9.0 INSPECTION, MEASURING, AND TEST EQUIPMENT

9.1 SCOPE

9.1.1 This section establishes requirements and assigns responsibilities to assure tools, gauges, instruments, and other Measuring and Test Equipment (M&TE) used in activities affecting quality are identified, properly controlled, calibrated and adjusted at specified intervals to maintain accuracy within specified limits.

9.1.2 The requirements of this section also apply to the Third Party Contractors per contractual agreements and Metra, performing work activities affecting quality associated with capital projects.

9.2 AUTHORITY / RESPONSIBILITIES

9.2.1 See Section 1.0

9.3 PROGRAM REQUIREMENTS

9.3.1 The program is intended to ensure that tools, gauges, instruments, and other Measuring and Test Equipment (M&TE) used in activities affecting quality are identified, properly controlled, calibrated and adjusted at specified intervals to maintain accuracy within specified limits.

9.3.2 Once the Mechanical Quality Plan and its requirements are invoked for the Third Party Contractors, by contractual documents, it shall be carried out for the life of the project.

9.4 PROGRAM IMPLEMENTATION

9.4.1 The program shall ensure tools, gages, instruments, and other inspection monitoring, such as measuring, test equipment, and other devices, are used in activities affecting quality to be of proper range, type, and accuracy to verify conformance and established requirements.

9.5 CALIBRATION REQUIREMENTS AND NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY TRACEABILITY

9.5.1 To ensure accuracy; inspection, measuring, and test equipment shall be controlled, calibrated, adjusted, and maintained at prescribed intervals and/or prior to use against certified equipment having known relationships to nationally recognized standards and accepted values of physical constants to the extent possible.

9.5.2 If no national standards exist, the basis for calibration of a reference should be documented. This requirement is not intended to imply a need for special calibration and control measures on rulers, tape measures, levels, and such other devices, if normal commercial practices provide adequate accuracy.

9.6 CALIBRATION INTERVALS AND METHODS

9.6.1 Calibration methods and intervals for each item shall be defined and based on the type of equipment, equipment use, manufacturer's recommendations, stability characteristics, required accuracy, and other conditions affecting measuring control.

9.6.2 When inaccuracy of the equipment is suspected, a special calibration may be performed.

9.6.3 The calibration status, including the due date of next calibration of M&TE, shall be visible through the use of tags, labels, and/or decals attached to the equipment, as applicable or identification traceable to the equipment log.

9.7 OUT-OF-CALIBRATION EQUIPMENT

9.7.1 When inspection, measuring, and test equipment is found to be out of calibration, an evaluation should be made and documented of the validity of previous inspection or test results and of the acceptability of items previously inspected or tested.

9.7.2 Inspection, measuring, and test equipment consistently found out of calibration should be repaired or replaced.

9.7.3 The evaluation results for the validity of previous inspection and/or test results shall be documented, when necessary.

9.8 HANDLING AND STORAGE

9.8.1 Measuring and test equipment that is susceptible to loss of accuracy due to improper handling, storage, and/or changes in ambient environmental conditions shall be identified. In addition, special precautions shall be taken to ensure the required accuracy of the measuring and test equipment is identified.

9.9 CALIBRATION RECORDS

9.9.1 Records shall be maintained and equipment suitably marked to indicate calibration status and to permit traceability to calibration records.

10.0 INSPECTION AND TEST STATUS

10.1 SCOPE

10.1.1 This section establishes requirements and assigns responsibilities for identifying the inspection and test status of work, during production and installation to assure that only those items that have passed the required inspections and tests are used and installed. The requirements of this section also apply to the Third Party Contractors per contractual agreements and Metra, performing work activities affecting quality associated with capital projects.

10.2 AUTHORITY / RESPONSIBILITIES

10.2.1 See Section 2.0

10.3 PROGRAM REQUIREMENT

10.3.1 The program shall provide means for ensuring that required inspections and tests are performed and that the acceptability of items with regard to inspections and tests performed is readily apparent. Nonconforming items shall be clearly identified.

10.3.2 Once the Mechanical Quality Plan and/or its requirements are invoked for the Third Party Contractors by contractual documents, it shall be carried out for the life of the project.

