



**Metra**

## Kick-off Meetings

SETUP THE PROJECT FOR SUCCESS

**STADLER**

# Project Kick-off – 6/19/24

Topic	Presenter	Time
Introduction Round Metra & Stadler	Stadler / Metra	01:00pm
Introduction of Metra	Metra	01:20pm
Introduction of Stadler US	Stadler	01:30pm
New Schedule	Metra	01:40pm
Stadler's Metra Project Outline	Stadler	01:45pm
Challenges of the Schedule	Stadler	02:10pm
Break		02:45pm
Stadler's Proposal on Formal Communication Procedures, Reporting Channels	Stadler	03:00pm
Questions about Contract, Tech. Spec., CDRL, Schedule, Collaboration etc.	Stadler	03:30pm
End		04:00pm



# 02

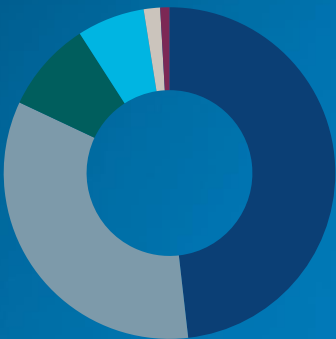
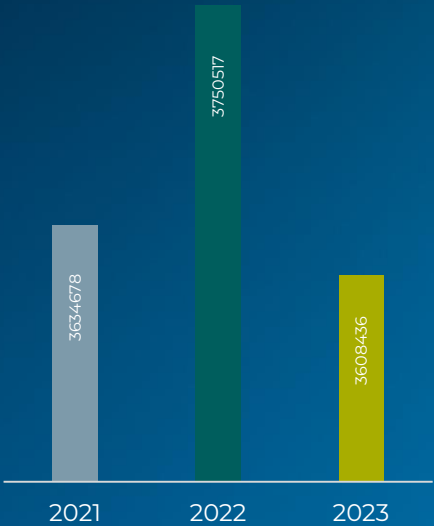
## Stadler US

Overview

Stadler Rail Group

# 2023 Results at a Glance

**Net revenue**  
In thousands of CHF



**Net revenue by geographical market**

- Germany, Austria, Switzerland
- Western Europe
- Eastern Europe
- America
- CIS
- Rest of the World

24.4

**Order Backlog in CHF Billion**  
Previous Year: 22.0

5.1%

**EBIT Margin**  
Previous Year: 5.5%

138.6

**Net profit in CHF million**  
Previous Year: 75.1

6.8

**Order Intake in CHF Billion**  
Previous Year: 8.6

37,159

**Registered shareholders as at 31 December 2023**  
Previous Year: 38,943

183.3

**EBIT in CHF million**  
Previous Year: 205.1

13,944

**Employees Worldwide**  
Previous Year: 13,431

# More than 9800 units sold in 43 countries



36

SMILE



2365

FLIRT / WINK



553

KISS



948

Tailor-made (multiple units / locomotives / cars)



2480

Locomotives



155

Wagon



782

METRO



1725

LRV



497

Regional rail shuttle



611

GTW



# Divisions 2024

## Switzerland



– Bussnang



– Rheintal



– Salt Lake City (US)

## Signaling



– Wallisellen  
(Switzerland)

## Germany



– Pankow



– Chemnitz

## Central Europe



– Siedlce (PL)



– Prague (CZ)



– Minsk (BY)

## Spain



– Valencia

– ERION

– ERION (FR)

## Components



– Winterthur



– Biel/Bienne



– Szolnok (HU)



– Środa (PL)

## Service



- Algeria
- Denmark
- Germany
- Finland
- France
- Italy
- Netherlands
- Norway
- Austria
- Poland
- Portugal
- Russia
- Serbia
- Sweden
- Switzerland
- Spain
- Turkey
- UK
- Hungary
- USA

**Employees Worldwide: 13,944**

# Stadler Rail Group & Stadler US

## Stadler Rail Group



Revenue: **3.8 billion USD**  
Employees: **13,000+**  
Locations: **15 all over the world**  
Established: **1942**

## Stadler US



Employees: **500**  
Facility Size: **300,000+ sq ft**  
Established: **2016**  
Projects in progress: **8: Caltrain, DART, USU, Caltrans, Caltrain EMU, Caltrain BEMU, MARTA, & Metra**

**Over 9,800 trains sold all over the world**

# Timeline and Map

## Projects in North America

20 GTW NJT



2002

11 GTW DCTA



2011

4 GTW CMTA



2017

8 FLIRT TEXRail



2019

6 GTW CMTA



2007

8 GTW eBART



2016

10 Custom Coaches  
Rocky Mountaineer

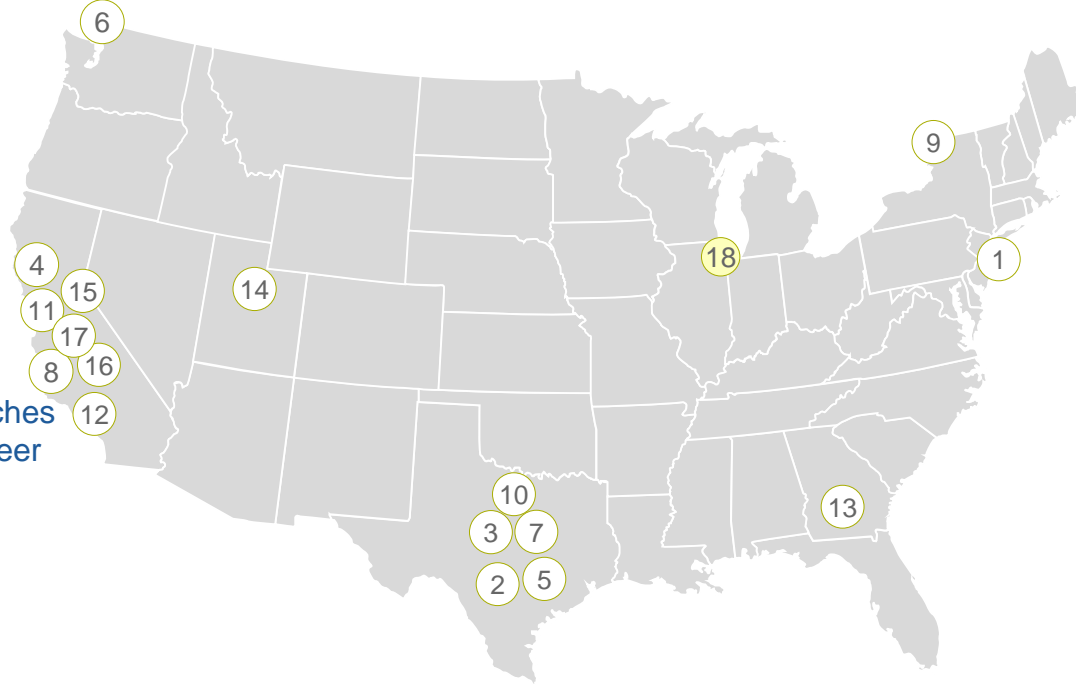


2018

3 FLIRT SBCTA



2020



8 FLIRT DMU



2022 - 2023

1 H<sub>2</sub> FLIRT  
SBCTA



2024

1 FLIRT USU



2025

10 Caltrans H<sub>2</sub>



2027- 2028

8 FLIRT BEMU  
Metra



2028

7 FLIRT Ottawa



2022

23 KISS Caltrain



2021 - 2026

56 METRO MARTA



2024 - 2029

1 KISS Caltrain Option  
BEMU KISS



2027

4 KISS Caltrain



2027-2028



# Our Products in an Overview

## FLIRT



### Propulsion Systems:

- Battery
- Hydrogen
- Diesel
- Overhead Catenary

Seating Capacity – up to 480

Customizable Platform Height

## KISS



### Propulsion Systems:

- Diesel
- Overhead Catenary
- Battery

Seating Capacity – up to 800

Customizable Platform Height

## METRO



### Propulsion Systems:

- Battery
- Overhead Catenary

Seating Capacity – up to 350

Customizable Platform Height

## LIGHT RAIL VEHICLES



### Propulsion Systems:

- Overhead Catenary
- Off wire capabilities

Seating Capacity – up to 140

Customizable Platform Height:

