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Request For Proposal

[Federal]

Mechanical Construction Services Multiple Award Task Order Contract (MATOC)

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Book 5 of 5
WMATA Safety and Security Plans and Documents

SECTION 00013

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SOP #19 MAINTENANCE AND TESTING ON RAIL FACILITIES

19.1 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to ensure consistency and provide guidance for all personnel desiring the use of the revenue railroad, yards and Rail facilities for all maintenance and testing.

19.2 SCOPE

This SOP is applicable to WMATA employees, contractors, consultants, and all other personnel desiring access to the revenue railroad or other WMATA Rail facilities for maintenance or testing.

19.3 DEFINITIONS

19.3.1 Access Rights: Permission to enter the Roadway.

19.3.2 Exclusive Rights: A section of the track that is restricted for use by one group.

19.3.3 General Orders and Track Rights System (GOTRS): A mainframe computer program that is used by WMATA employees only to enter track rights request in accordance with OAP 100-9.

19.3.4 Piggybacking: An independent work gang under the supervision of a gang leader. This gang is working within the authorized working limits of a RWIC. The gang leader is under the authority of the RWIC.

19.3.5 Rail Service Adjustment (RSA): A temporary adjustment to the Metrorail operating schedule in order to accommodate maintenance or construction activities on the Metrorail main line during revenue service.

19.3.6 Routine Maintenance: Preventive or corrective maintenance actions that have an approved written procedure and can be performed without effecting revenue service.

19.3.7 Site Specific Work Plan (SSWP): Describes the construction and/or installation and associated schedule of work to be performed at specific locations where track usage or other interface with the operating rail road is required.

19.4 RESPONSIBILITIES

19.4.1 The Managing Director of OPER RTRA is responsible for approval of the operational plan or Site Specific Work Plan (SSWP) for all tests to be performed on the revenue railroad, yards or in WMATA Rail facilities.

19.4.2 The Manager of Track Access for Maintenance and Construction (TAMC) subject to the approval of Superintendent of ROCC is responsible for issuance, and implementation of the General Orders. The General Orders are used to define track sections for maintenance, testing and construction activities. The General Orders will remain in effect until fulfilled, superseded or canceled by the Superintendent of ROCC or one of his/her designee's.

19.4.3 WMATA offices, contractors, and consultants are responsible for scheduling all activities in accordance with this SOP.

19.4.4 Superintendents assigned to OPER are responsible for providing support services when requested, and subsequently approved in accordance with this SOP.

19.4.5 Maintenance Managers and Project Managers are responsible for providing approved Site Specific Work Plans (SSWP) as outlined in Operations Administrative Procedure (OAP) 200-33.

19.4.6 Personnel requiring access rights are responsible for advising ROCC of their work areas and after approval by ROCC, monitoring the appropriate radio frequencies during access.

19.5 PROCEDURES

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19.5.2	Exclusive Rights
19.5.3	Access Rights
19.5.4	General Orders Procedures
19.5.5	General Orders Format and Content
19.5.6	Suspension of a General Order
19.5.7	Modification of a General Order
19.5.8	Construction and Conducting Test

19.5.1 Piggy Backing:

19.5.1.1 When a maintenance organization desires to work in an area controlled by rights of another maintenance organization (Piggy Back), they must request permission from the primary rights holder through the GOTRS system. Approval will be granted by the primary track rights holder through the GOTRS system.

19.5.1.2 The first junior piggy back rights holder shall become the primary rights holder when the primary rights holder cancels.

19.5.1.3 The on-site maintenance supervisor, crew leader or escort of the crew who holds the track rights is responsible for all activities within the work area, to include but not be limited to: all communication and coordination with ROCC; coordination of movement of work vehicles within the work area with notification to ROCC; verification of third rail power and placement of safety equipment; monitoring of the activities of all crews within the work area; and, ensuring that all personnel and equipment of all crews in the work area are clear and that the entire area is safe for train movement prior to turning the work area back over to ROCC.

19.5.1.4 The on-site maintenance supervisor, crew leader or escort of the piggyback area is responsible to ensure site specific activities in the piggyback zone conform to all rules and procedures.

19.5.1.5 In instances where the requestor requires track rights in an area adjacent to an area in which personnel are working in the TPSS or Tiebreaker room (see possible exceptions in TBS and TPSS diagrams), refer to SOP # 39.

19.5.1.6 In instances where the requestor requires track rights to the same area, refer to SOP # 39.

19.5.2 Exclusive Rights:

19.5.2.1 All requests to obtain exclusive use of a section of a yard track (Yard Contact Rails) must be submitted to and approved by the Superintendent of Rail Transportation in charge of the specified yard. Joint approval with Director of ROCC is required if yard work has potential of impacting revenue service.

19.5.2.2 All request to obtain exclusive use of a section of mainline track must be submitted to TAMC (thru GOTRS) and be approved by the Director of ROCC and appear on the General Orders.

19.5.3 Access Rights:

19.5.3.1 All requests to obtain access rights must be coordinated with and be approved by ROCC prior to entering the Roadway. ROCC must also be notified when personnel have completed their tasks and are clear of the Roadway.

19.5.3.2 Requests for track access with red tag power outages must contact MOC and ROCC for coordination, execution and issuance.

19.5.4 General Orders Procedures:

19.5.4.1 All requests for track rights must be submitted via the General Orders and Track Rights System (GOTRS) to ROCC/TAMC by 0600 hours on the Monday four weeks preceding the scheduled week of work, unless adjusted or approved by the AGM-TIES on a case-by-case basis as needed.

19.5.4.2 Only the Director of ROCC may approve the issuance of the General Orders for request after track allocations have been scheduled.

19.5.4.3 When red tags or supervisory outages are issued an early clearing time may be required. Any deviation from scheduled times must be approved by the on duty Assistant Superintendents of ROCC and MOC.

19.5.4.4 All requests must include the following information:

19.5.4.4.1 Department requesting rights.

19.5.4.4.2 Date and hours of the request.

19.5.4.4.3 Line, track and Chainage.

19.5.4.4.4 Contact rail status (type of outage).

19.5.4.4.5 Equipment to be utilized.

19.5.4.4.6 Individual/Department making the request.

19.5.4.4.7 Purpose of the request.

19.5.5 General Orders Format and Content:

19.5.5.1 General Orders heading will be identified by bold type reading "General Orders". The heading will include the date of the order, the number of the general order and to whom the order is addressed. The General Orders numbers will be continuous on a yearly basis.

19.5.5.2 The General Orders will identify for each approved area:

19.5.5.2.1 The work to be performed and type of rights requested.

19.5.5.2.2 The contractor and/or WMATA Department involved.

19.5.5.2.3 The date and hours.

19.5.5.2.4 The identification and location of the work area involved.

19.5.5.2.5 The contact rail status (type of outage) when necessary.

19.5.5.2.6 Instructions for flagging when necessary.

19.5.6 Suspension of a General Order:

19.5.6.1 ROCC Managers have the Authority to suspend or cancel a portion, or all of the General Orders when conditions require it.

19.5.6.2 When a general order is canceled ROCC will immediately notify all concerned parties and document all actions taken.

19.5.7 Modification of a General Order:

19.5.7.1 After publication of a General Order, modification will not be allowed except for emergencies or cancellation of rights. All cancellation will be documented by ROCC identifying the rationale for the cancellation.

19.5.7.2 Emergency modifications of the General Orders will be allowed only when conditions exist which will cause a portion of the mainline to be taken out of service during revenue hours.

19.5.8 Construction and Conducting Test:

19.5.8.1 Personnel requiring access to the revenue railroad or WMATA Rail facilities for testing or construction must provide a Site Specific Work Plan as directed in OAP 200-33 to TAMC no later than (60) days prior to the date of the maintenance, construction or testing procedure, unless adjusted or approved by the AGM-TIES on a case-by-case basis as needed.

19.5.8.2 The requestor shall be responsible for obtaining a "Covenant not to Sue" from all non WMATA personnel involved in maintenance procedures.

19.5.8.3 After approval of the SSWP by TAMC, the appropriate Superintendent shall provide the necessary support as identified in the SSWP. Also a single point of contact shall be provided for the requestor. This individual will be responsible for the safety of Operations personnel and equipment while the maintenance procedure is performed. Any modification to the operational scenario will be coordinated through the individual designated as the single point of contact.