10.4 PROGRAM IMPLEMENTATION

10.4.1 To the extent possible, status indicators, such as physical location, tags, markings, routing sheets, stamps, labels, inspection records, hold point records, or other suitable means shall be used to maintain inspection and test status. The status indicators indicate whether the production and/or installation is in conformance or nonconformance with the inspection and tests performed.

10.4.2 The program shall provide the means to ensure that only items that have passed the required inspections and tests per design documents, specification, and/or standards are accepted.

10.4.3 Written documentation should include provisions for the authority for application and removal of tags, markings, labels, and stamps.

10.4.4 In cases, where required documented evidence is not available, the associated equipment or materials shall be considered nonconforming. Appropriate documentation shall be available showing acceptability of the equipment and/or materials prior to its installation.

11.0 NONCONFORMANCE

11.1 SCOPE

11.1.1 This section establishes requirements and assigns responsibilities for the control of nonconforming work. The requirements of this section apply to the Third Party Contractors per contractual agreements and Metra, performing work activities affecting quality associated with capital projects.

11.2 RESPONSIBILITIES

11.2.1 See Section 1.0

11.3 PROGRAM REQUIREMENTS

11.3.1 The program shall provide the definition of the non-conforming work, item, activity, etc.

11.3.2 The program shall control items, services, and/or activities, which do not conform to specific requirements to prevent inadvertent use and/or installation.

11.3.3 The program shall include, as applicable, proper documentation for identification, documentation, segregation, disposition, and notification to affected parties.

11.3.4 The responsibility for review and authority for the disposition of non-conforming work shall be defined in procedures and instructions.

11.3.5 The program shall have provision for re-inspection, if necessary.

11.3.6 The program shall have provision for appropriate controls in documenting, interfacing, and disposition of non-conforming items by various organizations.

11.3.7 Once the Mechanical Quality Plan and/or its requirements are invoked for third the Third Party Contractors by contractual agreement, it shall be carried out for the life of the project.

11.4 PROGRAM IMPLEMENTATION – IDENTIFICATION AND SEGREGATION OF NONCONFORMING WORK

11.4.1 Nonconforming items shall be controlled by marking and physical segregation. Where physical segregation is not practical, nonconforming items may be controlled by tagging or other means of identification.

11.4.2 Nonconforming services or activities shall be controlled by proper documentation and/or revised procedures or specifications, as necessary.

11.5 DISPOSITION OF NONCONFORMING ITEMS, SERVICES, OR ACTIVITIES

11.5.1 The program shall control further processing, testing, delivery, and installation of a nonconforming and/or defective work pending a decision on its disposition.

11.5.2 The disposition and acceptance of the Nonconforming items may be accomplished by:

11.5.2.1 'Reworking' and/or 'Re-testing' to complete or correct to the original requirement of a drawing, procedure, or specification, or

11.5.2.2 'Repairing' the defective item, by restoring to a condition such 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, or

11.5.2.3 'Use-as-is' or 'Accept as-is' without any repair or rework, when it can be established that the item is satisfactory for its intended use, or

11.5.2.4 'Rejecting/Scraping' for possible use on alternate applications.

11.5.3 Appropriate justification and documentation shall be provided to verify acceptability of nonconforming items disposition as rework, or retest, or repair, or Use-as-is or Accept as-is.

11.5.3.1 Installed items not in service that are nonconforming or become nonconforming, as a result of any reason, shall be corrected or resolved prior to operational support.

11.5.3.2 An item that is not complete or correct to the original requirement of a drawing, procedure, or specification may be released for use after an engineering evaluation if it is found to meet the intent of the drawing, procedure, or specification and is not detrimental to other components or the performance requirements. A deviation will need to recorded and filed if such an item is used.

12.0 CORRECTIVE ACTION

12.1 SCOPE

12.1.1 This section establishes requirements and assigns responsibilities for the identification, reporting, and correction of conditions adverse to quality performance and compliance. Deficiencies and errors found during the normal review process are not included in the scope of this section, unless reoccur consistently and constantly. The requirements of this section apply to the Third Party Contractors per contractual agreements and Metra, performing work activities affecting quality associated with capital projects.