- High Floor
- Low Floor
- 70 – 80% Low Floor

## TAILOR MADE



### Options:

- Cog Rail
- Coaches
- Shunting Locomotives
- Research & Development Projects

## Stadler Rail Services (SRS)

- Full Service – Comprehensive maintenance
- TSSSA – Tailored service support
- Spare part management
- Modernization – Upgrade of existing vehicles
- Overhaul of vehicles and components
- Repair of vehicles
- Digital solutions – Remote monitoring and condition based maintenance

## Stadler Signaling

- ETCS – EU Train Control System
- CBTC – Comm. Based Train Control
- ATO – Automated Train Operation
- Anti-Collision
- PZB & FRED – On Board & Wayside
- Interlocking – Control and Safety
- Subsystems
- Dynamic Passenger Information
- Services
- Smart Object Controller
- Field Elements

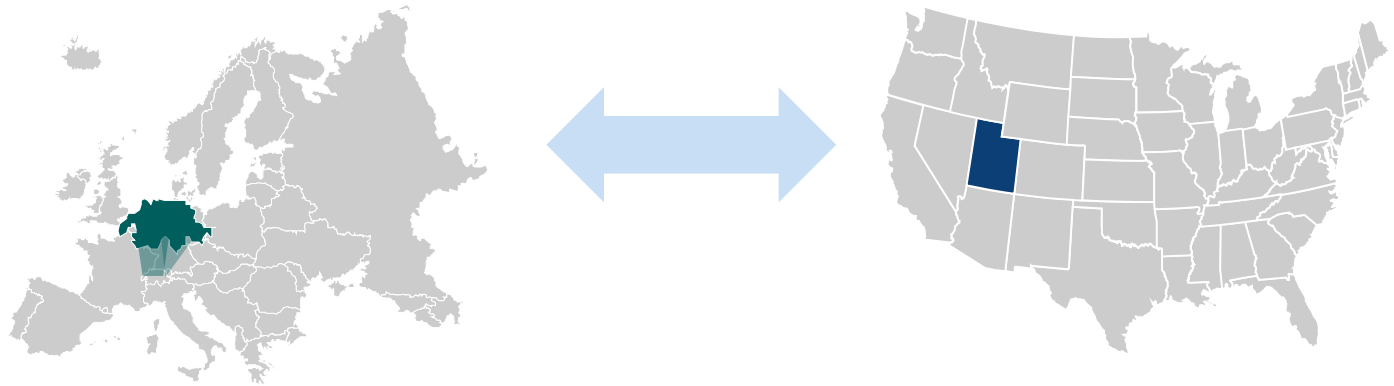
# Stadler US Invests in Future Generations

## TRAC – YOUTH APPRENTICESHIP PROGRAM



- Started in 2019 as the first apprenticeship program in Utah
- First class graduates in summer 2022
- Based on the Swiss model
- Program begins in senior year of high school
- Official associates degree from SLC Community College plus job-based education

## KNOWLEDGE EXCHANGE SWITZERLAND AND USA



### HOW IT WORKS

- Employees in various areas train with teams in Switzerland to learn and bring this knowledge back to their teams in the US
- Colleagues from Stadler locations around the world spend extended periods of times at Stadler US to teach or gain knowledge from here

### WHAT WE GAIN IN ADDITION TO KNOW-HOW

- Vast cultural exchange throughout all areas of the company as well as knowledge transfer
- Establishing of international network for employees and departments

## PROUD TO PARTNER WITH



# 03

## Stadler's Metra Project Outline

Eight Trainsets of 2-car battery FLIRT with options for additional eight 3- to 4-car Trainsets



# Summary of Program & Train Specifications



## Train Specifications

Type	FLIRT BEMU 2-Car
Max Speed	79 mph
Axle Arrangement	Bo'+2'2'+Bo'
Power	1 MW at wheel
Charging System	DC Fast Charging Separate Contract
Size of Train	L 170' W TBD

## Program Overview

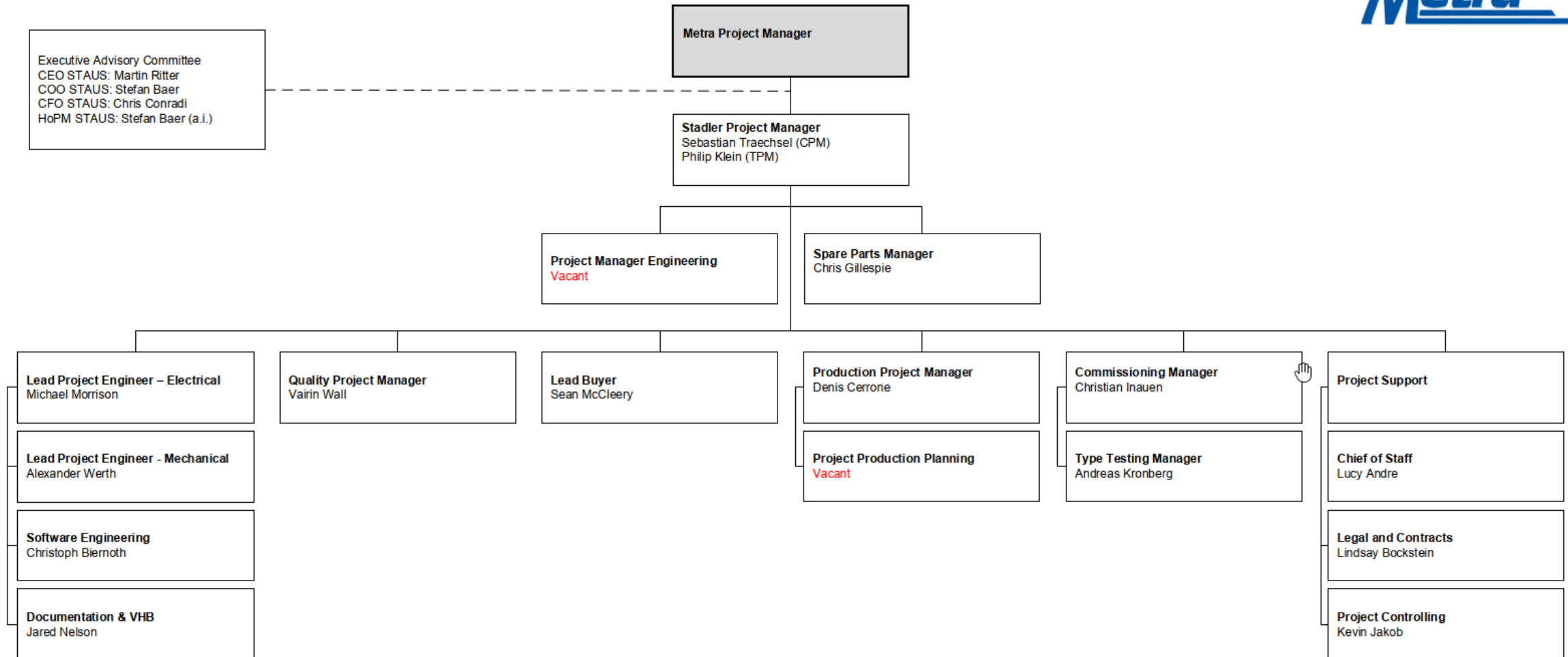
Customer	Metra
Award	February, 22 <sup>nd</sup> 2024
Notice to Proceed	June 4 <sup>th</sup> , 2024
Due Date	June 2028
Base Order	8 x FLIRT 2-cars
Options	8 x FLIRT 2-cars with optional Up to 16 x 3 <sup>rd</sup> car (w/o toilet) Up to 16 x 4 <sup>th</sup> car (with toilet)