19.6 REFERENCES

19.6.1 OPA 200-33

19.6.2 SOP # 23

19.6.3 SOP # 28

19.6.4 SOP # 39

SOP # 28 PROTECTION FOR ROADWAY WORKERS AND ESTABLISHMENT OF THIRD RAIL POWER OUTAGES AND WORK AREAS ON THE ROADWAY

28.1 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to describe, in detail, the responsibilities and procedures for the removal and restoration of third rail power and the establishment of work areas.

28.2 SCOPE

This SOP is applicable to all WMATA and non-WMATA personnel who perform, supervise, or manage work on the mainline and yard Roadway.

28.3 DEFINITIONS

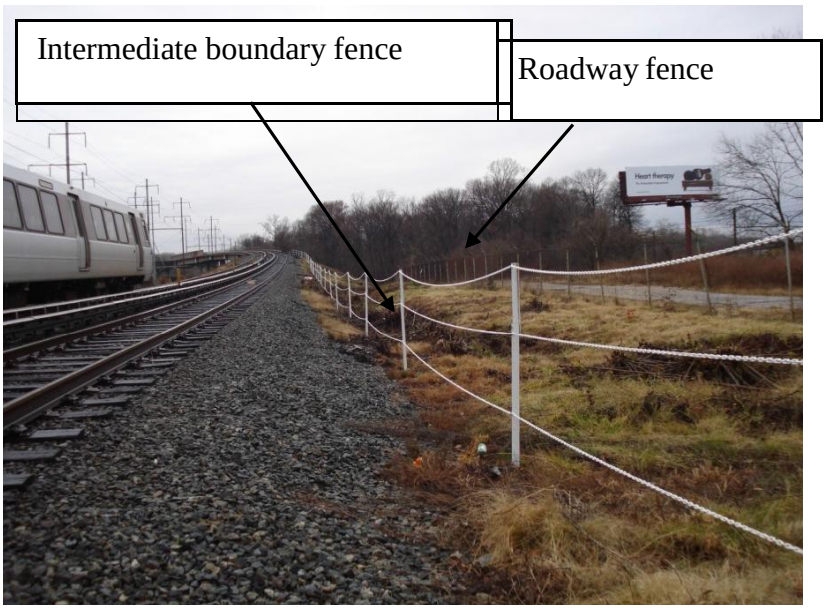
28.3.1 Foul Time (FT): A method of Roadway protection in which all trains and/or track equipment are STOPPED. The RWIC requests ROCC to stop all traffic until the RWIC reports clear of the track. This is used only for short time periods (approximately 3 minutes or less) in specific segments of track such as work areas, blind spots and no clearance zones.

28.3.2 Fouling A Track: The placement of an individual or equipment in such proximity to a track that the individual or equipment could be struck by a moving train or on-track equipment.

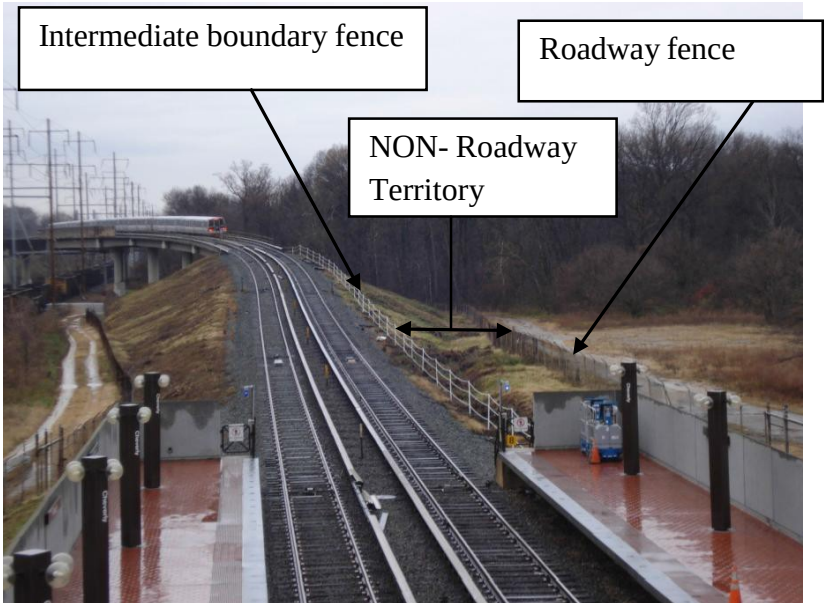
28.3.3 Inaccessible Track (IT): A section of track where a physical barrier has been placed to prevent trains and/or track equipment from entering the work area. (i.e. derailers, barricade, rail out, etc.).

28.3.4 Individual Train Detection (ITD): A method where an individual provides for their own protection. The individual detects approaching trains and moves to a place of safety before the train arrives. For Lone Workers, this method of detection may ONLY be used under circumstances strictly defined in the RWPM.

28.3.5 Intermediate boundary fence: A five (5) foot high, plastic chain fence which is positioned ten (10) feet from the end of the cross ties along sections of Metrorail above ground roadway. Where constructed, it separates Metro property into roadway and NON-roadway territory. Individuals on the track side of the Intermediate boundary fence are considered "on" the roadway; individuals on the non-track side of the Intermediate boundary fence are considered "off" the roadway. (Pictures 1 and 2).



Picture 1



Picture 2

28.3.6 Lone Worker: A RWIC qualified single Roadway worker who provides for their own protection. This individual is not a member of a work crew. A lone worker is not engaged in a common task with another Roadway worker.

28.3.7 Qualified Person: The worker has successfully completed training and demonstrated the knowledge and ability to perform their duties. WMATA will maintain the appropriate standards and records. Roadway workers shall be required to re-qualify.

28.3.8 Roadway: Any location where roadway worker protection is required:

28.3.8.1 On at-grade track, it is all areas between the roadway fences, except where an intermediate boundary fence exists.

28.3.8.2 On aerial structures, it is all areas between hand railings to include all safety walks.

28.3.8.3 In tunnel areas, it is all areas between tunnel walls to include all safety walk areas and open shafts and ancillary areas.

28.3.8.4 In transition areas, it includes fence to fence, wall to wall, railing to railing, fence to wall, fence to railing, and wall to railing.

28.3.8.5 In yards, it includes all ballasted areas and areas with embedded track including maintenance of way tracks. Embedded tracks within maintenance facilities are not considered part of the roadway; however, carwash tracks are included. Station platforms are not considered part of the roadway, nor are the walkways beyond the station platform endgates protected by handrails. However, any maintenance or construction, the use of tools, ladders, scaffolds or lifts that have the potential for **fouling the track** requires a RWIC to use Roadway worker protection in accordance with the RWPM, even if performed behind the hand rails. Individuals are considered off the roadway if they are on the non-track side of the intermediate boundary fence.

28.3.8.6 For WMATA employees, walkways protected by handrails beyond the station platform endgates are not considered part of the WMATA Roadway. All non-WMATA employees must be escorted and be granted permission by ROCC to go beyond endgates (pictured below). All personnel shall put on safety vests before going beyond the station endgates.


WMATA Station Platform Endgate
No Trespassing

Roadway begins at end of handrail

28.3.9 Roadway Flag Person: A qualified employee designated by the RWIC to direct or restrict the movement of trains. Roadway Flag Persons shall be equipped to properly provide proper warnings. Their SOLE duty is to look out for approaching trains and/or track equipment. From a place of safety, Roadway Flag Persons shall signal trains to **STOP** before entering the working limits. Roadway Flag Persons will not permit the movement of trains and/or track equipment into the working limits unless authorized by the RWIC.

28.3.10 Roadway Worker: Any employee or contractor whose duties could potentially cause them to foul the Roadway.

28.3.11 Roadway Worker in Charge (RWIC): A qualified employee responsible for the Roadway safety for all workers and work gangs within their working limits.

28.3.12 Roadway Worker Protection (RWP) Manual: .

28.3.13 Train coordination: A method of establishing working limits on track upon which a train holds exclusive authority to move whereby the train yields that authority to a Roadway Worker in Charge (RWIC).

28.3.14 Vehicle Flag Person (VFP): A qualified employee who is assigned to flag a rail vehicle.

28.3.15 Watchmen/Lookout: A qualified employee who provides warning to Roadway workers of approaching trains and/or track equipment. A Watchmen/Lookout's sole duty is to warn workers to move to, and remain in, a place of safety for an ample amount of time before the arrival of trains or rail vehicles.

28.3.16 Work Crew/Gang: Two or more railroad workers organized to work together on a common task; including the RWIC.

28.3.17 Work Zone: A segment of track within working limits that is being occupied for maintenance or repair.

28.3.18 Work Zone Authorization: The written authorization designed to convey rights to obstruct or use a designated section of track between specified points and for a specified period of time with or without the removal of third rail power or signal power.

