

Service Terminal ST03A	Knorr	Old: 2.4.07 New: 3.2.10	Airbrake	Only for Metra Electric new Highliners. This software requires a license and activation for usage on laptops. Include METRA_ST03.prz project file. Setup File: Setup.exe	No	No	Yes
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Onboard Cab Signal and Engine Management Software and Hardware Revisions

Acceptable Software/Hardware Revisions:

For MPI Locomotives (401-427)

Location	Function	Part. No	Revision	Acceptable Revisions
Inside short hood	EPIC CCU (406, 407, 408, 409, 410, 412)	N/A	D	D
Inside short hood	EPIC BCU (406, 407, 408, 409, 410, 412)	N/A	D	D
Inside short hood	EPIC CCU (all except 406, 407, 408, 409, 410, 412)	N/A	B	B
Inside short hood	EPIC BCU (all except 406, 407, 408, 409, 410, 412)	N/A	B	B
Back wall of cab (QES-III MMI)	Main Engine Software	N/A	11A10MC	11A10MC
Back wall of cab (QES-III Software)	CPU Software for Original Inverter HEP with Mechanical Injection	2102886 Rev. -	11B01MC	11B01MC
Back wall of cab (QES-III Software)	CPU Software for Capatillar HEP with Mechanical Injection Only	2081415 Rev. C	11A13MC	11A13MC
Back wall of cab (QES-III Software)	Comm CPU Software for Full Rehabbed (with Caterpillar HEP and EFI)	2097222 Rev. D	30095 1.0.2.0	30095 1.0.2.0
Back wall of cab (QES-III Software)	Configurable Parameter File for Full Rehabbed (with Caterpillar HEP and EFI)	2097223 Rev. E	4	4
Back wall of cab (QES-III Software)	CDU Display for Full Rehabbed (with Caterpillar HEP and EFI)	2090515 Rev. F or higher	5.1.4.0 or higher	5.1.4.0 or higher
Back wall of cab (QES-III Software)	CDU Help/Config File for Full Rehabbed (with Caterpillar HEP and EFI)	2097221 Rev. A	A	A
(EFI Controller, MVC-01 System)	EFI Controller Metra Firmware for Full Rehabbed (with Caterpillar HEP and EFI)	2102528	63.0.0.8	63.0.0.8
(EFI Controller, MVC-01 System)	EFI Controller Parameters (Metra) for Full Rehabbed (with Caterpillar HEP and EFI)	2102530	1.0.0	1.0.0
(Caterpillar, ECM System)	ECM Software for C18 for Capatillar HEP Only	N/A	3948205	3948205
Back of ATC Enclosure	Enclosure	D1249H01-A01	0	0
Inside ATC Enclosure	ATC Cardfile	D1249H02-A01	0	0
Inside ATC Enclosure	Power Supply	D1249H23-A01	1	1
Left side of ATC Enclosure	Interconnect PCB	D1249H08-A01	3	1-3
Left side of ATC Enclosure	ISO RS-232 PCB	C1249H62-A01	1	1
Left side of ATC Enclosure	Configuration Module PCB	D1249H10-A01	3	3
Back of ATC Enclosure	Switch Panel	D1249H48-A01	0	0
Inside Cardfile	Motherboard PCB	D1249H06-A01	2	2
G60-A05 MAIN	Main PCB Hardware	D065G60-A05	3	0-3
G60-A05 MAIN on IC1	Main PCB application software	A071G02-A31	6	4-6
G60-A05 MAIN on IC16	Main PCB vital power supply	A071G03-A01	1	1
Attached to G60-A05 MAIN PCB	Daughter PCB Hardware	C065G66-A05	3	0-3
Attached to G60-A05 MAIN PCB on IC3	Daughter PCB - added memory	A071G05-A08	6	6
G09-A22 I/O	I/O PCB Hardware	D065G09-A22	2	0-2
G09-A22 I/O on IC1	I/O PCB application software	A071G04-A36	2	2
G09-A22 I/O on IC16	I/O PCB vital power supply	A071G03-A01	1	1
Attached to G09-A22 I/O	Daughter PCB Hardware	B065G29-A22	1	1
G09-A23 DECODER	Decoder PCB Hardware	D065G09-A23	2	0-2
G09-A23 DECODER on IC1	Decoder PCB application software	A071G04-A34	1	1
G09-A23 DECODER on IC16	Decoder PCB vital power supply	A071G03-A01	1	1
Attached to G09-A23 DECODER	Daughter PCB Hardware	B065G29-A23	0	0
G09-A24 SPEED I/O	Speed I/O PCB Hardware	D065G09-A24	3	1-3
G09-A24 SPEED I/O on IC1	Speed I/O PCB application software	A071G04-A35	1	0-1
G09-A24 SPEED I/O on IC16	Speed I/O PCB vital power supply	A071G03-A01	1	1
Attached to G09-A24 SPEED I/O	Daughter PCB Hardware	B065G29-A24	0	0
H32-A03 INTERFACE	Interface PCB Hardware	D302H32-A03	3	1-3
H50-A10 CAB TEST	Cab Test PCB Hardware	D185H50-A10	3	1-3
H50-A10 CAB TEST on IC1	Cab Test PCB application software	A071G02-A32	1	0-1
H04-A02 DETECTOR	ATS Detector PCB Hardware	D293H04-A02	2	2
G06-A12 60HZ	60Hz Filter PCB Hardware	D109G06-A12	2	1-2
G06-A13 100HZ	100Hz Filter PCB Hardware	D109G06-A13	2	1-2
Cab of Locomotive	ADU	D1249H37-A01	0	0
Cab of Locomotive	ADU Display PCB	D1249H38-A01	2	1-2