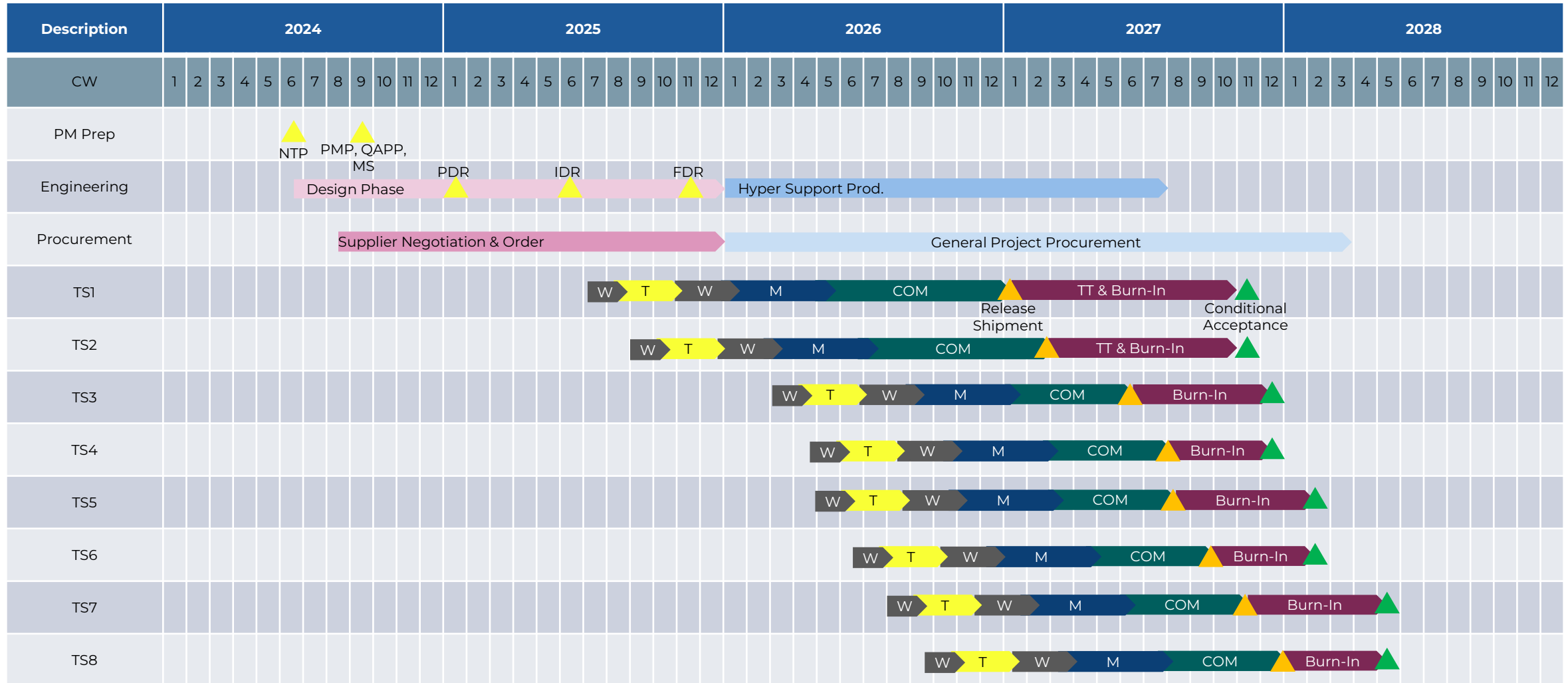
# Organizational-Chart



## L-4608 Metra Project Organization Chart



## Program Schedule – Original

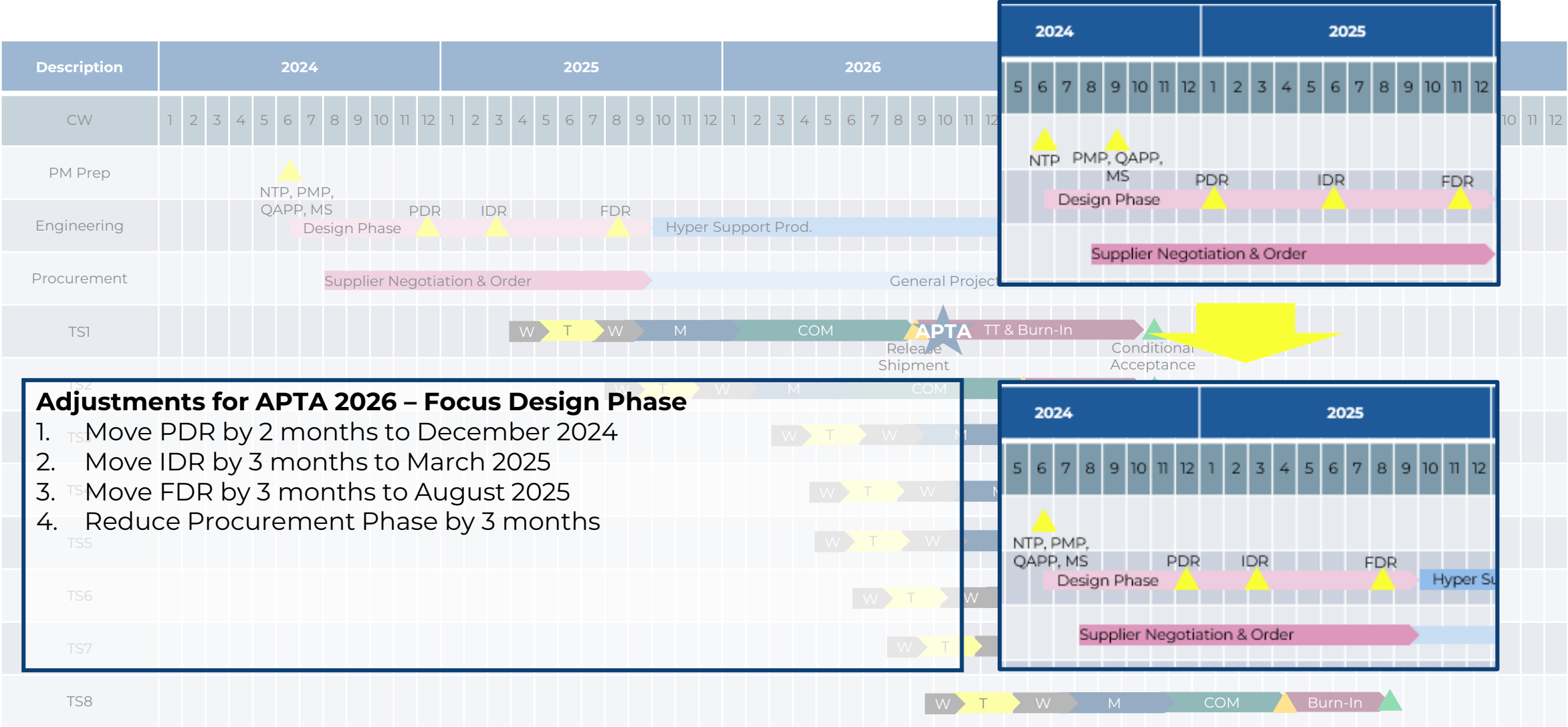




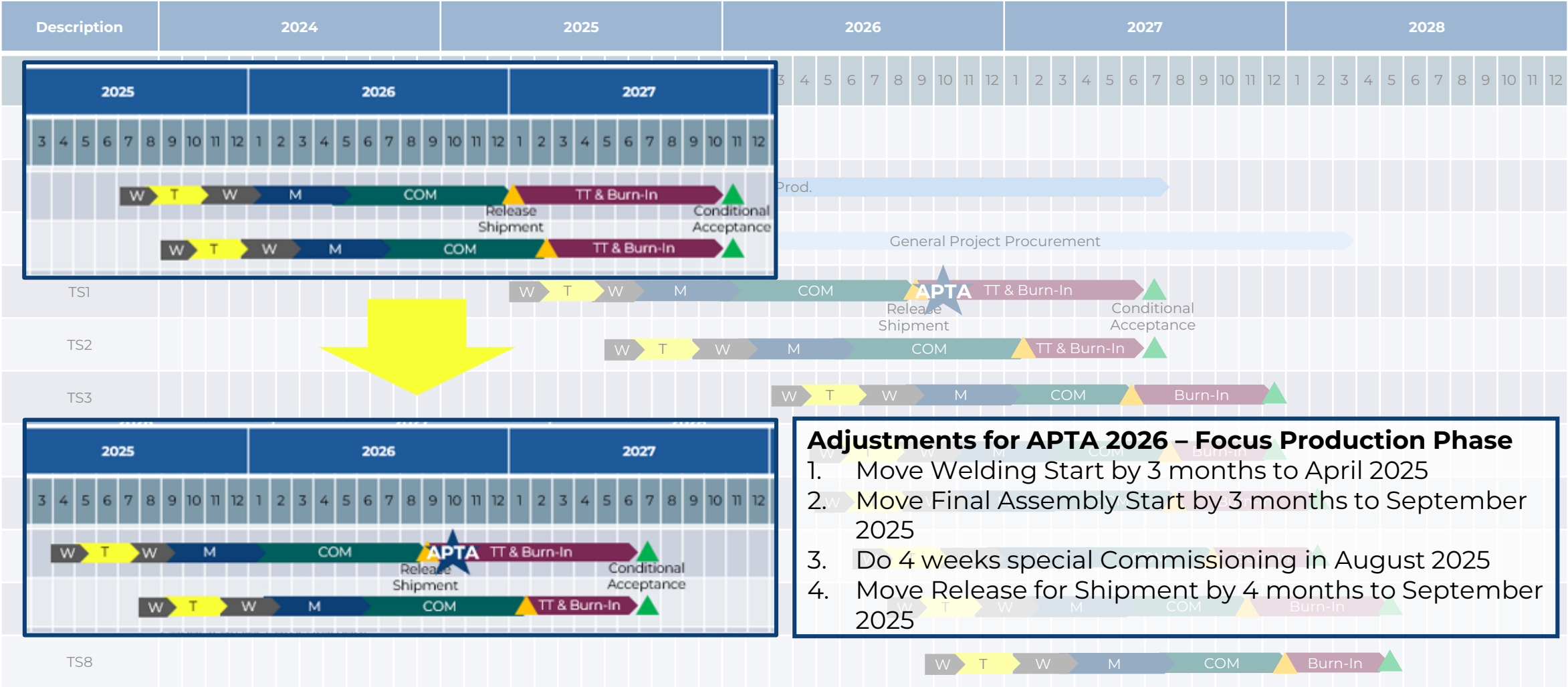
## Program Schedule – FLIRT Running @ APTA



# Program Schedule – FLIRT Running @ APTA



# Program Schedule – FLIRT Running @ APTA





# Challenges for the Schedule APTA 2026

## Workshop Collection

### ENGINEERING

- Positive that it is an of-the-shelf product
- Battery Design
- Give dates early to Metra to expedite schedule
- FAI schedule has to be defined early

### PROCUREMENT

- Lead Time has to be managed carefully

### PRODUCTION

- ...

### TESTING

- Transportation to APTA can take up to 3-4 Weeks
- Infrastructure for TT is in place at Chicago