28.4 RESPONSIBILITIES

28.4.1 All personnel who perform or supervise work on the Roadway are responsible for ensuring that their actions, work areas and third rail power outages conform to the requirements of this SOP and the RWP Manual.

28.4.2 All personnel shall be trained and qualified in Roadway safety, according to their role and function, prior to entering WMATA's Roadway.

28.4.3 MOC and ROCC personnel are responsible for ensuring that field personnel are conforming to this SOP when work is being performed on the Roadway.

28.4.4 Supervisors and managers of personnel working on the Roadway are responsible for ensuring that their assigned personnel are properly and fully trained on the content of this SOP and the Roadway Worker Protection Manual and are working in full compliance with both documents at all times. The Roadway Worker in Charge (RWIC) shall focus on rules/compliance/oversight and the safety of their work crews. The RWIC shall not engage in any other job site work activities.

28.5 PROCEDURES

Procedure #	Content
28.5.1	Guidelines for the Removal of Third Rail Power for WMATA Employees
28.5.2	Guidelines for the Removal of Third Rail Power for Non-WMATA Personnel
28.5.3	Special Requirements for Non-WMATA Personnel
28.5.4	Removal of Third Rail Power and Establishment of a Work Area Under a Red Tag Outage
28.5.5	Restoration of Third Rail Power and Clearing of a Work Area Under a Red Tag Outage
28.5.6	Removal of Third Rail Power and Establishment of a Work Area Under a Supervisory Outage
28.5.7	Restoration of Third Rail Power and Clearing of a Work Area Under a Supervisory Outage
28.5.8	Additional Requirements when more than One Crew is Working in a Single Work Area (Piggybacking)
28.5.9	Additional Protection Requirements when Single-Tracking
28.5.10	Establishment of a Work Area without a Power Outage
28.5.11	Clearing of a Work Area
28.5.12	Working on Roadway without a Work Area Established
28.5.13	Use of Derailers
28.5.14	Personnel Responding to Incident on Roadway
28.5.15	Working on WMATA Property Outside the Roadway (beyond the Intermediate Boundary Fence)
28.5.16	Establishment of Work Area in the Yard Car Wash Facility (except Branch Ave.)
28.5.17	Removal of Third Rail Power and Establishment of a Work Area under a Remote Red Tag Outage for Branch Avenue Yard Carwash Facility only.
28.5.18	Restoration of Third Rail Power and Establishment of a Work Area under a Remote Red Tag Outage for Branch Avenue Yard Carwash Facility only.

28.5.19	Roadway Clarifications: D&G Platform, Alexandria Yard Platform, Shady Grove Yard Lead, Brentwood Yard

28.5.1 Guidelines for the Removal of Third Rail Power for WMATA Employees:

28.5.1.1 A red tag power outage is required for all activities that require contact with the third rail or items connected to the third rail.

28.5.1.2 A supervisory power outage is required for all activities on the Roadway not covered by Section 28.5.1.1 of this procedure. When incidental contact with the third rail is possible, Safety Department approved rubber mats shall be used to protect affected employees.

Warning: The third rail shall always be considered energized during supervisory outages.

28.5.1.3 Exceptions to 28.5.1.2 are made for employees performing certain routine inspection and maintenance activities that do not require third rail power outages. These exceptions require the approval of the Chief Safety Officer and the Assistant General Manager of Rail Operations Delivery and are listed in Appendix A of this SOP.

28.5.1.4 When a power outage is required, it need cover only the entire actual work area and does not have to cover the adjacent safety zones. Protected work areas outside of the actual work area do not require a power outage.

28.5.2 Guidelines for the Removal of Third Rail Power for Non-WMATA Personnel:

28.5.2.1 A red tag power outage is required for all activities that require contact with the third rail or items connected to the third rail or when incidental contact is possible.

28.5.2.2 A supervisory power outage is required for all activities on the Roadway not covered by Section 28.5.2.1 of this procedure.

Warning: The third rail shall always be considered energized during supervisory outages.

28.5.2.3 When a power outage is required, it must cover the entire actual work area, but does not have to cover the adjacent safety zone.

28.5.3 Special Requirements for Non-WMATA Personnel:

28.5.3.1 Non-WMATA personnel cannot enter the Roadway while the third rail is energized, except for those referenced in 28.5.3.7 and in appendix A.

28.5.3.2 The point of entry and exit onto the Roadway for non-WMATA personnel must be within the actual work area limits. However, when this is not possible, a qualified RWIC may ask permission from ROCC to remove third rail power and stop all Class 1 and Class 2 equipment movement to allow the non-WMATA personnel into the actual work area limits.

28.5.3.3 Non-WMATA personnel cannot enter the Roadway without a trained and certified WMATA RWIC.

28.5.3.4 Non-WMATA personnel must possess a valid orange WMATA contractor ID with a Roadway training endorsement before entering the Roadway. This ID shall be displayed on an outer garment at all times while on WMATA property.

28.5.3.5 Non-WMATA personnel who will be performing work on the rail system, prior to performing that work, must successfully complete an approved WMATA course on the rail system, procedures, restrictions and any other pertinent information as applicable.

28.5.3.6 WMATA RWICs shall ensure the Non-WMATA personnel have a valid orange contractor ID that is not expired and is stamped with the Roadway Trained endorsement, prior to allowing those personnel onto the Roadway.

28.5.3.7 Representatives from the Tri-State Oversight Committee and the National Transit Safety Board shall have access to energized operational tracks with an assigned WMATA RWIC for the purposes of observing tests and performing inspections. Protection provided these personnel shall be consistent with the Metrorail Safety Rules and Procedures Handbook.

28.5.4 Removal of Third Rail Power and Establishment of a Work Area Under a Red Tag Outage.

28.5.4.1 The WMATA maintenance personnel that require the outage shall submit the request via GOTRS (General Orders – Track Rights System).

28.5.4.2 Prior to the start of work, the RWIC shall, contact the MOC to verify that the red tag has been activated and obtain the red tag number.

28.5.4.3 After receiving the red tag number from MOC and prior to beginning work, the RWIC shall contact ROCC by radio advising them of the red tag number and request permission to enter the track bed to test the third rail and protect the work area. The RWIC shall establish the appropriate protection and verify the necessary protection elements for the type of protection required with ROCC as defined in Appendix B.

28.5.4.4 Once verification between ROCC and the RWIC is complete according to Appendix B, control of the work area is passed from ROCC to the RWIC.

28.5.4.5 Prior to starting work, the RWIC shall brief the personnel of the work crew on applicable WMATA safety rules/procedures, track(s) involved, work area limits, the means of protection, safe areas in which to clear, red tag number and any restrictions on the work, and document meeting on department issued safety briefing form (see Appendix C of this SOP for example).

28.5.4.6 In the event the work continues through an MOC or ROCC shift change, it shall be the responsibility of the initial MOC or ROCC Supervisor to advise the relief person of the details involving the work taking place, including the name of the Red Tag Holder and/or the RWIC. ROCC Controllers shall contact and be briefed by the RWIC on the protection required / type of protection for work zones on their lines when changing shifts.

28.5.4.7 If the Red Tag Holder is to be relieved, both the original Red Tag Holder and the new Red Tag Holder must contact MOC and ROCC advising them of the change prior to making the change.

28.5.5 Restoration of Third Rail Power and Clearing of a Work Area Under a Red Tag Outage:

28.5.5.1 The RWIC shall contact MOC advising them that the work area has been inspected for re-energization, all personnel/equipment are clear and the red tag can be cleared identifying it by number.

28.5.5.2 After contacting MOC, the RWIC shall contact ROCC advising them that all personnel/equipment are clear of the work area and that the red tag has been cleared through MOC.

28.5.5.3 Prior to allowing personnel to leave the area, ROCC shall verify removal of the shunt straps when the work has been completed, time period has ended or when requiring the personnel to clear.

28.5.5.4 ROCC shall ensure that the times the shunt straps are applied and removed are recorded on the ROCC radio tape and/or in writing.

28.5.5.5 ROCC shall remove prohibit exit commands only after the person holding the red tag has reported personnel and equipment clear of the track.

28.5.5.6 When the red tag is cleared, MOC shall in coordination with ROCC, direct power crews to remove block tags, rack in and place in remote the appropriate circuit breakers at the involved substations.

28.5.5.7 MOC shall advise ROCC that the breakers for each outage area are positioned to be re-energized.

28.5.5.8 MOC and ROCC shall cause announcements to be made on MOC and ROCC radio nets that power is being restored and allow at least one minute for a response to the announcement before closing breakers.

