KCM Training Department rolled out a new Power Bi reporting tool aimed at addressing the requirements of IGA Section 7.4. This new tool roll-out was shared with ST in “draft” form. Since November 2022, ST Link have collaborated with KCM Training group to further enhance the way information is displayed in the report and compliance with the IGA. This report is now available to ST for a scheduled review on a semi-annual basis.

KCM collaborate with ST to perform the annual budget cycle. All KCM craft budgets, justifications and staffing plans are reviewed and approved on an annual basis. The training component of the annual budget review includes discussion involving the overall training program. This program review includes staffing requirements, 3rd party contracts, on-site and off-site training, training associated travel, and training infrastructure requirements at each of our maintenance facilities. This review of the KCM training Program is in compliance with the IGA.

IGA Section 7.4 outlines a Training Program. Each sub-section of the IGA Training Program requirements includes certification, recertification, and refresher training. Workplace training for staff and contractors are also included. Within IGA Section 7.4.1 is a list of training program elements. These elements include job descriptions, training requirements by description, county required training, licenses, certificates or endorsements, expiration dates, expiration and re-certification dates, completions status and training delivery methods. These elements are contained within the KCM Training Power Bi report.

In summary, ST Link Ops will revise the existing oversight plan to include oversight of training plans as part of the annual budget review cycle.

Timeline for corrective action:

Q1 2024

Audit Response: Agreed

While management in their response points to the Link Operations Plan Section 2.2 & Table 1, the evaluation-criteria cited in the audit report was Section 2.8 *Training Certification Review/Records*, which states the following:

Superintendents will request to view training records monthly to verify all required training has been completed and correct forms filled out. This is to be focused on track safety, craft job certification, and signoffs for rule change push outs. Training classes will be attended by ST Superintendents per a pre-arranged frequency with KCM.

The monthly review process is also in line with IGA Section 17.5.1 *Performance Reporting and Exhibit L*, which requires complete information (inclusive of training schedules) to accompany the monthly invoice due on 25th of every month.

Upon review of invoicing packages received, KCM Training Department and ST oversight & senior management questioned the usefulness of the training schedules provided. The training schedules contained in the invoicing exhibits were high-level and could not be traced to staff or job roles.

This ultimately led to the recently established KCM Training BI report, which was only reviewed by ST's Superintendent when shown by Internal Audit during the fieldwork phase of the engagement.

Overall, the audit found that while KCM has established a training program, Sound Transit (Link Operations) did not formally approve the training program as required by the IGA nor has performed any monitoring of any training records – either monthly or semi-annual basis.

This was confirmed by ST OPS and KCM staff when asked about the high volume of missing trainings and certifications that encompass both safety and rail components for track maintenance staff.

Finding 2: Inadequate Documentation Reviews to Support Monthly Invoices & Work Performed (Rating: Medium - 4C)

Management Response / Action Plan:

Management agrees/**disagrees**/partially agrees with the audit report finding

The current IGA and subsequent reports provided as part of invoicing is a known issue. Some reports are defunct, some reports are duplicated in other forms. Much of the data is reviewed in other forums.

The IGA is up for revision with an eye towards revising reporting and metrics from KCM since many of the metrics and reports provide little to no value to operational oversight.

Since the adoption of EAMS as a system of record owned by ST and used by KCM most of the WO reviews performed by ops covers labor and other reports outlined in the IGA.

Many of these reports exist today in the form of PowerBI dashboards and are reviewed as part of oversight and the Monthly Business Review (MBR).

The final IGA revisions have not been decided but will be put in place in Q4 of 2023. If those changes do not address this finding and additional review of monthly invoices are required by Link Ops than the current staffing levels and paradigm of other duties supported by Link Ops will need to be reprioritized.

With regards to the financial aspects of the finding. The financial data is reviewed in depth, not monthly but annually as part of a reconciliation process from the set invoices to the actuals. Funds found to be over or underpaid are reconciled.

Per 22.4.2 “If an overpayment or underpayment is found, the Parties will meet and confer on a timely resolution and determine appropriate refunds or payments so that each Party can incorporate the amount in the appropriate fiscal year as determined by generally accepted accounting principles.”

The policy referenced in the finding is specific to contracts and procurement, Link operates under a formal agreement between the KCM council and ST board of directors as an IGA.

The parts and materials used in support of Link maintenance are procured by ST and thus not on invoices, but consumables are. (Ref; IGA Section 8.2.2.A). Link Management request the ST Internal Auditor to provide examples of this finding so that further explanation can be provided.

Timeline for corrective action:

N/A

Audit Response: Disagrees

The audit finding is primarily related to the lack of a technical review (prior to executive review/approval) to ensure that the work was performed prior to payment. Currently, the process is absent a technical oversight to ensure day-to-day work conforms in all material respects with the IGA.

In addition, while management mentions in their response that annual reviews and reconciliations are performed at year-end, this is contrary to IGA Section 22.3, which requires monthly documentation reviews and reconciliations:

“ [...] The invoice must be complete, or it will not be processed. Invoices must be accompanied by all required monthly reports as noted in Exhibit L. In addition, King County will provide a spreadsheet of detailed actual direct expenditures to allow comparison of budget versus actuals by unit and account.”

Furthermore, from an audit perspective, the over-reliance of a year-end reconciliation process is not sufficient alone as an internal control. This is because reconciliations are typically performed by financial staff who reviews financial records and information. In the case of ST OPS, this is performed at year-end (as opposed to monthly reconciliations).

In our opinion, the year-end reconciliation (a financial component) should be accompanied by periodic reviews performed by a technical reviewer, assigned to conduct daily contract performance oversight.

Audit Communications regarding questionable spare parts:

As part of our review, we observed spare parts were included in invoices and should have been excluded per IGA section 8.2.2 Parts. Upon providing this information to senior management for further clarification, we were not provided any adequate response. As such, we noted this in the audit report according to our audit standards.

Management Response (optional for Observations):

Management agrees/**disagrees**/partially agrees with the audit report observation

Observation 1: Maintenance Management Plan could be improved to ensure better alignment with Adopted Best Practices

Management Response / Action Plan:

Link Light Rail utilize Standard Maintenance Procedures (SMP) designed to instruct maintenance personnel in their respective responsibilities, requirements, and procedures.

Link Light Rail currently have three specific SMPs addressing this observation. They include the following:

- SMP 25.15 – Post-Seismic Structure and Systems Inspection (References 23 CFR 650, Subpart C – National Bridge Inspection Standards & AASHTO Manual for Maintenance Inspection of Bridges)
- SMP 30.2 - Track Walking Inspection
- SMP 30.6 – Vehicle Track Structures Inspection (References APTA RT-S-FS-001-02 Track Standards, National Tunnel Inspection Standards & National Bridge Inspection Standards)

Additionally, PSO is currently revising a set of track standards written and supplied by Link Ops. The adoption of those standards will align ST will industry best practices as outlined in the MMP.

(SMPs listed above attached to this Management Response for your reference.)

Timeline for corrective action:

N/A

Audit Response: Partially Agree

The audit observation is related to improving the Maintenance Management Plan (MMP) to ensure better alignment with adopted best practices. As mentioned in management's response, PSO in consultation with OPS, is currently revising a set of track standards to adopt and incorporate the standards as referenced above, e.g., APTA, AASHTO, etc.

We encourage OPS management to formally provide a timeline for corrective action and work with the Internal Audit to ensure that those objectives are achieved.