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Current Revision: 5/8/2018

Previous Revision: 3/31/2015

Onboard Cab Signal and Engine Management Software and Hardware Revisions

Acceptable Software/Hardware Revisions:

For F40PHM and F40PH-2 (150-214)

Location	Function	Part. No	Revision	Acceptable Revisions
Slot 5 board	System Processor	40025-139-01	H	H
Slot 5 board	PCB Hardware	59473-849-05	M	K,L,M
Slot 13 board	Governor	40025-140-01	H	H
Slot 13 board	PCB Hardware	59473-849-06	P	M, N, P
Slot 11 board	System Test Board	40025-141-01	F	C, D, F
Slot 11 board	PCB Hardware	59473-901-05	H	F, G, H
Slot 6 board	Vital Input	39780-273-01	B	B
		39780-273-02	B	B
Slot 6 board	PCB Hardware	59473-845-03	J	H,J
Slot 7 board	Vital Input	39780-273-03	B	B
		39780-273-04	B	B
Slot 7 board	PCB Hardware	59473-845-05	H	H
Slot 8 board	Single Break Output	39780-275-01	A	A
Slot 8 board	PCB Hardware	59473-885-01	F	E, F
Slot 9 board	Single Break Output	39780-275-02	A	A
Slot 9 board	PCB Hardware	59473-885-02	F	E, F
		39780-274-01	B	B
Slot 10	Double Break Output	39780-274-02	A	A
Slot 10	PCB Hardware	59473-876-01	H	G, H
Slot 14	VPC	40025-068-01	D	B, C, D
Slot 14	PCB Hardware	59473-848-06	K	E, F, G, H, K

For Cab Cars (8400-8478, 8501-8608)

Location	Function	Part. No	Revision	Acceptable Revisions
Slot 5 board	System Processor	40025-190-01	F	F
Slot 5 board	PCB Hardware	59473-849-19	H	F, G, H
Slot 13 board	Governor	40025-189-01	B	B
Slot 13 board	PCB Hardware	31166-037-08	G	D, E, F, G,
Slot 11 board	System Test Board	40025-184-01	C	B, C
Slot 11 board	PCB Hardware	59473-901-08	H	E, F, G, H
Slot 6 board	Vital Input	39780-273-01	B	B
		39780-273-02	B	B
Slot 6 board	PCB Hardware	59473-845-03	J	H, J
Slot 7 board	Vital Input	39780-273-03	B	B
		39780-273-04	B	B
Slot 7 board	PCB Hardware	59473-845-05	H	H, J
Slot 8 board	Single Break Output	39780-275-01	A	A
Slot 8 board	PCB Hardware	59473-885-01	F	E, F
Slot 9 board	Single Break Output	39780-275-02	A	A
Slot 9 board	PCB Hardware	59473-885-02	F	E, F
		39780-274-01	B	B
Slot 10	Double Break Output	39780-274-02	A	A
Slot 10	PCB Hardware	59473-876-01	H	G, H
Slot 14	VPC	40025-068-01	D	D
Slot 14	PCB Hardware	59473-848-06	K	E, F, G, H, J, K