28.5.5.9 ROCC shall restore power by supervisory control as described in SOP 2.5.6 and notify MOC of any circuit breakers that do not close.

Notice: Personnel are not to enter/re-enter the Roadway, unless authorized by the ROCC Supervisor.

28.5.6 Removal of Third Rail Power and Establishment of a Work Area Under a Supervisory Outage:

28.5.6.1 The WMATA maintenance personnel requiring the outage shall submit the request via General Orders Track Rights System (GOTRS).

28.5.6.2 Prior to allowing work to begin, the RWIC shall contact ROCC by radio and request that the supervisory outage be initiated.

28.5.6.3 ROCC shall initiate the outage recording the date/time that power removal was completed, the breaker number(s) involved, and the name of the person in charge of the work crew in the request log.

28.5.6.4 ROCC shall then contact the RWIC. The RWIC shall establish the appropriate protection and verify the necessary protection elements for the type of protection required with ROCC as defined in Appendix B.

28.5.6.5 Once verification between ROCC and the RWIC is complete according to Appendix B, control of the work area is passed from ROCC to the RWIC.

28.5.6.6 Prior to allowing the crew to begin work, the RWIC shall brief personnel of the work crew that the third rail is to be considered energized at all times and not to make contact with it or its connected equipment. In addition, personnel will be advised of any applicable rules, procedures or restrictions, the track(s) involved, work area limits, the means of protection and safe areas in which to clear, and document meeting on department issued safety briefing form (see Appendix C of this SOP for example).

28.5.6.7 The RWIC must maintain contact with ROCC during the work in the event ROCC would have to clear the work area and restore power in response to an emergency. In addition, the RWIC shall periodically check the third rail to confirm it is still de-energized.

28.5.6.8 In the event that the work continues through an ROCC shift change, it shall be the responsibility of the initial ROCC Supervisor to advise the relief person of the outage and the name of the RWIC. ROCC Controllers shall contact and be briefed by the RWIC on the protection required / type of protection for work zones on their lines when changing shifts.

28.5.6.9 In the event that the work continues through the work crew's shift change, it will be the responsibility of the initial RWIC to advise ROCC of the name of the person in charge of the relief crew. At all times, ROCC must be kept informed as to who is the RWIC and responsible for clearing the work area.

28.5.7 Restoration of Third Rail Power and Clearing of a Work Area Under a Supervisory Outage:

28.5.7.1 Upon completion of the inspection, the RWIC shall contact ROCC advising them that the work area has been inspected for re-energization, all personnel/equipment are clear of the track(s) and give ROCC clearance to re-energize the third rail in the area.

28.5.7.2 When ROCC receives the clearance from the RWIC and no other crews are holding the same third rail area out of service, ROCC shall ensure that announcements are made on their radio net and the MOC net that third rail power is being restored in the work area and allow at least one minute for a response to the announcement before closing breakers.

28.5.7.3 After announcements have been made, ROCC shall re-energize the third rail in the cleared work area. ROCC shall record the request to re-energize in the power outage or restoration request log and also the time the restoration was completed.

Notice: Personnel are not to enter/re-enter the Roadway, unless authorized by the ROCC Supervisor.

28.5.8 Additional Requirements when more than One Crew is Working in a Single Work Area (Piggybacking):

28.5.8.1 The RWIC who holds the track rights is responsible for all activities within the work area, to include but not be limited to:

28.5.8.1.1 All communication and coordination with ROCC;

28.5.8.1.2 Verification of third rail power and placement of safety equipment;

28.5.8.1.3 Monitoring of the activities of all crews within the work area, and;

28.5.8.1.4 Ensuring that all personnel and equipment of all work crews in the work area are clear and that the entire area is safe for train movement prior to turning the work area back to ROCC.

28.5.8.2 The person in charge of the piggybacking crew must contact the RWIC for permission to enter the RWIC's work area and notify ROCC.

28.5.8.3 The on-site maintenance supervisor, crew leader or escort of piggyback area is responsible to ensure site specific activities in the piggyback zone conform to all rules and procedures.

28.5.8.4 If a rail vehicle is being used by one of the crews, a pair of red lights or flags is to be placed between the crews to limit the movement of the rail vehicle.

The supervisor shall coordinate with the supervisor of adjacent crews if work equipment is required to move past red lights.

28.5.8.5 If additional PPE, such as respirators, is required for the work of one of the crews, all personnel within the work area shall be required to wear the additional PPE.

28.5.9 Additional Protection Requirements when Single-Tracking:

If no SSRM approved physical barrier exists between the affected tracks, a restriction of 35 MPH shall be placed immediately adjacent to the actual work area on the operational track(s). The length of this restriction shall be equal to or greater than the length of the actual work area and shall parallel the entire length of the actual work area.

28.5.10 Establishment of a Work Area without a Power Outage:

28.5.10.1 The WMATA maintenance personnel requiring the work area shall submit the request via General Orders Track Rights System (GOTRS).

28.5.10.2 Prior to allowing work to begin, RWIC shall contact ROCC by radio and request permission to enter the Roadway to establish the work area. The RWIC shall establish the appropriate protection and verify the necessary protection elements for the type of protection required with ROCC as defined in Appendix B.

28.5.10.3 Once verification between ROCC and the RWIC is complete according to Appendix B, control of the work area is passed from ROCC to the RWIC.

28.5.10.4 Prior to allowing the crew to begin work, the RWIC shall brief personnel of the work crew that the third rail is energized and that entry onto the Roadway is prohibited. In addition, personnel will be advised of any applicable rules, procedures or restrictions, the track(s) involved, work area limits, the means of protection, and safe areas in which to clear, and document meeting on department issued safety briefing form (see Appendix C of this SOP for example).

28.5.10.5 The RWIC must maintain contact with ROCC during the work in the event ROCC would have to clear the work area in response to an emergency.

28.5.10.6 In the event that the work continues through an ROCC shift change, it shall be the responsibility of the initial ROCC Supervisor to advise the relief person of the work area and the name of the RWIC. ROCC Controllers shall contact and be briefed by the RWIC on the protection required / type of protection for work zones on their lines when changed shifts.

28.5.10.7 In the event that the work continues through the work crew's shift change, it will be the responsibility of the initial RWIC to advise ROCC of the name of the person in charge of the relief crew. At all times, ROCC must be kept informed as to who is the RWIC and responsible for clearing the work area.

28.5.11 Clearing of a Work Area:

Upon completion of the inspection, the RWIC shall contact MOC and ROCC advising them that the work area has been inspected all work crews and equipment are clear of the track(s) and give ROCC clearance to establish normal operations in the area.

28.5.12 Working on Roadway without a Work Area Established:

28.5.12.1 When engaged in work for a period of more than 3-minutes at a stationary location on the Roadway, restrict speeds entering the work site by using one of the following methods:

28.5.12.1.1 Coordinate with ROCC, the application of a shunt strap on the work track in accordance with the established traffic direction. The shunt strap(s) shall be applied at a track location that will assure trains enter and travel a significant portion (at least 30%) of the work area at a restricted speed (15mph). At least one train on each track shall be allowed to operate through the affected area to observe that the desired speed has been achieved before work begins. The shunt strap must be verified by ROCC prior to the start of any wayside work and remain in place until the work is complete and all crew members have cleared to the safety walk or other known clearance area. The shunt strap shall not be placed or removed in front of a train that is visible on the affected track. ROCC shall coordinate train movement through the affected area.

28.5.12.1.2 Implement speed restrictions through the application of the ATP Slow speed couplers in the applicable Train Control Room(s). Work crews must be mindful that trains will operate through the affected area without communicating with ROCC.

28.5.12.1.3 Insertion of switch crank(s) prior to the work being started. Removal of the switch crank shall take place only after all crew members have cleared to the safety walk or other known clearance area. ROCC shall coordinate train movement through the affected area.

28.5.12.1.4 Taking local control of the interlocking or dropping track circuits, forcing red aspects at all signals. Signals shall be cleared only after positive communication verifying that all crew members have cleared to the safety walk or other known clearance area is received by the person controlling the signals. ROCC shall coordinate train movement through the affected area.

28.5.12.1.5 Implement methods specified in 28.5.12.1.1 and 28.5.12.1.2 on the track(s) immediately adjacent to the work area when there is no physical barrier, such as a wall or SSRM approved barrier that obstructs or greatly impedes passage and the work being performed is more than100 feet beyond the end of a center platform station.