### OPERATING

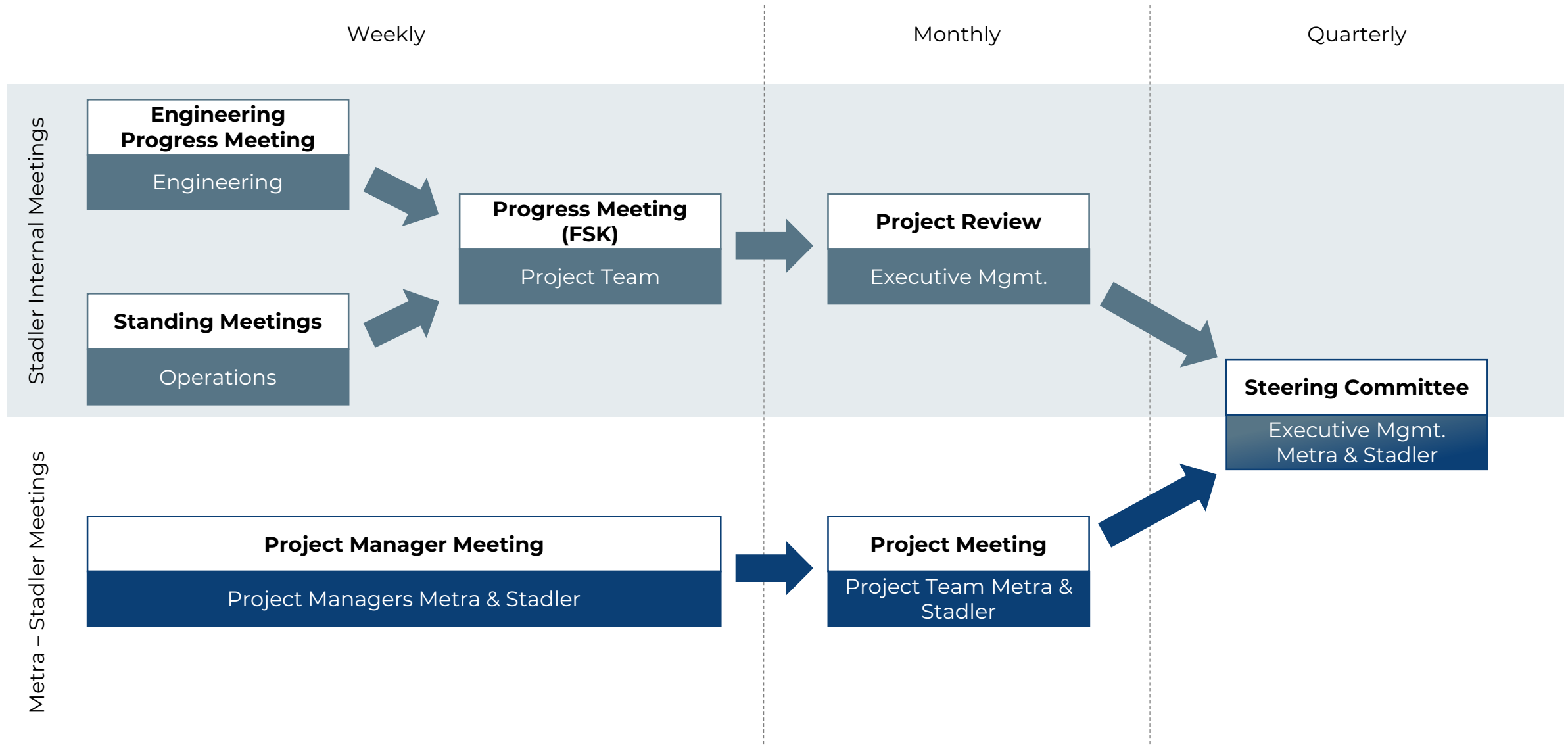
- Define operation and revenue service schedule after testing experiences
- Define interface of charging structure
- Shunting of the grading crossings

# 04

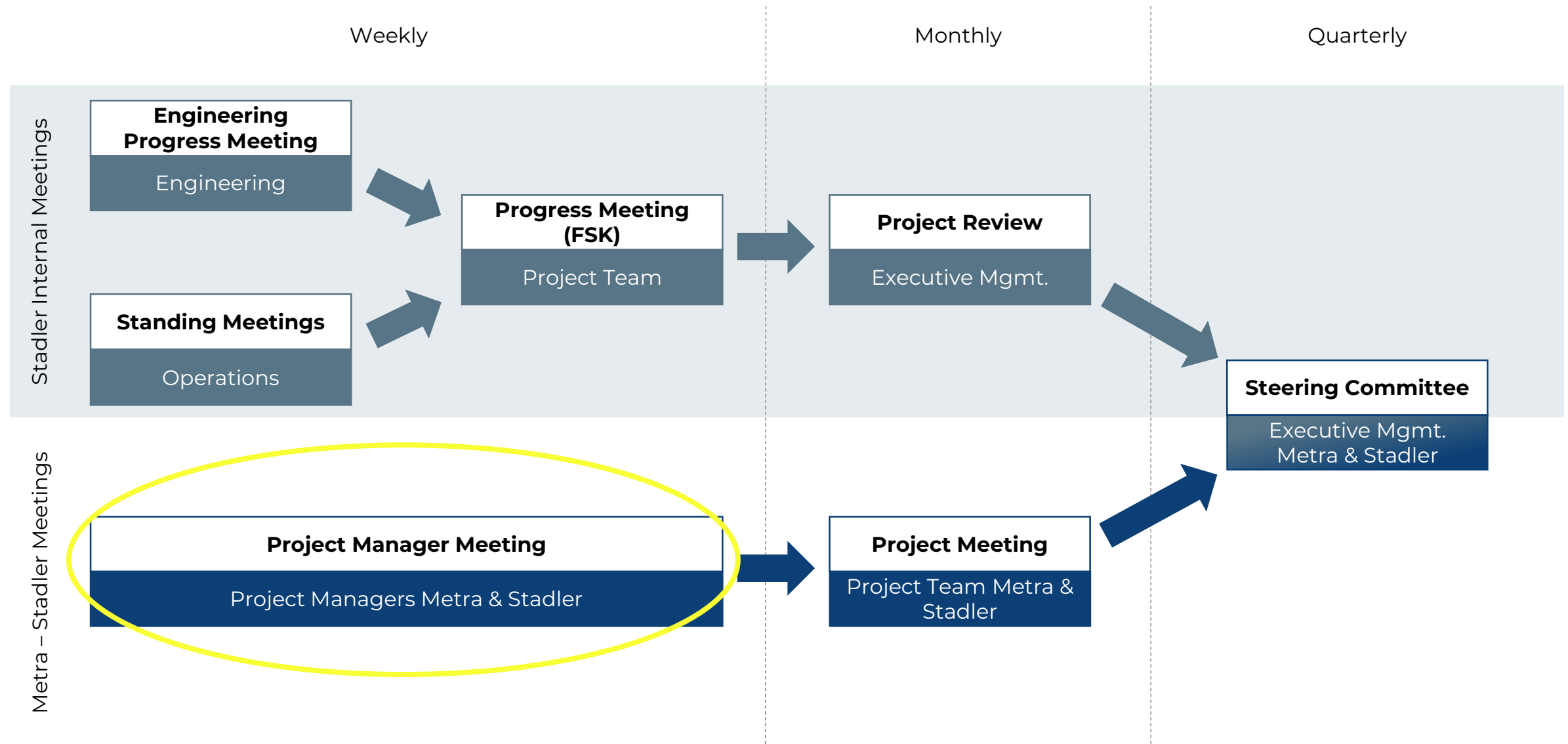
## Formal Communication Procedures, Reporting Channels