12.2 AUTHORITY / RESPONSIBILITIES

12.2.1 See Section 1.0

12.3 PROGRAM REQUIREMENTS

12.3.1 Procedures shall ensure that conditions adverse to quality such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformance are promptly identified, documented, reported to appropriate levels of management, corrected, and action taken to prevent recurrence.

12.3.2 Procedures shall be established for analyzing the process to detect and eliminate causes of nonconforming products and services.

12.3.3 Once the Mechanical Quality Plan and/or its requirements are invoked for the Third Party Contractors by contractual agreement, it shall be carried out for the life of the project.

12.4 PROGRAM IMPLEMENTATION

12.4.1 Corrective actions need to improve the process and prevented recurrence of issues and deficiencies.

12.4.2 Root cause(s) need to be effectively and accurately identified.

12.4.3 Results of corrective actions need to be measured and validated.

12.4.4 Monitor effectiveness of correct action plans to avoid relapse(s) of issues and deficiencies.

13.0 QUALITY RECORDS

13.1 SCOPE

13.1.1 This section establishes requirements and assigns responsibilities for the collection, filing, indexing, storage, maintenance, retrieval, and disposition of quality assurance records necessary to provide evidence of quality in the design, procurement, manufacturing, installation, inspection, testing, nonconformance, corrective action, auditing, and training. The requirements of this section also apply to the Third Party Contractor per contractual agreements and Metra, performing work activities affecting quality associated with capital projects.

13.2 AUTHORITY / RESPONSIBILITIES

13.2.1 See Section 2.0

13.3 PROGRAM REQUIREMENTS

13.3.1 The term 'record(s)' used throughout this section is to be interpreted as 'quality assurance record(s)' or 'project records' inclusive of all attachments etc.

13.2.2 The records system shall be defined, implemented, and enforced in accordance with written procedure, instructions, and/or other appropriate documentation. The procedures shall include the distribution of records, control of records withdrawn from storage, and the replacement, restoration, or substitution of lost or damaged records.

13.2.3 Once the Mechanical Quality Plan and/or its requirements are invoked for the Third Party Contractors by contractual documents, it shall be carried out for the life of the project.

13.4 PROGRAM IMPLEMENTATION

13.4.1 A record system shall be established, which addresses the requirements and assigns responsibilities for the collection, filing, indexing, distribution, storage, maintenance, safekeeping, retrieval, retention, replacement, restoration and substitution of lost records, and disposition of quality assurance records.

13.5 RECORDS RETENTION PERIOD AND DISPOSITION

13.5.1 All records shall be identified by appropriate numbering and/or naming convention.

13.5.2 All records shall be kept for a minimum period of five (5) years, or longer if deemed necessary per contractual or regulatory requirements.

13.5.3 All records after completion of the project shall be forwarded to Metra by its Third Party Contractors for retention by Metra, as identified in the contractual documents.

13.5.4 The Third Party Contractors final payment should be released only after all the required project documents have been turned over after project completion.

13.6 RECORDS ADMINISTRATION

13.6.1 The Quality Plan, procedures, design procedures, design specifications, procurement documents, inspection/test procedures, operational procedures, manufacturing procedures, and/or other documents shall specify the records to be generated, supplied, or maintained.

13.6.2 Documents that are later to be designated as records shall be accurate and completely filled out. Documents shall provide sufficient information to permit identification.

13.6.3 The records shall include the results of reviews, inspections, tests, audits, monitoring of work performance, qualifications of personnel, procedures, and equipment; test and measuring equipment calibrations; materials receipt inspection; and other documentation required by the Quality Plan, regulatory requirements, specifications, and contractual agreements.

13.6.4 The records shall provide sufficient information to permit identification between the record and the item and/or activity to which it applies.

13.6.5 The Third Party Contractors shall submit records to Metra for inclusion in the quality assurance records system, as applicable.

13.6.6 Some records may be kept by the Third Party Contractors and maintained on an available basis for a specified time. Such records may be offered to Metra after the Third Party Contractors no longer plan to keep them.