Notice: Track Inspections are exempt from the restrictions sited in 28.5.13, however, when the activity transitions from inspection to hands-on work, the restriction(s) must be applied. This exemption will not preclude inspection crews from asking for and implementing speed restrictions to protect them.

28.5.12.1.6 When notified of an impending single track operation through their area, clear the Roadway and notify ROCC when they are totally cleared.

Notice: Roadway personnel may request a transport train in order to expedite clearing their work area.

28.5.12.1.7 ROCC shall:

28.5.12.1.7.□□□□□□28 Make periodic (20- minute) radio announcements to inform train operators of those locations where corrective maintenance actions are being performed within the dynamic outline of a train.

28.5.12.1.7.□□□□□□28 These announcements shall be made at more frequent intervals as deemed necessary by ROCC or as requested by the maintenance/wayside personnel performing the work. (Related Rule 4.180).

28.5.12.1.8 Prior to establishing single track operations or any train movement into mainline Connector tracks (i.e. B&E/C&A Connectors) where personnel are on the roadway:

28.5.12.1.8.□□□□□□28 Announce the limits of the operation, the affected track and request that all personnel on the operational track clear the Roadway;

28.5.12.1.8.□□□□□□28 Upon request, use the first train entering the single track area (connector track) to pick up and clear personnel on the Roadway, and;

28.5.12.1.8.□□□□□□28 Inform Roadway personnel of the location of the transport train when it is made available.

28.5.12.1.9 To further protect mainline work gangs performing walking inspections,

28.5.12.1.9.□□□□□□28 Place "prohibit exit" command on the signal that establishes a reverse route into the area where personnel are to walk and verify that a "Blocked Track" indication is on ROCS/AIM screen.

28.5.12.1.9.□□□□□□28 Take interlocking(s) signals (that can establish a reverse route) out of automatic mode anytime track walkers or workers occupy an area governed by automatic signaling. In cases where workers are granted permission to occupy a connector track (i.e. B&E/C&A Connectors), Controllers will contact the associated controlling console to ensure:

28.5.12.1.9.□.□□□□28□28 Signals allowing movement into the connector track on from either line, are taken out of automatic

28.5.12.1.9.□.□□□□28□28 The block track indication is visible on the associated console, and;

28.5.12.1.9.□.□□□□28□28 A “prohibit exit” command has been placed on signal(s) which can establish a route into the connector track.

28.5.12.1.9.□□□□□□28 Request control of the terminal interlocking and set "prohibits and block track" commands on the track section where the personnel are requesting to walk/work when granting access to Roadway at a mainline terminal.

28.5.12.1.9.□□□□□□28 Maintain control of the terminal interlocking until the personnel have either reported clear of the tracks or they have moved completely out of the section of track controlled by the terminal interlocking.

28.5.12.1.9.□□□□□□28 If positive communication is not received from personnel on the Roadway, direct the next train through the area to proceed at 10 MPH sounding the horn until sighting personnel.

28.5.12.1.9.□□□□□□28 When the crew is located, direct the Train Operator to stop and inform the personnel to clear the wayside.

28.5.12.1.9.□□□□□□28 If work crew is not located, continue to operate trains through the affected area at 10 MPH until confirmation of work crews' whereabouts is obtained.

28.5.13 Use of Derailers:

When it is deemed necessary and appropriate to apply clamp-on derailers to further protect a work area, the following actions shall be taken:

28.5.13.1 Use only derailers that are approved by TSSM and SAFE.

28.5.13.2 The direction from which unauthorized vehicle movement is to be prevented by the use of derailers shall be specifically written in the approved SSWP for the work. Derailers can be used to prevent unauthorized vehicle entry into the Protected Work Area or to prevent unauthorized vehicle exit from the Actual Work Area.

28.5.13.3 WMATA personnel, qualified in the installation of derailers, must be assigned to the work area and remain in the work area until the area is cleared.

28.5.13.4 The WMATA escort, who must also be qualified in the installation and removal of derailers, is responsible for installing and removing the derailers.

28.5.13.5 The WMATA escort shall coordinate with ROCC the exact locations, by chain marker, of installation and removal of the derailers. Placement of the derailers must be within the Protected Work Area.

28.5.13.6 Contractors are not permitted to install or remove derailers.

28.5.13.7 After all personnel and equipment are clear of the Roadway and it is safe to operate trains through the area where the work took place, the derailers are to be removed and ROCC notified. Escorts are to verify the removal of the derailers and ROCC shall confirm with the Escort that all derailers installed have been removed by chain marker. A test train shall then be operated through the work area to confirm the work area is clear.

28.5.13.8 Shunt straps shall be installed within 10 feet of the derailers at the beginning of the protected work area.

28.5.13.9 When the use of derailers are required, no access to the work area shall be permitted (with the exception of rail equipment) until the entry prevention derailers and the associated shunt straps and all other required safety equipment are installed.

28.5.13.10 When exit protection is required, no work with on track equipment is permitted until the exit prevention derailers and associated shunt straps and red flags/lanterns are installed at the ends of the Actual Work Area.

28.5.14 Personnel Responding to Incident on Roadway:

28.5.14.1 Employees responding to incidents on the Roadwway (malfunctioning train, interlocking out of correspondence, fire in tunnel, etc) shall request permission from ROCC and notify ROCC the direction from which the incident is to be approached. Responders are responsible for using Individual Train Detection or Lookout/Watchman as a means of protection en-route to incident.

28.5.14.2 Employees shall approach the incident in a manner that ensures their safety in case service is restored and trains begin moving while personnel are en-route. Employees shall use catwalks or safety walks and, when responding to malfunctioning trains, approach on the track with the malfunctioning train.

28.5.14.3 Upon arriving at the scene, employees shall make positive contact with the Train Operator prior to starting work on or boarding the train.

28.5.14.4 Responders shall use Train Coordination or Foul Time to protect themselves while addressing the incident.

Train Operators shall not move train without permission of mechanic when mechanic working on Roadway near train.

28.5.15 Working on WMATA property outside the Roadway (beyond the Intermediate Boundary Fence):

28.5.15.1 Employees and contractors working on the safe, non-track side of the Intermediate boundary fence will be considered off the Roadway. Hand signaling to train operators is not required.

28.5.15.2 Employees conducting work on WMATA property and on the safe side of the Intermediate boundary fence shall notify ROCC when starting work. ROCC permission is not required.

28.5.15.3 Escorts shall accompany contractors whether working on the safe side or the track side of the Intermediate boundary fence.

28.5.15.4 Train operators shall use caution when approaching individuals on WMATA property, but will not be required to slow trains or sound horns if personnel are on the safe side of the Intermediate boundary fence.

28.5.15.5 Track inspection and wayside scheduled maintenance which occurs on the track, Roadway side of the Intermediate boundary fence will be conducted primarily between 10:00 am and 3:00 pm during manual mode train operations.

28.5.15.6 Personnel working on the track side of the Intermediate boundary fence are considered on the Roadway and are governed by all applicable rules in the MSRPH.

28.5.15.7 Operators shall report any personnel on WMATA property (and on either side of the Intermediate boundary fence) who are not wearing proper PPE.

28.5.16 Establishment of Work Area in the Yard Car Wash Facility (except Branch Ave.):

28.5.16.1 Securing car wash area and car, the supervisor in charge shall:

28.5.16.1.1 Ensure that cars are in the proper position and that the correct car number is in the car wash.

28.5.16.1.2 Ensure that a handbrake has been applied on at least one railcar.

28.5.16.1.3 Turn off Battery Circuit Breakers and secure Battery Circuit Breaker Cover.

28.5.16.1.4 1000 series cars, only turn off the battery output circuit breaker.

28.5.16.1.5 4000 series cars, turn off battery circuit breaker.

28.5.16.1.6 2/3/5/6000 series cars, turn off the battery circuit breaker and the outside light indicator circuit breaker.

28.5.16.1.7 Via the radio, request that the tower de-energize the third rail in the car wash via red tag.

28.5.16.1.8 Upon being notified by the tower via the radio that the third rail has been de-energized, verify that the third rail power is down with a “HOT STICK”.

28.5.16.1.9 Verify with the tower via the radio that you have “HOT STICKED” the third rail power in the car wash and that it is de-energized at this time.

28.5.16.1.10 Connect the WSAD, third rail warning system.

28.5.16.1.11 De-energize ground switch circuit, verify green light is on.

28.5.16.1.12 Install a lock on the ground switch circuit.

28.5.16.1.13 Report back to your supervisor that the train in the carwash is secured.

28.5.16.1.14 Escort contract employees to car wash. Contract employees shall not leave car wash without escort.

28.5.16.1.15 The on-site supervisor or contractor escort must strictly enforce contractor's compliance with staying within boundaries of work area.