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Current Revision: 5/8/2018

Previous Revision: 3/31/2015

Mechanical Department Quality Plan

PROCEDURE TITLE: Purchasing

Mechanical Department MQPP Procedure # MQPP-05.01

REVISION HISTORY

DOCUMENT REVISION HISTORY				
REVISION DATE	REVISION NUMBER	SECTION NUMBER	REASON FOR REVISION	DESCRIPTION
5/5/16	N/A	N/A	N/A	NEW PROCEDURE

Mechanical Department Quality Plan

PROCEDURE TITLE: Purchasing

Mechanical Department MQPP Procedure # MQPP-05.01

1.0 PURPOSE

- 1.1 The purpose of this document is to establish the procedure for the procurement of products and services as it relates to the Metra Mechanical Department Capital projects.

2.0 SCOPE

- 1.1 This procedure applies to all Mechanical Department employees when purchasing procuring products or services. This document establishes the procedure for the procurement of products and services as it relates to the Metra Mechanical Department Capital projects.

3.0 PROCEDURE/PROCESS/INSTRUCTIONS

4.1 Procurement of products and services

- 4.1.1 Requisition – Complete the following prior to submittal to procurement department:
 - 4.1.1.1 Requisition form – Complete making sure to include delivery location and any special instructions
 - 4.1.1.2 Requisition Checklist
 - 4.1.1.3 Independent Cost Estimate (ICE)
 - 4.1.1.4 Price List – Complete with all items to be procured and proper identification of each. If specification does not specify a timeline for project deliverables, specify on price list.
 - 4.1.1.5 Technical requirements and scope of work including but not limited to specifications, drawings, salient characteristics, etc...
 - 4.1.1.6 Mechanical Department Management approval – Obtain signature
 - 4.1.1.7 Financial Approval – Obtain grants or budget approval based on type of funding being used for procurement.
 - 4.1.1.8 Insurance/Risk – Obtain signature and documents if required
 - 4.1.1.9 OBDCR – Obtain Signature if procurement is over \$100,000
- 4.1.2 Submittal – Submit requisition to the procurement department for processing
- 4.1.3 Vendor compliance evaluation – Request will be sent from the Procurement Department and must be performed prior to the award of contract. Evaluation shall be completed to ensure the vendor is capable of the following:

Mechanical Department Quality Plan

PROCEDURE TITLE: Purchasing

Mechanical Department MQPP Procedure # MQPP-05.01

4.1.3.1 Meeting all technical requirements including but not limited to all specifications and drawings.

4.1.3.2 Meeting all delivery requirements

4.1.3.3 Meeting all project deliverables

4.2 Procured products and services

4.2.1 A purchase order will be issued from the procurement department

4.2.2 Upon receipt of purchase order:

4.2.2.1 Contact the vendor for a schedule for all deliverables

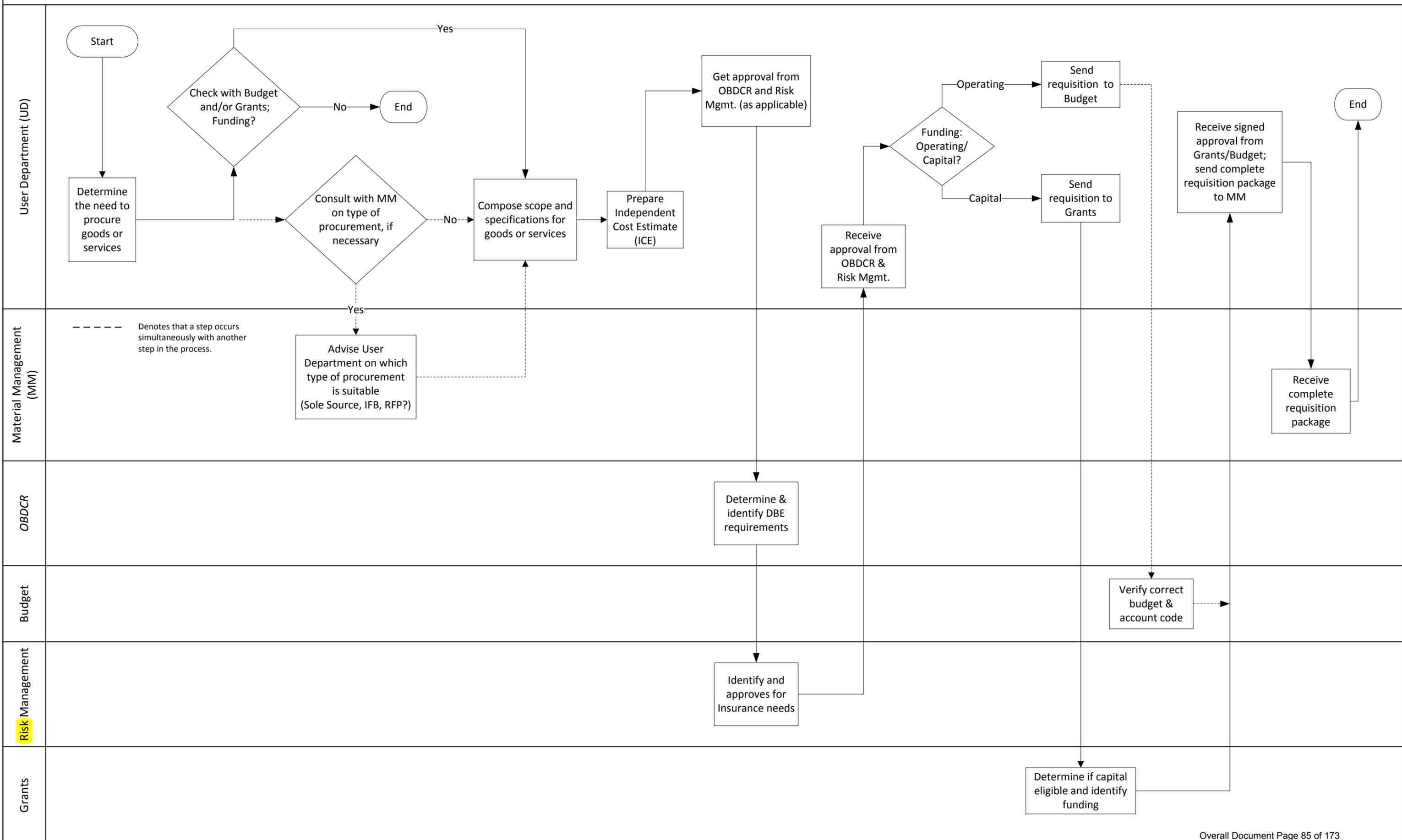
4.2.2.2 Review and either approve or deny all deliverables

4.2.2.3 Ensure all deliverables have been met

4.2.2.3.1 If vendor is not capable of meeting the deliverables of the contract the process of putting the vendor in breach of contract shall be started.

5.0 Attachments

5.1 Appendix A: Metra Requisition Package Process



Date:	
Prepared By:	
Department:	
Requisition Number:	

**INDEPENDENT COST ESTIMATE CALCULATION WORKSHEET
for Materials and Equipment**

Converts Previous Purchases to Current Prices (PPI)

To develop a current equivalent price for a previously purchased item, enter the price for each Item Number in the column for the year it was last purchased.
Also complete Number of Items to calculate a Line Total and Grand Total.
Note: For Services/Labor use the Labor tab.

Materials and Equipment Item Description	2011	2012	2013	2014	2015	2016	Current Equivalent Price	Number of Items	Line Total
Item #1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GRAND TOTAL									0.00

For Blanket Contracts, indicate the number of years to escalate the contract (0 to 5 Years).	0
Total Estimated Contract Amount (Including escalation, if any)	\$0.00
The preceding assumes the PPI will remain constant at its current level (96.80% annually).	

Signed by: _____

Date:	
Prepared By:	
Department:	
Requisition Number:	

INDEPENDENT COST ESTIMATE CALCULATION WORKSHEET
for Professional Services and Labor
 Converts Previous Purchases to Current Rates (CPI)

To develop a current equivalent price for a previously purchased item, enter the price for each Item Number in the column for the year it was last purchased.
 Also complete Number of Hours to calculate a Line Total and Grand Total.
 Note: For Materials/Equipment use the Materials tab.