13.6.7 All records shall be legible, identifiable, and retrievable.

13.6.8 All incoming and outgoing project records shall be considered valid only if stamped with the initial/signed and dated by authorized personnel. Alternatively, all the records shall be received, sent, scanned if needed, and logged electronically.

13.7 RECORDS FILING, INDEXING, DISTRIBUTION, REPLACEMENT, RESTORATION, OR SUBSTITUTION OF LOST OR DAMAGED RECORDS

13.7.1 The quality records procedures shall address the filing, indexing, distribution, replacement, restoration or substitution of damaged records, as appropriate.

13.8 RECORDS STORAGE, MAINTENANCE, SAFEKEEPING, RETRIEVAL, AND DISPOSITION

13.8.1 Records shall be stored in facilities, which provide suitable environment to minimize deterioration or damage, prevent loss, preclude entry of unauthorized personnel, and facilitate retrieval without undue delay, and final disposition after project completion.

14.0 QUALITY AUDITS

14.1 SCOPE

14.1.1 This section provides a comprehensive system of planned and periodic audits of Metra's Mechanical Department and the Third Party Contractors to verify compliance and effectiveness of the Mechanical Quality Plan. The requirements of this section also apply to the Third Party Contracts per contractual agreements and Metra, performing work activities affecting quality associated with capital projects.

14.2 AUTHORITY / RESPONSIBILITIES

14.2.1 See Section 2.0

14.3 PROGRAM REQUIREMENTS

14.3.1 The audit program shall include elements of audit schedule, audit plan and checklist, audit performance, audit reporting, and audit follow-up and closure.

14.3.2 The audit schedule shall be reviewed periodically and revised as required.

14.3.3 A written audit plan and checklist shall be prepared before each audit.

14.3.4 Appropriately trained, experienced, and qualified personnel, not having direct responsibilities in the areas being audited, and with sufficient authority and organizational freedom, shall perform the audits in accordance with the written audit plan and checklist.

14.3.5 The auditing personnel shall document and review the audit results with the audited organization.

14.3.6 The audited organization management shall take necessary action to correct the deficiencies revealed by the audit in order to preclude repetition.

14.3.7 Once the Mechanical Quality Plan and/or its requirements are invoked for the Third Party Contractors by contractual documents, it shall be carried out for the life of the project.

14.4 PROGRAM IMPLEMENTATION

14.4.1 Audits shall be conducted on a scheduled and timely basis. Each applicable element of the Mechanical Quality Plan shall be audited for the active and selected projects, when practical. The significant quality activities shall be overviewed once during the lifetime of the ongoing activity selected:

14.4.1.1 Commensurate with the status and importance of activities.

14.4.1.2 As early as practical during the project life.

14.4.1.3 At intervals consistent with the activities being undertaken.

14.4.1.4 When significant changes have been made in the Quality Assurance Program.

14.4.2 Audits should be performed to provide an objective evaluation of compliance with established requirements, methods, and approved procedures or instructions. They should also be performed to identify quality assurance program deficiencies and verify implementation of recommended corrective action.

14.4.4 Deficient areas shall be re-audited as necessary until corrective actions have been accomplished. All conditions requiring immediate corrective action shall be identified immediately to responsible management or department of the audited organization.

14.5 AUDIT REPORTS AND FOLLOW-UP

14.5.1 The audit report shall:

14.5.1.1 Contain sufficient information to be a stand-alone document.

14.5.1.2 Include an evaluation of quality assurance practices, procedures, and instructions, the effectiveness of implementation, and conformance with policy directives.

14.5.1.3 Include an evaluation of work areas, activities, processes, items, and review of documents and records.

14.5.1.4 Be distributed to the management personnel of Metra and the Third Party Contractors, as appropriate.

14.5.2 The audited management or department shall review audit results.

14.5.3 The audit response shall be evaluated and accepted or further corrective action requested.

14.5.4 The audit deficiency shall be closed after verification of corrective action for the deficient area identified during the audit.