28.5.16.2 Preparing Train for Service, the supervisor in charge shall:

28.5.16.2.1 Ensure all personnel and equipment is clear of train and third rail.

28.5.16.2.2 Remove lock from ground switch circuit and energize ground switch circuit.

28.5.16.2.3 Energize Battery Circuit Breakers.

28.5.16.2.4 Disconnect WSAD third rail warning devise.

28.5.16.2.5 Via radio, request that the tower re-energize the third rail power in the car wash.

28.5.16.2.6 Upon being notified by the tower via the radio that the third rail power has been energized in the carwash, verify using a "HOT STICK" that the third rail power in the carwash is energized.

28.5.16.2.7 Via radio, notify the tower that the power has been restored in the carwash and was confirmed using a "HOT STICK".

28.5.16.2.8 Remove hand brake, key up the train, recharge brake pipe and check for brakes off and perform a manual door operation functional check to both cars. Follow all steps in SOP 34.4.3

28.5.16.2.9 Notify tower via radio that the train is ready to be moved out of the car wash and contact your supervisor.

28.5.16.3 Alarm Activation Siren and Strobe Light During Car Wash Activities, the supervisor in charge shall:

28.5.16.3.1 Notify Tower and immediately respond to the car wash track to ensure all personnel are safe and no injuries have been sustained. If personnel have sustained injury, notify ROCC immediately.

28.5.16.3.2 Via the radio, inform the tower of your arrival and utilize a HOT STICK to verify the condition of the Third Rail.

28.5.16.3.3 If the third rail is energized, immediately suspend all exterior cleaning operations and notify ROCC, Tower and MOC Power.

28.5.16.3.4 If no voltage is present, ensure proper connection and operation of the WSAD device. Notify Tower that normal exterior cleaning operation will resume at this time. If the unit is found to be defective, tag it out of service and notify your supervisor immediately.

28.5.16.3.5 Test and verify the proper operation of a spare WSAD devise and place it in operation. Notify Tower that normal Exterior Cleaning Operation will resume at this time.

28.5.16.4 Alarm Activation Siren Only During Car Wash Activities, the supervisor in charge shall:

28.5.16.4.1 Notify Tower and immediately respond to the car wash track to ensure all personnel are safe and no injuries have been sustained. If personnel have sustained injury, notify ROCC immediately.

28.5.16.4.2 Via the radio, inform the tower of your arrival and utilize a Hot Stick to verify the condition of the Third Rail. If the Hot Stick will not detect voltage, verify the level of voltage with a volt meter. If voltage is present, immediately suspend all exterior cleaning operations and notify ROCC, Tower and MOC Power.

28.5.16.4.3 If no voltage is present, ensure proper operation of the WSAD devise. Notify Tower that normal Exterior Cleaning operation will resume at this time. If the unit is found to be defective, tag it out of service and notify your Supervisor immediately.

28.5.16.4.4 Test and verify the proper operation of a spare WSAD device and place it in operation. Notify Tower that normal exterior cleaning operation will resume at this time.

28.5.17 Removal of Third Rail Power and Establishment of a Work Area under a Remote Red Tag Outage for Branch Avenue Yard Carwash Facility only:

28.5.17.1 This remote red tag outage applies to Branch Avenue WMATA Yard Carwash Facility only; where vehicles are washed by hand.

28.5.17.2 This remote red tag outage does not require car maintenance personnel (CMNT) to submit red tag outage request via GOTRS (General Orders – Track Rights System).

28.5.17.3 The supervisor in charge shall via the radio, request that the tower de-energize the third rail in the car wash via a remote red tag.

28.5.17.4 Third Rail power is de-energized and recorded by Yard Interlocking Operator under this remote red tag outage.

28.5.17.5 Remote indication confirms that TPSS carwash track breaker #32 is open.

28.5.17.6 The Yard TPSS carwash track breaker #32 is then tagged by Yard Interlocking Operator by turning and locking the tagging control switch to tag position.

28.5.17.7 Control power to the carwash breaker #32 is removed by the tagging relay.

28.5.17.8 Remote indication confirms that TPSS carwash track breaker #32 is tagged and control power to the breaker is removed.

28.5.17.9 Upon being notified by the tower via the radio that the third rail has been de-energized, CMNT personnel will verify with a working hot stick that the third rail power is down.

28.5.17.10 CMNT personnel will verify with the tower via the radio that you have "HOT STICKED" the third rail power in the carwash and that it is de-energized at this time.

28.5.17.11 CMNT personnel will verify that the running rail grounding green light is on.

28.5.17.12 CMNT personnel will manually open the ETS circuit. Disconnect switch located in carwash bldg.

28.5.17.13 CMNT & Contractor personnel will place lock out/Tag out device on the ETS circuit Disconnect switch box.

28.5.17.14 The ETS Disconnect switch is interlock with the (ETS) Emergency Trip Switch circuit to breaker E-F99-32 located in Branch Ave Traction Power Sub-Station and provides additional safety measure controlled by the carwash facility personnel.

28.5.17.15 CMNT personnel will connect a third rail warning device (WSAD) on the third rail in the actual work area. The rail warning device shall be tested before being connected to the third rail. The third rail warning devices shall be positioned so that every member of the work crew will be able to see and hear the alarms.

28.5.17.16 Report back to your supervisor that the train in the carwash is secured.

28.5.18 Restoration of Third Rail Power and Establishment of a Work Area under a Remote Red Tag Outage for Branch Avenue Yard Carwash Facility only.

28.5.18.1 Ensure all personnel and equipment is clear of train and third rail.

28.5.18.2 CMNT personnel will disconnect the third rail warning device (WSAD).

28.5.18.3 CMNT & Contractor will remove locks from ETS circuit disconnect switch located in carwash bldg.

28.5.18.4 CMNT personnel will Close ETS circuit disconnect switch.

28.5.18.5 The supervisor in charge shall Via the radio, request that the tower re-energize the third rail in the car wash.

28.5.18.6 Yard Interlocking Operator unlocks the remote tagging control switch and removes the tag from the Yard TPSS carwash breaker # 32.

28.5.18.7 Remote indication confirms that TPSS carwash track breaker #32 is normal.

28.5.18.8 Yard Interlocking Operation will close breaker #32.

28.5.18.9 Remote indication confirms that TPSS carwash track breaker #32 is closed and third rail is energized.

28.5.18.10 Upon being notified by the tower via the radio that the third rail power has been energized in the carwash, verify using a “HOT STICK” that the third rail power in the carwash is energized.

28.5.18.11 CMNT personnel will verify that the running rail grounding green light is off.

28.5.18.12 Via radio, notify the tower that the power has been restored in the carwash and was confirmed using a “HOT STICK”.

28.5.18.13 Remove hand brake, key up the train, recharge brake pipe and check for brakes off and perform a manual door operation functional check to both cars. Follow all steps in SOP 34.4.3

28.5.19 Roadway Clarifications: D&G Platform, Alexandria Yard Platform, Shady Grove Yard Lead, Brentwood Yard:

28.5.19.1 D&G Platform (Picture 3 and 4) shall be considered Roadway at all times.

Picture 3 - D & G Platform facing Benning Road portal and Minnesota Avenue aerial structure.

Picture 4 - D & G Platform, Track 1

28.5.19.2 Alexandria Yard Platform – the walkway to the Alexandria Platform stop will be protected by an Intermediate Boundary fence. Where constructed, it separates Metro property into Roadway and Non-Roadway territory. Individuals on the track side of the Intermediate boundary fence are considered "on" the Roadway; individuals on the non-track side of the Intermediate boundary fence are considered "off" the Roadway (pictured below).

Employees shall have an approved Safety Vest and be Roadway trained in order to walk to and from the Alexandria Platform. Non-WMATA employees must be escorted with Roadway trained employee and have on a safety vest.

Employees and contractors walking on the safe, non-track side of the Intermediate boundary fence will be considered off the Roadway. Hand signaling to train operators is not required.

28.5.19.3 Shady Grove Yard Lead – Employees traveling to/from the Shady Grove facility from the Shady Grove terminal via the paved yard lead must be Roadway trained and have on a safety vest. Non-WMATA employees must be escorted with Roadway trained employee and have on a safety vest.