Services and Labor Line Item Description	2011	2012	2013	2014	2015	2016	Current Equivalent Price	Number of Hours	Line Total
Item #1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Item #20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GRAND TOTAL									0.00

For Blanket Contracts, indicate the number of years to escalate the contract (0 to 5 Years).	0
Total Estimated Contract Amount (Including escalation, if any)	\$0.00
The preceding assumes the CPI will remain constant at its current level (99.97% annually).	

Signed by: _____

Requisitioner's Checklist - for IFBs

EXHIBIT D

**For: All capital purchases
All operating purchases over \$40,000**

Requisitioner: Before submitting your Requisition Package to Materials Management:

1. Complete this checklist.
2. Include all required information and attachments.

Requisitioner		Phone #	
Project Manager If applicable		Phone #	

Funding	<input type="checkbox"/> FTA	Blankets only:	Previous PO #
	<input type="checkbox"/> MET/IDOT/RTA		Previous \$ value
	<input type="checkbox"/> Operating		\$
			Remaining \$ value
			\$
			Expiration date

Required Requisition Attachments			
Check off the Attachments as you include them in the Requisition Package. It will be returned if they are not attached.			
Att. #1	<input type="checkbox"/>	Independent Cost Estimate (ICE)	Check both: <input type="checkbox"/> ICE is signed and dated <input type="checkbox"/> Appropriate supporting documentation attached (information used to prepare the ICE - previous POs, published pricing, DOL escalation tools, internet research, etc.)
Att. #2	<input type="checkbox"/>	Scope of work/Descriptive information	Check one or more: <input type="checkbox"/> Salient characteristics/description <input type="checkbox"/> Metra specifications <input type="checkbox"/> Metra drawings (recommend one PDF file, plus for Professional Services: 12 printed copies; or for Procurement: 6 printed copies)
Att. #3	<input type="checkbox"/>	Current price list	
Att. #4	<input type="checkbox"/>	Blankets only: Current signature authorization sheet	

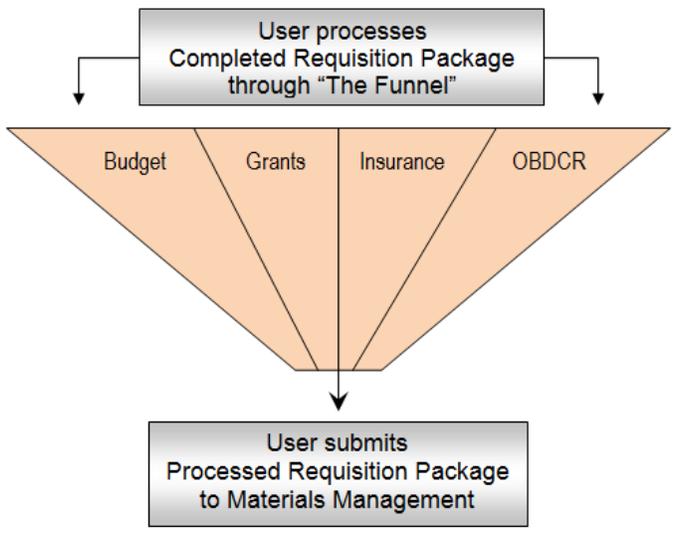
Requisitioner's Checklist - for IFBs

Requisition Package Reviews & Approvals

Before submitting Requisition Package to Materials Management, process it through these Departments, as required.



Att. #5	<p>OBDCR: When \$ value exceeds \$40,000.</p> <p>Check one:</p> <p><input type="checkbox"/> Not applicable</p> <p><input type="checkbox"/> Attachments: OBDCR's DBE Goal language and exhibit</p>
Att. #6	<p>Insurance (Risk): When vendor will perform work on Metra property.</p> <p>Check one:</p> <p><input type="checkbox"/> Not applicable</p> <p><input type="checkbox"/> Attachment: Insurance requirements exhibit</p>
	<p>Funding authorization:</p> <p>Obtain the correct signature in box 25 of the requisition form.</p> <p>Check one:</p> <p><input type="checkbox"/> Capital funds - Grants signature</p> <p><input type="checkbox"/> Operating funds - Budget signature</p>



Procurement Summary Language

Provide descriptive language, in layman's terms, for the Procurement Summary.

Describe the procurement, in detail.	
Why is this procurement required?	
How (or for what) will this procurement be used?	
Which Departments will utilize this procurement?	
In which locations will this procurement be utilized?	