Meeting Schedule and Structure, Regular Reporting & Letters and Filing Tools

# Meeting Structure



# Meeting Structure



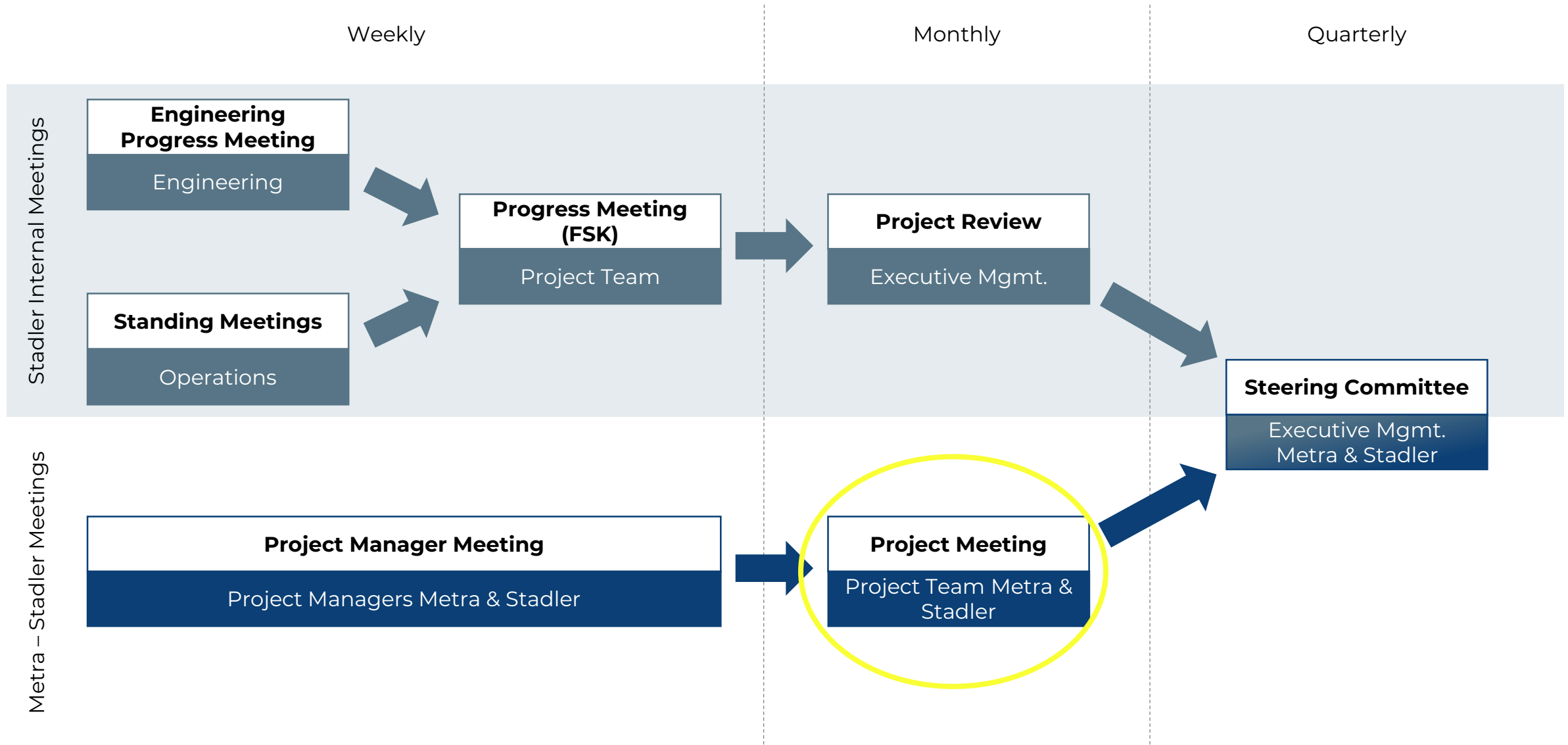


## Project Manager Meeting – Metra & Stadler

What	Frequency	Participants	Agenda
Project Manager Meetings	Weekly	<ul style="list-style-type: none"><li>• Metra PM</li><li>• Metra project engineer</li><li>• Stadler CPM <b>(host)</b></li><li>• Stadler TPM</li></ul>	<ol style="list-style-type: none"><li>1. Open to current relevant topics</li><li>2. Review Q&amp;A Sheet</li></ol>

**Decision to be made: Starting in July – what day of the week?**

# Meeting Structure



## Project Team Meeting – Metra & Stadler

What	Frequency	Participants	Agenda
Monthly Project Meeting	Monthly	<ul style="list-style-type: none"><li>• Metra PM</li><li>• Metra engineers</li><li>• CPM <b>(host)</b></li><li>• TPM</li><li>• Metra principle consultant</li><li>• Additional relevant specialists as needed</li></ul>	<ol style="list-style-type: none"><li>1. Project progress previous month</li><li>2. 6 week project look-a-head</li><li>3. Open submittals Metra</li><li>4. Open letters/responses Stadler</li><li>5. Open quality items</li><li>6. Open engineering dispositions</li><li>7. Project deliverables tracking matrix</li><li>8. Other topics as necessary</li></ol>

**Decision to be made: Starting in July – what day and what week of the month?**

# Letter and Document Approval Process

Action				ISSUE RESOLVING PROCESS			
	UPLOAD OF DOCUMENTS	SEND OFFICIAL LETTER	REVIEW DOCUMENTS	RESPONSE LETTER	SETUP CLARIFICATION MEETING	RESUBMIT RESOLVED DOCS & LETTER	APPROVAL OF DOCUMENTS
Content	<ul style="list-style-type: none"> <li>Letter</li> <li>Required Document</li> <li>Q &amp; A Template</li> </ul>	<ul style="list-style-type: none"> <li>E-Mail</li> <li>Letter</li> </ul>	<ul style="list-style-type: none"> <li>Q &amp; A</li> <li>Uploaded Documents</li> </ul>	<ul style="list-style-type: none"> <li>Filled out Q &amp; A</li> <li>Letter</li> <li>Approved Documents</li> <li>E-Mail</li> </ul>	<ul style="list-style-type: none"> <li>Q &amp; A Resolving Question</li> <li>Only if needed</li> </ul>	<ul style="list-style-type: none"> <li>Letter</li> <li>Adjusted Document</li> <li>Answered Q&amp;A</li> <li>E-Mail</li> </ul>	<ul style="list-style-type: none"> <li>Letter</li> <li>E-Mail</li> </ul>
Timeline	Based on Schedule	With Upload	Max. 20 days	Max. 20 days	ASAP	ASAP	Max. 20 days
Executor	Stadler	Stadler	Metra	Metra	Stadler	Stadler	Metra
Only required if questions occur							



Formal Communication Procedures, Reporting Channels

# Folder Structure

### 1. Top Level Folder

SharePoint [COMM] Metra\_Stadler\_Collaboration Private group

Home, Conversations, Documents, Shared with us, Notebook, Site contents, Recycle bin, Edit

Documents

In channels

In site library

Name	Modified	Modified By	+ Add column
01_Correspondence	June 11	Trischel Sebastian STAUS	
02_Approved Documents	June 11	Trischel Sebastian STAUS	
03_Reporting	June 11	Trischel Sebastian STAUS	
Announcements	June 11	SharePoint App	
General	June 11	SharePoint App	
Planning	June 11	SharePoint App	
Resources	June 11	SharePoint App	

### 2. Correspondence Folder

SharePoint [COMM] Metra\_Stadler\_Collaboration Private group

Home, Conversations, Documents, Shared with us, Notebook, Site contents, Recycle bin, Edit

Documents > 01\_Correspondence

Name	Modified	Modified By	+ Add column
0101_STAUS-METRA	Tuesday at 18:54	Trischel Sebastian STAUS	
0102_METRA-STAUS	Tuesday at 18:55	Trischel Sebastian STAUS	

### 3. From STAUS to Metra

SharePoint [COMM] Metra\_Stadler\_Collaboration Private group

Home, Conversations, Documents, Shared with us, Notebook, Site contents, Recycle bin, Edit

Documents > 01\_Correspondence > 0101\_STAUS-METRA

Name	Modified	Modified By	+ Add column
STAUS-METRA-0001	Tuesday at 18:51	Trischel Sebastian STAUS	