28.5.19.4 Brentwood Yard;

28.5.19.4.1 The inbound platform stop shall not be used by administrative personnel or Station Managers.

28.5.19.4.2 Due to the proximity to mainline and the dangers of high speed train operations, the following sections of Brentwood Yard shall be treated as mainline track:

28.5.19.4.2.□□□□□□28 From B99-38 signal to B99-64 signal along the receiving and dispatch tracks;

28.5.19.4.2.□□□□□□28 In between the receiving and dispatch track and the inbound mainline track from B99-38 signal back towards NY Ave;

28.5.19.4.2.□□□□□□28 Signs shown in Figure 4 shall be placed every 20 feet on the Roadway in the areas of Brentwood Yard defined as ~~mainline track.~~

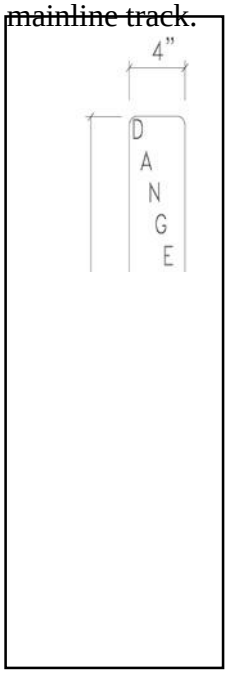


Figure 4

28.5.19.4.3 Personnel going Roadway for any reason in the areas of Brentwood Yard defined as mainline track (28.5.17.4.2) shall request permission from both the Brentwood Interlocking Operator and the ROCC Supervisor and be governed by all Roadway safety rules and procedures when personnel are on the Roadway (personnel request permission and be responsible for their own safety; train operators shall slow and sound their horns when sighting personnel in areas defined in section 28.5.17.4.2).

28.6 REFERENCES

28.6.1 SOPs # 2, # 19, # 23

28.6.2 Operating Rule 3.87

28.6.3 Safety Rules 4.1, 4.2, 4.163-4.199

Appendix A to SOP 28

The following activities are the only exceptions to supervisory third rail power outage requirement for WMATA employees described in section 28.5.1.3:

1. Verifying third rail voltage testing devices, e.g., approved hot sticks and meters.
2. Establishing work area safety zones adjacent to the actual work area.
3. Walking and/or performing inspections on the Roadway.
4. Performing ATC switch maintenance and testing.
5. Performing ATC track circuit maintenance and testing.

The following activities are the only exceptions to red tag third rail power outage requirement for non-WMATA employees described in section 28.5.2.1:

1. Site verification and field measurements of rail flaws detected by ultrasonic rail flaw detection equipment – no power outage required; protection ensured by the WMATA Roadway Worker In Charge.

Notice: The above are just examples. Departments should submit proposed activity exemption lists to the MSRPH Rule Book Committee for review.

Appendix B to SOP 28

ROCC Coordination with Roadway Worker In-Charge

For Establishment of Work Zones

Protection Coordination	Inaccessible Track	Individual Train Detection	Exclusive Track Occupancy	Train Approach / Watchman-Lookout	Foul Time
Verify Shunt	R	NA	O	O	NA
Work Limits in GOTRS	R	NA	O	O	NA
Prohibit Exits	R	O	R	R	NA
Speed Restriction Adjacent Track	O	NA	O	O	NA
Physical Barrier (i.e. Derailers / Switches Blocked/Clamped)	R	NA	NA	NA	NA
PPE	R	R	R	R	R
WSADS	R	NA	O	NA	NA
ROCC Notification/Pre-Fouling Briefing	R	R	R	R	R
Drop Circuits	NA	NA	O	NA	NA
Drop Signals	NA	NA	O	NA	NA
Announcements	NA	NA	R	R	R
Stop Train Movement	NA	NA	NA	NA	R

R = Required

O = Optional

NA = Not Applicable

Appendix C to SOP 28 Example of Safety Briefing Form

Date: December 10, 2008	**Time**: 10:00 ☒ **AM** ☐ **PM**	**Line/Division**: Red Line- Shady

Work Location/Track Number(s)/Chain Markers: Shady Grove to White Flint Track #1 A1-905+50-A1-600+00	**Description of Work Assignment**: Track Inspection ☒ Safety rule read pertaining to job? Safety rule number(s) read? 4.164

Name of employee(s) providing on-track protection: Troy Lloyd

Department: Track	**Qualifications**: ☐ Supervisor ☐ Leadman ☐ Escort ☒ Track Walker

What form of on-track protection will be used: (*Check all that apply*)

☐ Track Out of Service Which Track is Out of Service? ☐#1 ☐#2 ☐#3

☒ Watchman/Flagman ☐ Shunt Strap(s) ☐ ATP Slow Speed Couplers

(Inspection duties only)

☐ Insertion of Switch Crank ☐ Local Control of Interlocking

☐ Yes ☐ No If performing Roadway maintenance work during revenue hours, is there a physical barrier such as a wall or SSRM approved barrier between you and your work area on the adjacent track(s)? If not,

How are the adjacent track(s) protected? ☐ Physical Barrier ☐ Shunt(s) ☐ ATP Slow Speed Couplers

☒ Yes ☐ No Have you discussed a safe clearing location for the passing of trains and work equipment?

☐ Yes ☒ No Will the use of cranes, booms or other type equipment be utilized during revenue hours that could encroach on the dynamic outline of a passing train? If so,

☐ Yes ☐ No Do you have flagmen assigned to each side of the work area?

☐ Yes ☐ No Do you have an employee with a radio exclusively assigned to monitor crane operations?

If performing on-track inspection duties only, which track are you inspecting? ☒#1 ☐#2 ☐#3

What are the location(s) that you will be inspecting? Shady Grove to White Flint, including interlockings.

(Employees should discuss their on-track safety procedures, watchman duties and proper PPE)

What type of power outage is being utilized?	**What about your on-track safety equipment**?
☐ Supervisory	☐ Yes ☐ No Is your WSAD in place?
☐ Red Tag Number _____	☐ Yes ☐ No Shunts and red lanterns in place?
☒ No Power Outage	☐ Yes ☐ No Work mats in place?
Have the negative reference cables been disconnected and temporally reconnected? ☐ Yes ☐ No ☐ N/A	☒ Yes ☐ No Personnel have all required PPE?

☐ If working around on track machinery and equipment, the operators must discuss the dangers of the equipment, minimum spacing between equipment and safe working speeds.

☐ Are there other departments involved in this work assignment? If so, discuss their involvement.

☐ Does anyone have any questions or concerns? ☐ Yes ☒ No

If yes, have they been addressed to everyone's satisfaction? ☒ Yes ☐ No

Employees must sign the "On-Track" safety briefing sheet at the job site! (List or sign-in optional)

SOP #39 LOCKOUT/TAGOUT PROCEDURE FOR TRACTION POWER SUBSTATIONS

39.1 PURPOSE

The purpose of this procedure is to ensure consistency and establish guidelines for WMATA and contractor personnel to use in coordinating and executing the steps of this Lockout/Tagout (LOTO) procedure, in order to provide a safe work environment and to provide safeguards against accidental or unexpected activation of traction power substation electrical equipment, related circuits and tie breaker station.

39.2 SCOPE

This document establishes requirements for the use of a Lockout/Tagout (LOTO) procedure, for all WMATA employees and contractors, desiring to perform work on the wayside in the area controlled by a traction power substation that is occupied by personnel also performing work within the substation. This document also requires the use of existing Lockout/Tagout (LOTO) procedure outlined in OAP 200-2, Policy/Procedure # 16, by personnel performing work on the high voltage traction power equipment and low voltage AC and DC equipment within the traction power substation and tie breaker room.

39.3 DEFINITIONS

39.3.1 Clearance Report: A report made by the personnel participating in the LOTO, who will inform the power coordinator that all personnel and equipment are clear of the work area.

39.3.2 Contractor : A person or business entity that is hired by WMATA to perform work, but is not an employee of WMATA.

39.3.3 Inspection Report: A report resulting from the inspection of the wayside when a LOTO key holder and/or piggy backer is absent during restoration and/or a piggy backer failing to make a clearance report at the scheduled stop time. The report is made by the Power Coordinator who advises ROCC and MOC of the results of the inspections, status of personnel, equipment, and work area.

39.3.4 Lockout/Tagout Procedure: A procedure involving the practice of using tags to increase the visibility and awareness that equipment is not to be energized and using keyed security devices to prevent accidental or unexpected activation of electrical equipment.

39.3.5 Piggyback: A term used to describe the procedure which allows additional work gangs to work in the work area of a person holding rights to the work area under a third rail power red tag outage, supervisory outage or no power outage.