Requisitioner: This checklist is complete, and the six attachments, as required, are included in the Requisition Package.

Print checklist, sign here & attach to Requisition: _____

Mechanical Department Quality Plan

PROCEDURE TITLE: PRODUCT IDENTIFICATION AND TRACEABILITY

Mechanical Department MQPP Procedure # MQPP-06.01

REVISION HISTORY

DOCUMENT REVISION HISTORY				
REVISION DATE	REVISION NUMBER	SECTION NUMBER	REASON FOR REVISION	DESCRIPTION
5/5/16	N/A	N/A	N/A	NEW PROCEDURE

Mechanical Department Quality Plan

PROCEDURE TITLE: PRODUCT IDENTIFICATION AND TRACEABILITY

Mechanical Department MQPP Procedure # MQPP-06.01

1. SCOPE

1.1. This section establishes requirements for identifying and controlling product to prevent the use of incorrect or defective material and assigns responsibilities to ensure that only correct and accepted materials, parts, and components are used or installed. The requirements of this section also apply to third party contracts per contractual agreements, performing work activities affecting quality associated with capital and current projects.

2. PROCEDURE

2.1. All parts shall be physically identified and control. Where physical identification is impossible, other appropriate means, such as physical separation into lots.

2.2. Inspector shall verify and document that items are identified properly.

2.3. Identification for receiving, shipping and/or inventory shall include minimum of:

2.3.1. Item Description

2.3.2. Item Number of Metra and Supplier.

2.3.3. Supplier name and contact number

2.3.4. Serial Number if applicable for specific part.

2.3.5. Purchase Order Number.

2.3.6. Quantity

2.3.7. Date

2.3.8. Visual Inspection for Damage

2.3.9. Any other identifier deemed by purchase order and/or program and/or contract.

2.4. All items stored shall, minimum of

2.4.1. Protection from damage, deterioration, and loss.

2.4.2. Inspection and maintenance during storage and handling.

Mechanical Department Quality Plan

PROCEDURE TITLE: PRODUCT IDENTIFICATION AND TRACEABILITY

Mechanical Department MQPP Procedure # MQPP-06.01

- 2.4.3. Utilization of special storage and handling facilities ad required.
- 2.4.4. Labeling with expiration date for item that have shelf life.
- 2.5. Supplier shall establish procedures for control of materials, parts, components, equipment, etc.
- 2.6. Metra has right to request information from supplier for:
 - 2.6.1. Material Certifications
 - 2.6.2. Test Reports
 - 2.6.3. Process used to make material and products.
 - 2.6.4. Product manufacturing records for traceability to raw material.
 - 2.6.5. Subcontractor Information.
 - 2.6.6. Right to conduct supplier facility audits.



Mechanical Department Quality Plan

PROCEDURE TITLE: MATERIAL CONTROL

Mechanical Department MQPP Procedure # MQPP-06.02

REVISION HISTORY

DOCUMENT REVISION HISTORY				
REVISION DATE	REVISION NUMBER	SECTION NUMBER	REASON FOR REVISION	DESCRIPTION
5/5/16	N/A	N/A	N/A	NEW PROCEDURE



Mechanical Department Quality Management Plan

PROCEDURE TITLE: MATERIAL CONTROL

Mechanical Department MQPP Procedure # MQPP-06.02

1.0 PURPOSE

- 1.1 The purpose of this document is to establish the procedure for the control of capital material as it relates to the Metra Mechanical Department overhaul and rebuild programs.

2.0 SCOPE

- 2.1 This procedure applies to all Mechanical Department employees.

3.0 PROCEDURE

4.1 Acceptance – Upon Transfer of Authority

4.1.1 Review all procured parts or equipment upon receipt at the specified locations

4.1.1.1 Count and verify part numbers are correct and record received date

4.1.1.1.1 Sign and date material packing list and give to appropriate Materials personnel

4.1.1.2 Perform Stage 1 visual inspection on all shipments

4.1.1.3 Perform Stage 2 inspection if required

4.1.1.3.1 May include, but not limited to, Quality Control inspections, Test fitting the material, etc.

4.1.2 Identify all defective or non-conforming material

4.1.2.1 Initiate a project material problem form for defective or non-conforming material

4.2 Defective or Non-Conforming Material

4.2.1 Create a Defective Material Report (DMR)

4.2.1.1 The disposition and acceptance of defective or non-conforming items may be accomplished by:

4.2.1.1.1 Reworking and/or re-testing: This shall be done to the part to conform with the original drawing, procedure and/or specification