14.5.5 The audit shall be closed following closing of all deficiencies of the audit.

14.5.6 Audit records shall be maintained in accordance with Section 13.0.

15.0 TRAINING

15.1 SCOPE

15.1.1 This section identifies the training requirements of personnel involved in performing work-effecting quality for Metra capital projects. The requirements of this section apply to Metra and the Third Party Contractors per contractual agreements, performing work activities affecting quality associated with capital projects.

15.2 AUTHORITY / RESPONSIBILITIES

14.2.1 See Section 2.0

15.3 PROGRAM REQUIREMENTS

15.3.1 Personnel performing activities affecting quality shall be:

15.3.1.1 Qualified and certified, if necessary, in the principles and techniques of the activity being performed.

15.3.1.2 Trained based on individual education, experience, training, and position, as necessary.

15.3.1.3 Trained to ensure that suitable proficiency is achieved and maintained.

15.3.1.4 Provided technical, project, quality assurance, quality control, safety, and any other special training required for the completion of the project.

15.3.1.5 Provided with the required training prior to the start of the project.

15.3.2 All such training shall be documented.

15.3.3 Once the Mechanical Quality Plan and/or its requirements are invoked for the Third Party Contractors by contractual agreement, it shall be carried out for the life of the project.

15.4 PROGRAM IMPLEMENTATION

15.4.1 Personnel assigned to perform activities affecting quality should be given appropriate training prior to performing those activities. This training includes, as applicable, the purpose, scope, and implementation of the technical and quality assurance program elements that are to be employed, as well as the objectives and requirements of the applicable codes and standards. The proficiency of personnel, performing and verifying activities affecting quality, is

maintained by re-training, re-examination, and/or re-certifying as determined by the Mechanical Department management.

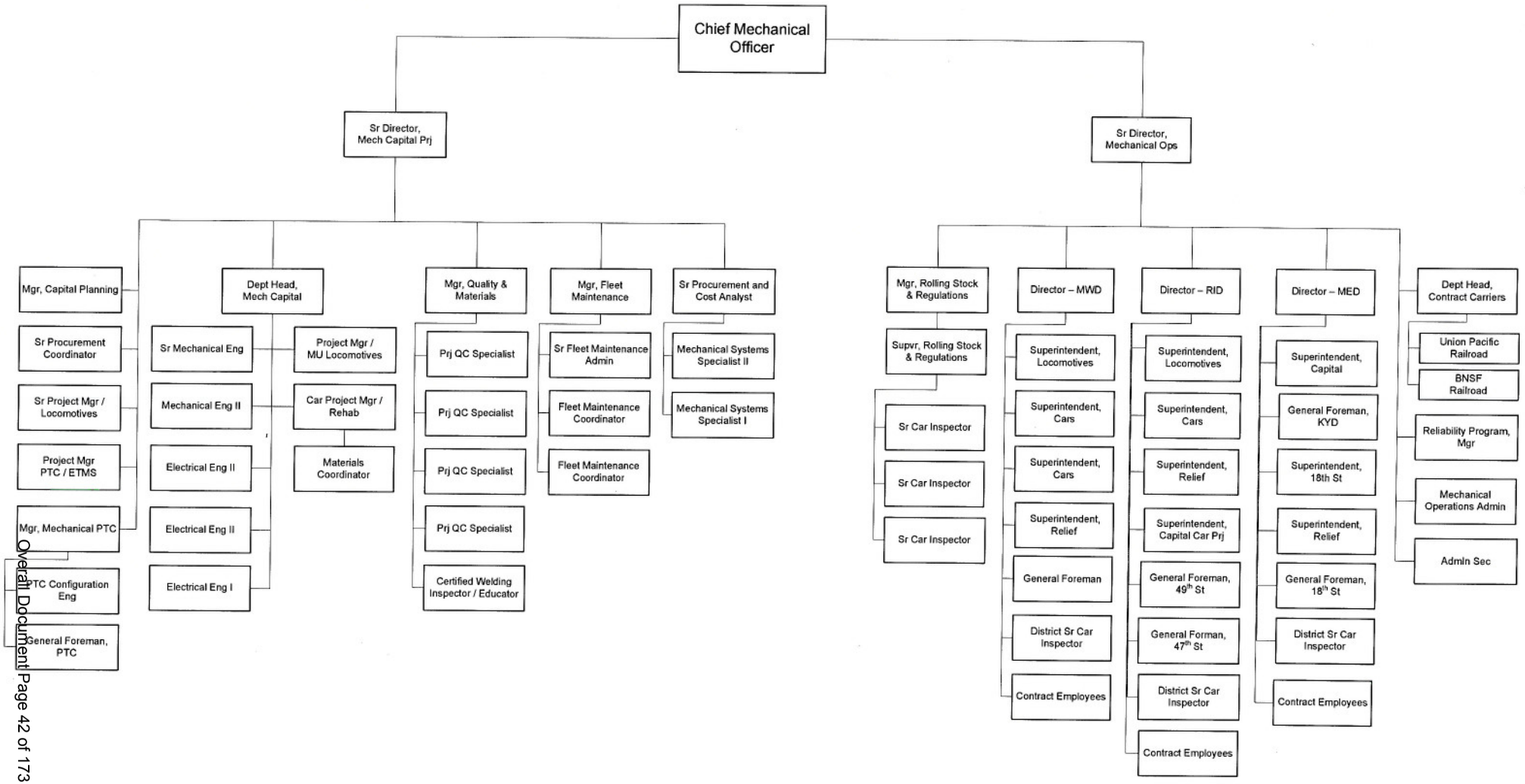
15.4.2 All personnel assigned to the capital projects shall have the required qualifications, education, training, and experience relative to their functional and managerial responsibilities within the organization.