### 4. Inside a Letter Folder

SharePoint [COMM] Metra\_Stadler\_Collaboration Private group

Home, Conversations, Documents, Shared with us, Notebook, Site contents, Recycle bin, Edit

Documents > 01\_Correspondence > 0101\_STAUS-METRA > STAUS-METRA-0001

Name	Modified	Modified By	+ Add column
01_Project Management Plan	1 day ago	Trischel Sebastian STAUS	
02_CDRL C-1-03_QAPP	1 day ago	Trischel Sebastian STAUS	
03_Master Program Plan	1 day ago	Trischel Sebastian STAUS	
STAUS-METRA-0001 Submittal of PMP, QAPP (CDRL C-1-03) and Master Program Plan.pdf	1 day ago	Trischel Sebastian STAUS	
STAUS-METRA-0001_Q&A_Tracker.xlsx	2 minutes ago	Klein Philip Andrew STAUS	

## Formal Communication Procedures, Reporting Channels

### Document Examples

# Letter

STAUS-METRA-0001

STADLER

5880 W 150 S, Salt Lake City UT

Metra  
547 W. Jackson Blvd., 11<sup>th</sup> & 16<sup>th</sup> Floor  
Chicago, Illinois 60661  
Attn: Chief Mechanical Officer, Sean Conrin  
Attn: Sr. Project Manager, Phil Romito

EDITING Sebastian.Traechsel  
MOBILE +1 385 226 9565  
E-MAIL Sebastian.Traechsel@stadlermail.com  
RESPONSE REQUIRED  
ENCLOSURES Sharepoint

Salt Lake City, 14 June 2024

**Submittal of PMP, QAPP (CDRL C-1-03) and Master Program Plan**

Dear Sean and Phil



Stadler would like to submit this letter, along with the requested documents for the first Payment Milestone:

- Project Management Plan (PMP)
- C-1-03 Quality Assurance Program Plan (QAPP)
- Master Program Schedule

With the submittal of the QAPP, we propose to close the CDRL C-1-03. There are no CDRL's for the Master Program Schedule and PMP specified in the Technical Specification M-22-001. The Master Program Schedule will be updated as needed, where as the QAPP and the PMP will generally not be updated. Exceptions include but are not limited to significant changes in Stadler processes, change of key personnel (Commercial, Technical or Quality Project Manager), or changes on the project scope.

Your prompt review and approval of this submittal is greatly appreciated. Should you have any questions, please feel free to contact us directly.

Kind regards


Sebastian Traechsel  
Commercial Project Manager

Philip Klein  
Technical Project Manager

Attachments: [\[COMMI\] Metra, Stadler Collaboration - STAUS-METRA-0001 - All Documents \[sharepoint.com\]](#)

5880 W 150 S, SLC, UT, 84104 1/1

# CDRL Overview

Confidential	STADLER		
<b>1 CDRL Definition</b>			
<b>1.1 Title</b>	CDRL C-1-03 Quality Assurance Program Plan (QAPP)		
<b>1.2 Technical Specifications</b>	TS 1.3 & 22.1 		
<b>1.3 Contractual Description</b>	<p>1.3.7 The Contractor shall submit the following with CDRLs after 60 days of NTP for review, the Contracting Authority shall be the sole judge of compliance of the Contractor's submittals to the Contracting Authority's requirements and the appropriate quality assurance standards:</p> <p>1.3.7.1 Contractor's Quality Assurance Program Plan and Procedures [CDRL C-1-03]</p>		
<b>2 List of Requirements</b>			
Paragraph in Customer Spec	Title	Requirement	Evidence
22.1.1	Quality Assurance	It is the intent of these Specifications that inspection of the car and its components be the responsibility of the Contractor and the Manufacturers and that inspections be performed at the plants of the Contractor and the Manufacturers so that corrections can be made under factory conditions.	TSCI

QP 602 \_

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## Submitted Document

CDRL 1-03 QAPP

STADLER

Document – No. QP-6011

Index –

State Released

Type of document Submittal

Number of pages 13

Project Metra FLIRT BEMU

## Quality Assurance Program Plan (QAPP)

L-4608 Metra FLIRT BEMU | CDRL 1-03

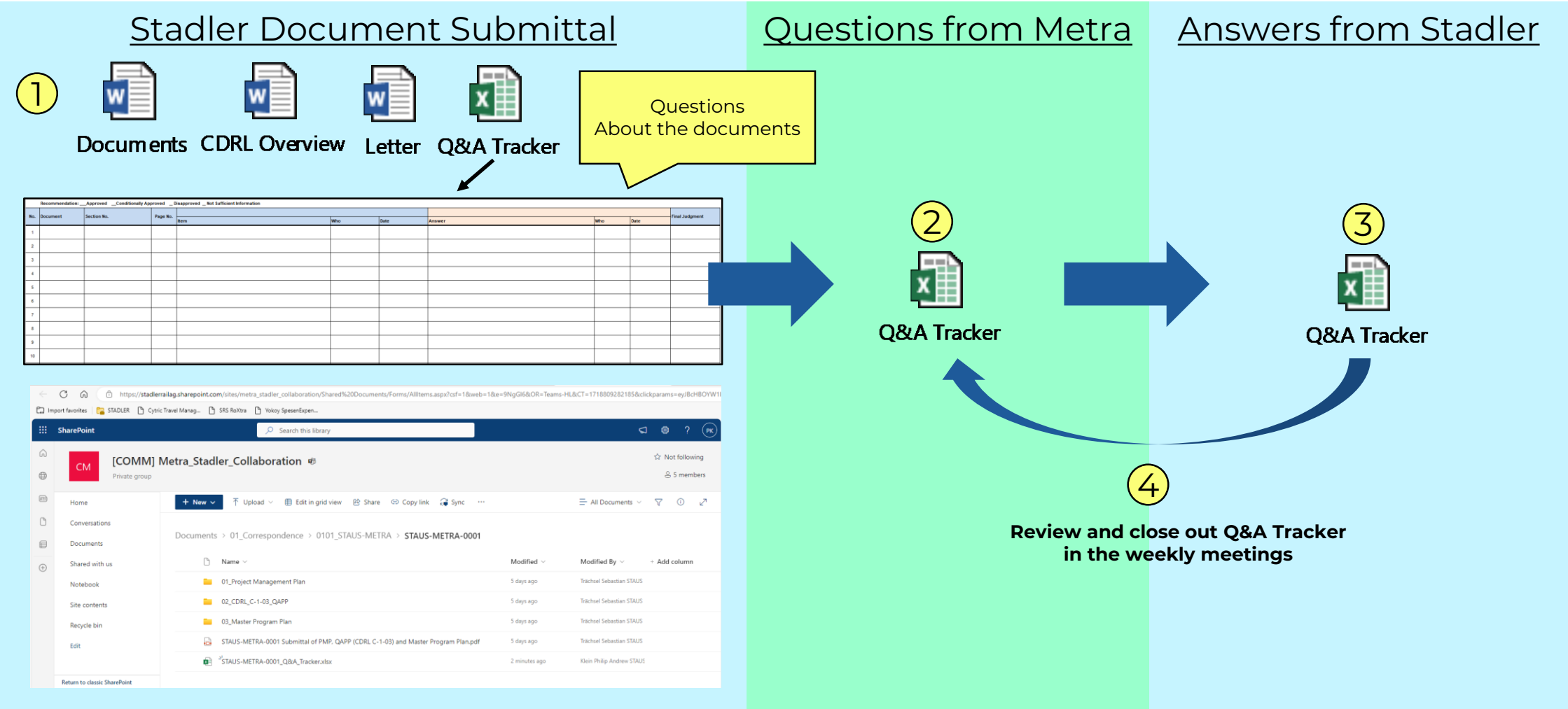
Created (first version)		Checked (current index)		Released (current index)	
Name	Date	Name	Date	Name	Date
Walvai	4/22/2024	Lambre	6/4/2024	Baicla	6/13/2024