4.2.1.1.2 Repairing the defective item by restoring to a condition that the capability of an item to function reliably and safely is unimpaired, even though that item still does not conform to the original requirement

4.2.1.1.3 Use as-is when it can be determined that the item is acceptable for its intended use

4.2.1.1.4 Reject/Scrap for possible use on alternate applications

4.3 Return Material Authorization (RMA)

4.3.1.1 If material needs to be returned to the vendor, request a return material authorization RMA number, obtain a shipping code and ship material to vendor for repair or replacement

4.3.1.2 Maintain an accurate database of RMA records



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4.3.2 Physically separate all acceptable material – This shall be done by the Metra assigned part number or the vendor issued part number.

5.0 ATTACHMENTS

5.1 Appendix A: Defective Material Report (DMR)

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REVISION HISTORY

DOCUMENT REVISION HISTORY				
REVISION DATE	REVISION NUMBER	SECTION NUMBER	REASON FOR REVISION	DESCRIPTION
5/5/16	N/A	N/A	N/A	NEW PROCEDURE

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PROCEDURE TITLE: INSPECTION AND TESTING

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1. PURPOSE

- 1.1. This section establishes requirements and assigns responsibilities for planning and performing inspections and testing of items affecting quality during materials receipt, in progress work and final installation, to provide assurance that the final accepted item conforms to the specified requirements. This is performed when required by a project quality plan, purchase order, or upon request by a responsible authority.

2. PROCEDURE

2.1. FORCE ACCOUNT PROJECTS

2.1.1. Inspection

- 2.1.1.1. Material inspections are performed in accordance with drawing and/or the Mechanical Department Specification M-13-010 (Specification for General Requirements, Tolerance and Welding Requirements) (See Appendix "A"), any applicable FRA regulations. All vendor inspections, tests, welding documentation, and/or Metra inspections shall be submitted to the Quality prior to usage and/or installation on project(s) and/or program(s). If material is nonconformance, the Quality Manager and/or Project Quality Control Specialist shall track issue on Material and Service Problem form for each project(s) and/or program(s). Nonconforming material will be tagged, labeled and secured to ensure that nonconformance part(s) is not inadvertently used or installed per Element 11.0.

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- 2.1.1.2. Initial inspection can be performed by the receiving personnel, which can be the receiving storehouse personnel. Initial inspection process identifies and visually inspects the received item for conformance and nonconformance to the purchasing documents.
- 2.1.1.3. Rehab Project(s) and/or program(s) materials may possibly come in a bundle of all the same product(s). If the product is nonconformance, the Lead Carman for that location must be informed and shall fill out a Material Problem Form (See Appendix "B"), in accordance with Element 9.0. The Project Quality Control Specialist shall have the duty of handling the Material and Service Problem Form as a quality record, in accordance with Element 12.0
- 2.1.1.4. Secondary inspection subjects the items to a more technical and thorough inspection where measuring and test equipment may be used to confirm the acceptability of an item. This may mean making sure the items conform to any relevant drawings and/or specifications. Inspection shall be performed by the Lead Carman and/or the Project Quality Control Specialist. Furthermore, the Project Quality Control Specialist shall perform inspection to verify the inspection process. A Mechanical Department Quality Control Inspection form shall be filled out for this inspection. (See Appendix "C")
- 2.1.1.5. An inspector will inspect material per statistical techniques per Appendix D. However, Metra's Mechanical Department has the right to perform a complete 100% inspection of all the material received. Whenever an inspection is completed, the inspector shall fill out an inspection form. This will verify that the inspection was performed and it will give the results of the inspection. Inspection form shall be controlled as a permanent record, in

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accordance with Element 12.0. The inspector will fill out a non-conformance report if the product does not comply, in accordance with Element 9.0. The Project Quality Control Specialist will have the duty of handling the non-conformance report.

2.1.2. *Documents*

2.1.2.1. At any time, a Material Problem Form (MPF) can be started by an employee of Metra, who has concerns on any material and/or product. The form shall be filled out correctly and as accurately, with evidence of concern, and send it to Quality Manager via electronic communication.