15.4.7 All training shall be provided by the qualified and/or certified personnel as needed.

15.4.8 Records for initial training and subsequent and/or additional training received by all personnel shall be documented and maintained per Section 13.0.

Appendix A

Metra Mechanical Department
Organizational Structure



Appendix B

QA/QC Activity by Metra Corporate, Mechanical and Third Party Contractor (TPC) Personnel		Rolling Stock Contractor (RSC)	Project Management Consultant (PMC)	Positive Train Control Project Third Party Contracts	Metra Force Account Management	Metra Force Account Construction	Metra Force Account Maintenance	Positive Train Control Project Metra Force Account
Work Scope Major Capital Projects [2]		**For FTA Quality Management System Applicability See Below**						
Q. A. Corporate Oversight [1]		**DCQ**	**DCQ**	**DCQ**	**DCQ**	**DCQ**	**DCQ**	**DCQ**
Q. A. Activities by TPC[2]		TPC	TPC	TPC				
Q. C. Activities by TPC[2]		TPC	TPC	TPC				
Q. C. Activities by Mechanical[2]		(QCM)(PMM)	(QCM)(PMM)	(QCM)(PMM)	(QCM)(PMM)	(QCM)(PMM)	(QCM)(RRI)	(QCM)(PMM)
FTA QMS Elements								
2.2.1	Management Responsibility	X	X	X	X	X	X	X
2.2.2	Documented Quality System	X	X	X	X	X	X	X
2.2.3	Design Control	X		X	X			X
2.2.4	Document Control	X	X	X	X	X	X	X
2.2.5	Purchasing	X	X	X	X			X
2.2.6	Product ID and Traceability	X		X	X	X	X	X
2.2.7	Process Control	X	X	X	X	X	X	X
2.2.8	Inspection and Testing	X	X	X	X	X	X	X
2.2.9	Inspection, Measuring, & Test Equipment	X	X	X	X	X	X	X
2.2.10	Inspection and Test Status	X	X	X	X	X	X	X
2.2.11	Nonconformance	X	X	X	X	X	X	X
2.2.12	Corrective Action	X	X	X	X	X	X	X
2.2.13	Quality Records	X	X	X	X	X	X	X
2.2.14	Quality Audits	X	X	X	X	X	X	X
2.2.15	Training	X	X	X	X	X	X	X

Notes:

1. "Grant Management and Accounting (GMA) is responsible to provide the corporate QA oversight per approved procedures.
2. The QA/QC activities required by Third Party Contractors and Metra Force Account should be conducted in accordance with approved procedures/instructions, which meet the FTA QMS Guidelines and the railroad industry standards for capital projects. See Mechanical Department Quality Plan for details on implementation.