### Revision History

Index	Modification	Date	Author	Checked	Released
c	Original		Walvai	Lambre	Baicla
a					
b					
d					

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# Stadler Document Submittal: STAUS-METRA\_0000\_Q&A\_Tracker



# 05

## Questions about the Project

Contract, Tech. Spec., CDRL, Schedule,  
Collaboration etc.



Questions about the Project

Stadler Question Submittal: STAUS-METRA-PROJECT\_Q&A\_Tracker

1

Questions from Stadler

PROJECT Q&A

Recommendation	Approved	Conditionally Approved	Not Approved	Not Sufficient Information					
Doc. Number	Section No.	Page No.	Item	Notes	Date	Answer	When	Date	Final Judgment
1	Stadler SSPP	Section 16	43	1. What is the unit of measure for the probability of occurrence in the Risk Management Likelihood Scale "Table 1"?	Stadler: Philip Klein	June 13, 2024			
2	Stadler Specification for CDRL	CDRL C-1.4.0 Contractors SW QAP	142	1. It appears that C-1.4.0 and C-21.27 reference the same CDRL. Software Quality Assurance? 2. Is C-21.4 an Outline document and C-21.27 the actual document?	Stadler: Philip Klein	June 13, 2024			
3	Stadler Specification for CDRL	Training	139	1. Has heavy maintenance training been done?	Stadler: Philip Klein	June 13, 2024			
4	Stadler Specification for CDRL	Training	140	23.10.1: Does the training include safety training?	Stadler: Philip Klein	June 13, 2024			
5	Stadler Specification for CDRL	Training	140	23.10.2: Does the training include safety training?	Stadler: Philip Klein	June 13, 2024			
6	Stadler Specification for CDRL	Training	140	23.10.3: Does the training include safety training?	Stadler: Philip Klein	June 13, 2024			
7	Stadler Specification for CDRL	Training	140	23.10.4: Does the training include safety training?	Stadler: Philip Klein	June 13, 2024			
8	Stadler Specification for CDRL	Training	140	23.10.5: Does the training include safety training?	Stadler: Philip Klein	June 13, 2024			
9	Stadler Specification for CDRL	Training	140	23.10.6: Does the training include safety training?	Stadler: Philip Klein	June 13, 2024			
10	Stadler Specification for CDRL	Training	140	23.10.7: Does the training include safety training?	Stadler: Philip Klein	June 13, 2024			

2

Answers from Metra

PROJECT Q&A

Summary of Questions

Metra SSPP

MIL-STD 882

Risk Analysis and Assessment

The identified risks are subjected to analysis based on the standard likelihood-by-severity formula. The likelihood is measured based on how likely the risk is expected to be realized. The severity is measured based on the potential consequences expected from realizing the risk. A combination of both quantitative and qualitative inputs is used to determine likelihood and severity. Data used to determine frequency include records of the work performed and event intervals (quantitative) along with feedback from employees and management. Data used to determine severity includes any history of risk realization (incidents/accidents/equipment failures) or reported close calls, along with employee experience and feedback from Safety. Performing this analysis yields a result that enables each risk to be assessed using two scales. The scales measure likelihood and severity, as determined by the risk analysis. The likelihood scale has a letter-based value range of A to E, based on MIL-STD-882E methodology. The higher the grade, the more likely the risk is expected to be realized. The risk management likelihood scale is depicted in the following table:

Probability	Value	Qualitative Meaning	Quantitative Meaning
Frequent	A	Likely to occur frequently to an individual asset or subsystem. Continuously experienced in the asset or subsystem.	Probability of occurrence greater than or equal to 10 <sup>-1</sup> (10%).
Probable	B	Will occur several times in the life of an asset or subsystem. Will occur frequently in the asset or subsystem.	Probability of occurrence less than 10 <sup>-1</sup> (10%) but greater than or equal to 10 <sup>-2</sup> (1%).
Occasional	C	Likely to occur sometime in the life of an asset or subsystem. Will occur several times in the asset or subsystem.	Probability of occurrence less than 10 <sup>-2</sup> (1%) but greater than or equal to 10 <sup>-3</sup> (0.1%).

Example

Table 5: Likelihood of Occurrence

Frequency	Level	Within Specific Individual Items	Within a Fleet or Inventory
Frequent	A	Qualitative: Likely to occur often in the life of an item. Exposed to the hazard once a day. Quantitative: Mean Time Between Events (MTBE) is less than 1000 operating hours.	Continuously experienced
Probable	B	Qualitative: Will occur frequently. Will occur several times in life of an item. Exposed to the hazard once a week. Quantitative: MTBE is equal to or greater than 1000 operating hours and less than 100,000 operating hours.	Will occur frequently
Occasional	C	Qualitative: Likely to be occur sometime in life of item. Exposed to the hazard once a month. Quantitative: MTBE is equal to or greater than 100,000 operating hours and less than 1,000,000 operating hours.	Will occur several times
Remote	D	Qualitative: Unlikely but possible to occur in life of item. Exposed to the hazard once per year. Quantitative: MTBE is equal to or greater than 1,000,000 operating hours.	Unlikely, but can be reasonably expected to occur

EN Specification

EN 50126-1:2007

Table C.1 — Frequency of occurrence of hazardous events with examples for quantification (based on)

Frequency level	Description	Example of a frequency range based on a single item operating 24 hr/day	Example of equal occurrence in a 10-item fleet operating 8000 hr/year
Frequent	Likely to occur frequently. The event will be frequently experienced.	Expected to happen more than once within a period of approximately 6 weeks	more than about 1 times
Probable	Will occur several times. The event can be expected to occur often.	approximately once per 6 weeks to once per year	about 15 to 150 times
Occasional	Likely to occur several times. The event can be expected to occur several times.	approximately once per 1 year to once per 10 years	about 2 to 15 times
Rare	Likely to occur sometime in the system life cycle. The event can reasonably be expected to occur.	approximately once per 10 years to once per 100 years	perhaps once at 10 years
Improbable	Likely to occur but possible. It can be assumed that the event may exceptionally occur.	approximately once per 100 years to once per 1,000 years	not expected to happen within the lifetime
Highly improbable	Extremely unlikely to occur. It can be assumed that the event will not occur.	once in a period of approximately 100,000 years or more	extremely unlikely

Metra - Stadler Kick-off | 06/19/24 | Sebastian Traechsel & Philip Klein | © Stadler

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**Metra**

Questions from Metra and  
Stadler

**STADLER**