2.1.2.2. MSP number shall be as follow;

2.1.2.2.1. First three will be letter, abbreviation of Material Problem Form (MPF), follow by a dash, follow by two digit year of the date issue occurred, follow by dash, follow by digits in increment from 01. Example: MPF-15-01.

2.1.2.3. The Project Quality Control Specialist in the Mechanical Department shall audit Hold Points, Test Paper Work, Material History Books, FRA Required Forms and a part(s) to complete unit to ensure compliance of FTA, FRA rules and regulations and the Metra policies and procedures.

2.1.3. *Complete Units*

2.1.3.1. When the rehabilitation of a car or locomotive is complete, prior to its release for service, it will undergo a final inspection. Prior to inspection, a Production Representative shall send an inspection request form to the Quality Manager (Appendix "E"). The Inspection Request

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From shall be filled out entirely before requesting of inspection. The Project Quality Control Specialist shall schedule inspection by providing the time and date of the inspection. The inspection shall determine whether the car/locomotive is suitable to be put into service. (Rehabilitation Inspection Form and Checklist Appendix "F").

2.1.3.2. During unit inspection, a Project Quality Support Specialist will inspect proper workmanship, installation, any accuracy of testing, FRA required paperwork, hold points, installation sign off records, open material issues and etc. The Project Quality Control Specialist may inspect items that are outside of the scope of project(s) and/or program(s) that inherent to quality of unit.

2.1.4. *As part of purchasing products or services*

2.1.4.1. Metra's Mechanical Department may request inspection of purchased products and/or services.

2.1.4.2. Metra's Mechanical Department has the right to request a First Article Inspections (FAI) of any product(s) and/or service(s) that may be purchased/purchasing from the supplier.

2.1.4.3. Vendor Source Inspections

2.1.4.3.1. Metra shall have right to request of the company's facilities and records. This inspection may include an on-site assessment as well as a review of their quality records.

2.1.4.4. Accepted Material

2.1.4.4.1. If the received material passes the required inspections, it is accepted and the material is then placed in the appropriate material storage location to await use on Metra equipment.

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2.2. *OUTSOURCED CAR & LOCOMOTIVE PROJECTS*

- 2.2.1. Metra reserves the right of source inspection at the Contractor's or any subcontractor's place(s) of manufacture or fabrication. Metra shall designate a Project Manager, who is responsible for all inspection activities and quality audits at such facilities. The Project Manager shall participate in design review and pre-production meetings with the Contractor.
- 2.2.2. No less than thirty (30) calendar days prior to the beginning of the car/locomotive manufacture, Metra's Project Manager and Quality Representative shall meet with the Contractor's quality assurance manager(s) and Production manager(s) and conduct a pre-production meeting. In this meeting, shall review the inspection procedures and finalize inspection checklists.
- 2.2.3. Metra's Project Manager shall be authorized to release the cars/locomotives for delivery and shall be authorized to issue the Certificate of Fitness for Delivery.
- 2.2.4. Upon oral notice to the Contractor's quality assurance manager(s), Metra's Project Manager and Quality Representative shall have access to the Contractor's quality assurance files related to the contract. These files shall include drawings, assembly procedures, material standards, parts lists, inspection processing reports, and record of defects. Metra will also designate one or more resident inspectors for the purpose of inspecting the work of the

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contractor or any of its subcontractors. These inspectors will perform under the direction of Metra's Project Manager.

2.2.5. Consultants

2.2.5.1. Metra reserves the right to acquire and utilize technical and management services from various sources, including outside consultants. This work shall be under the direction of Metra's Program Manager and may be performed on a continuing or periodic basis (i.e., during design reviews, initial project startup, special training, and on-construction site).

Metra will allow the Contractor to require consultants and their employees to sign appropriate nondisclosure agreements, subject to the approval of Metra.

2.2.6. Outsourced car or locomotive material (spare components) may not come in bundles, but instead come one or two pieces at a time, or many different pieces in the same shipment. The receiving personnel must be careful when conducting an inspection of this type. They must identify all the different pieces and make sure they are not damaged. If the product(s) do not pass the inspection, the Project Manager or Project Quality Control Specialist must be informed and a Material and Service Problem Form must be filled out, in accordance with Element 9.0.

2.3. Statistical Methods

2.3.1. Scope

2.3.2. When required or directed by the Mechanical Department, statistical techniques are used in sampling of new products to verify that their characteristics pass Metra standards.