Legend:

GMA = Grant Management and Accounting, QMS = Quality Management System, FTA = Federal Transit Administration
(QCM) = Quality Control (Mechanical), (PMM) = Project Manager (Mechanical), (RRI) = Rolling Stock Rail Inspectors (Mechanical)

Third Party Contracts Projects

Metra Force Account Projects

METRA MECHANICAL DEPARTMENT

QUALITY PLAN

Procedures

PROCEDURE TITLE: DESIGN CONTROL

Mechanical Department MQPP Procedure # MQPP-03.01

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**

1. SCOPE

1.1. The design process is a thorough, thought out and planned process. Design activities are identified, responsibilities for accomplishing the design activities are assigned. The design input shall be identified, and the design output will be documented and verified that it meets design input requirements. The final design will then be reviewed and approved as a controlled document.

1.2. The purpose of this procedure is to provide instructions and to assign responsibilities for design of the any project(s) and/or program(s). Design activities shall be done by the Mechanical Department, Contractor and/or Consultant.

2. PROCEDURES

2.1. CARS & LOCOMOTIVES FORCE ACCOUNT AND OUT SOURCED PROJECTS

2.1.1. Input

2.1.1.1. The Mechanical Department will initiate the design input for a project(s) and/or program(s). The Mechanical Department staff will describe the system in terms of performance characteristics, physical characteristics, applicable standards, environmental regulations, and packaging requirements. This description will mainly be done through the release of procedures, specifications, drawings and Bills of Material.

2.1.2. Planning

2.1.2.1. The Mechanical Department shall establish a design plan prior to the start of any design activities. The plan identifies design activities, assigns responsibilities, and drafts a schedule for the project(s) and/or program(s), including man-hours.

2.1.3. Individual Responsibilities

2.1.3.1. Program Manager

2.1.3.1.1. Responsibilities include definition and management of technical and deliverable interfaces, project and/or program administration, planning, scheduling and status evaluation, problem solving, change management, quality assurance, design and final subsystem integration and acceptance.

2.1.3.1.2. This work also includes: Contract interpretation by the Mechanical Department Staff, tracking, and timely approval processing of the project and/or program change functions. Mutual responsibilities with the contractor's Program Manager include coordinate Metra's participation in First Article Inspections (FAI), and establishment and joint management and tracking of the documentation and deliverables and the quality control thereof. Mutual responsibilities also include inter-organization visits and design cycle review coordination. Program Manager and Engineer's approval is required for all design, drawing, and technical specification.

2.1.3.2. Engineers

2.1.3.2.1. An engineer in their field of expertise, is responsible for design development, subsystem integration, design analysis, conformance to Metra's requirements and/or specifications and the development of design verification test plans. Engineer will

ensure the timely review of all design and technical specification and assist in the resolution of all technical action items throughout the life of the Projects and/or Programs. Engineer and Program Manager's approval is required for all design, drawing, and technical specification.

2.1.3.3. Project Manager

2.1.3.3.1. Responsible for all inspection activities and quality audits at facilities, including Metra sites, contractor and/or subcontractor, where project(s) and/or program(s) are being executed. The Project Manager shall work with Quality Assurance group to schedule announced and unannounced quality audits. The Program Manager shall participate in design cycle review and pre-production meetings.

2.1.3.4. Consultants

2.1.3.4.1. 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 the Mechanical Department 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 consultants and its employees to sign appropriate nondisclosure agreements with any entity involved in project(s) and/or program(s), subject to the approval of Metra.

2.1.3.5. Design Verification

2.1.3.5.1. The purpose of the design verification is to assure that the design output matches the design input requirements prior to acquiring any fabrication. It will be the

responsibility of Engineer, in their field of expertise, to verify that specification and/or drawing meet the design input requirements.

2.1.3.5.2. Verification can be done through use of tools such as tolerance calculations, stress calculations, Finite Element Analysis (FEA), and etc.

2.1.3.6. Design Reviews

2.1.3.6.1. The Mechanical Department has the responsibility of ensuring that designs are thoroughly reviewed with appropriate entity involved in project(s) and/or program(s). Furthermore, a product(s) (i.e. car, locomotive, components, and etc.) that completes a project(s) and/or program(s), prior to its release for service, will undergo final design review that will be conducted by the Mechanical Department and/or consultant hired by the Mechanical Department, where it will be decided whether the product(s) design is suitable for service.

2.1.3.7. Design Changes

2.1.3.7.1. Design changes or modifications may either be requested by the Mechanical Department or field personnel, based on the specific experiences of the employee with the product. If field personnel would like to suggest a design change, that person should discuss it with supervisor who will then discuss it with the Shop Superintendent for that project. If the Shop Superintendent agrees with the design change, that person will bring it up in a meeting that is established for a particular project(s) and/or program(s). Any design change will need to go through design cycle before any approval can be granted. Final approval will be authorized by

Mechanical Department Head after it has met all the requirements of design cycle. Element 4.0 must be followed in order to complete design change.

2.1.3.7.2. Design changes or modifications may either be requested by the Mechanical Department or the Contractor, based on either production problems or non-conformance to the design inputs that Metra presented to the Contractor at the beginning of the project(s) and/or program(s). Standard procedures must be followed or as required by contract. Furthermore, the design change process should include development of 'As-Built' drawings as part of the design documentation at the completion of the project(s) and/or program(s).

2.1.3.8. Design Output

2.1.3.8.1. The primary design output consists of the documentation that defines the product(s) and instructions for its manufacturing. The documentation includes applicable drawings, specifications, bills of material, etc.

2.1.3.8.2. All design output documents shall be reviewed and approved by the Mechanical Department before issuance. Design documents will be controlled in accordance with Element 4.0: Document Control.

PROCEDURE TITLE: DOCUMENT CONTROL

Mechanical Department MQPP Procedure # MQPP-04.01

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**
12/8/16	**A**	2.1.2.1.1, 2.3.2.1.1, and 3.2.5.1	Updated reference to file locations	Updated reference to Specification, Modification, and ECN file locations in the S-Drive

1. SCOPE

1.1. Procedures shall be established and maintained for control of documents and data. Document control measures shall ensure that all relevant documents are current and available to all users. Control of documents shall include the review of documents by authorized personnel, distribution and storage of those documents, elimination of obsolete documents, and control of changes to the documents. Whenever possible, changes to the same authorized personnel who reviewed and approved the original documents shall review controlled documents and data. Any superseded documents retained for record shall be clearly identified as such.

1.2. Documents shall be controlled to ensure that correct and applicable documents are available at the location where they are used.

2. PROCEDURE

2.1. CONTROL OF SPECIFICATIONS

2.1.1. Issue

2.1.1.1. Prior to the issue and release of a specification, it is reviewed for adequacy and correctness and will be approved by the Mechanical Department. A specification shall not be ready for distribution until authorized by the Mechanical Department. The specification will also include a revision sheet to indicate the changes made to the document. (An example of the template used for drawings can be found in Appendix “A”).

2.1.1.2.

2.1.2. Numbering

2.1.2.1. Each new specification must be assigned a unique number. The author of the document must assign specification the next available number in the "Master Specification List" file and complete the description, revision level, creation date, created by, and affectivity fields. The master specification list file is located at:

2.1.2.1.1. S:\MECHANICAL\Engineering and Quality Documents\Common\Master_Spec_List.xls

2.1.2.2. The numbering system for specifications will be a capital "M", followed by a dash, the last two digits of the year, followed by another dash, and then the last three numbers, which will be sequential starting with 001 for the first specification written for that year. For example, M-15-001 will be the first specification written in the year 2015. The numbers will be used for tracking purposes.

2.1.3. Distribution

2.1.3.1. Distribution to departments and personnel will have to be approved by the Mechanical Department personal prior to release. The Mechanical Department shall notify involved personal of specification changes using appropriate method of communication.

2.1.4. Master List

2.1.4.1. A Master List of all the most current and updated specifications will be kept at a location approved by the Mechanical Department office. The author of specification