39.3.6 Power Coordinator: A qualified WMATA employee responsible for executing LOTO procedures.

39.3.7 Roadway Worker in Charge (RWIC): A qualified employee responsible for the Roadway safety for all workers and work gangs within their working limits.

39.3.8 Tie Breaker Station: The facility which houses DC track feeder breakers.

39.3.9 Traction Power Substation (TPSS): The facility which transforms and rectifies local utility high voltage alternating current to 750 Volts Direct Current (VDC).

39.4 RESPONSIBILITIES

39.4.1 Supervisors and managers are responsible for:

39.4.1.1 Familiarization and compliance with the guidelines established in OAP 200-2- P/P # 16, SOP # 28, SOP # 41, MSRPH and other applicable rules and procedures.

39.4.1.2 Ensuring assigned personnel are properly trained in accordance with the requirements set forth in this procedure.

39.4.1.3 Enforcement of LOTO procedure, applicable publications, policies and procedures.

39.4.1.4 Maintaining current copies of this procedure and other associated policies and procedures, at work sites, field offices, reporting locations and other designated locations.

39.4.1.5 Ensuring assigned personnel are adequately equipped with the tools, equipment, materials and instructions required to execute this procedure in the proper and safest manner possible.

39.4.1.6 Approving and disapproving piggyback requests for scheduled and unscheduled maintenance activities.

39.4.1.7 Providing WMATA and contractor personnel assigned to perform LOTO duties, with copies of approved piggyback request forms, red tag outage switching orders and track rights and support request form if required.

39.4.2 WMATA and contractor personnel assigned LOTO duties are responsible for:

39.4.2.1 Familiarization and compliance with the guidelines established in OAP 200-2-P/P # 16, SOP # 28, SOP # 41, MSRPH and other applicable rules and procedures.

39.4.2.2 Ensuring the steps of this procedure are executed in a safe and expedient manner, while keeping in compliance with all related SOPs, OAPs, and MSRPH rules associated with performing LOTO duties.

39.4.2.3 Enforcement of LOTO procedure and other applicable WMATA publications, policies and procedures.

39.4.2.4 Ensuring each member of the WMATA and Contractor workforces has a valid ID card, and that contractor ID cards include a Traction Power Substation Equipment Safety Training Certification Label.

39.4.2.5 Red tag outage switching orders, rail support request and track rights form if required and other required documents.

39.4.2.6 Providing privately owned pad locks with keys for securing the group lockbox.

39.4.2.7 Not leaving the area with keys, when privately owned pad locks are installed on the LOTO group Lockbox.

39.4.2.8 Ensuring all initial and alternate key holders complete the process for turning over the key holding responsibilities in the event the initial key holders must leave the area or the work continues through a shift change.

39.4.3 The TSSM Power Coordinator is responsible for:

39.4.3.1 Completing the LOTO Clearance and Inspection Checklist and documenting all other activities resulting from the execution, implementation, and enforcement and reporting of the LOTO procedures, Piggyback procedures, red tag procedures and other related activities.

39.4.3.2 Ensuring all documentation provided for tracking and logging the LOTO activities, is completed, signed, filed in the designated site binder and submitted daily to other locations as required.

39.4.4 The Roadway Worker in Charge (RWIC) is responsible for:

39.4.4.1 Coordination of de-energization and restoration of power with the Power Coordinator.

39.4.4.2 Making three attempts, using any means of communications available, to contact an absent key holder, when he/she cannot be contacted for the removal of a privately owned pad lock for LOTO restoration procedures.

39.4.4.3 Making three attempts, using any means of communications available, to contact the responsible piggybacker when a clearance report has not been provided or he/she cannot be contacted at the scheduled stop time.

39.4.4.4 Inspection of the work area performed when the responsible piggybacker has not provided a clearance report or cannot be contacted at the scheduled stop time.

39.4.4.5 Reporting the results of the inspection to ROCC/MOC, advising that he/she will cut the privately owned pad lock installed on the group lock box.

39.4.5 ROCC/MOC are responsible for:

39.4.5.1 Familiarization and compliance with the guidelines set forth in this procedure.

39.4.5.2 Familiarization and compliance with the guidelines established in OAP 200-2-P/P # 16, SOP # 28, SOP # 41, MSRPH and other applicable rules and procedures.

39.4.5.3 Monitoring, and documenting the activities resulting from the execution, implementation, verification and reporting of the LOTO procedures, piggyback procedures, red tag procedures and other related activities.

39.4.5.4 Verification of LOTO procedures through RWIC.

39.4.5.5 Possessing information on track rights and request forms, red tag outage switching orders and other required documents.

39.4.5.6 Providing authorization to the TSSM Power Coordinator after completion of the inspection of the work area, to complete the LOTO restoration procedure and/or restore third rail power in accordance with OAP 200-2, PP # 16, SOP # 28, when the responsible piggybacker has not provided a clearance report or cannot be contacted at the scheduled stop time.

39.5 PROCEDURES

Procedure #	Content
39.5.1	Lockout/Tagout De-Energization Procedures
39.5.2	Lockout/Tagout Restoration Procedures

39.5.1 Lockout/Tagout De-Energization Procedures:

39.5.1.1 All WMATA and Contractor personnel involved in the LOTO procedure shall perform all steps of this procedure, in a safe manner.

39.5.1.2 The TSSM Power Coordinator shall coordinate and ensure all steps are properly and safely executed:

39.5.1.2.1 Verify proper operation of telephones and hand held radios with ROCC and MOC.

39.5.1.2.2 Obtain copies of the LOTO De-Energization Procedure Checklist, power switching orders, support request and track rights form if required and approved piggyback request form and other required documentation.

39.5.1.2.3 Verify with the piggyback crew leader that the chain markers of the work area are correct.

39.5.1.2.4 Inventory and verify that the tools and equipment required for the LOTO and red tag power outage activities are present.

39.5.1.2.5 Verify that all personnel scheduled to participate in the LOTO activities are present at the affected traction power substation.

39.5.1.2.6 Using the copy of the red tag switching orders, identify the circuit breakers to be locked out and tagged out.

39.5.1.2.7 Using the Substation drawings, locate, de-energize and tag out the circuit breaker that provides 125 or 135 VDC control power for the affected traction power circuit breakers.

39.5.1.2.8 Inspect all circuit breaker cubicles scheduled to be locked and tagged out and verify that it is safe to install the lock out devices and pad locks.

39.5.1.2.9 Install the lock out devices, pad locks and tag out tags on the breaker cubicles in a safe manner.

39.5.1.2.10 Perform an inspection and verify the security of the lock out devices, pad locks and that no debris or other existing objects are in the cubicle.

39.5.1.2.11 Collect and place the breaker cubicle keys for the high security pad locks installed on the lock out devices, on the breaker cubicles, inside the “Key Lock Box”.

39.5.1.2.12 Place the Key Lock Box containing the padlock keys, into the “Group Lock Box”.

39.5.1.2.13 Ensure all privately owned pad locks used by the LOTO participants, are installed on the “Group Lock Box”.

39.5.1.2.14 Instruct RWIC to contact ROCC to request permission to go wayside to test the affected third rail sections for de-energization, in accordance with OAP 200-2, P/P #16, SOP # 28 and SOP # 41.

39.5.1.2.15 Instruct the RWIC to contact ROCC and confirm the affected third rail sections have been tested and confirmed de-energized and request permission to install the protective equipment if not already installed.

39.5.1.2.16 Instruct the RWIC to install or verify and confirm to ROCC, that protective equipment have been properly installed in the work area in accordance with the approved chain markers, SOP # 28 and SOP # 41.

39.5.1.2.17 Ensure that all LOTO participants, sign the LOTO log book listing their name, phone numbers, supervisor’s name, supervisor’s phone number, the number of the assigned pad lock installed on the Group Lock Box, expected time of departure, and make a check mark indicating the witnessing of the LOTO procedure.

39.5.1.2.18 Inform all personnel holding keys to the privately owned pad locks on the group lock box that all locks will have to be removed when the piggyback rights holder has completed the work and cleared the work area and that any key holder not present or cannot be contacted at that time, will have their locks cut and removed from the group lock box in accordance with the guidelines set forth in this procedure.

39.5.1.2.19 Inform all key holders that in the event the initial key holders must leave the area or the work continue through a shift change, the group lock box key shall be given to an alternate key holder. The original key holder shall document the LOTO log listing the name of the alternate key holder and time of departure. The new key holder shall also sign the LOTO log book listing the time and name of the person from which he received the group lock box pad lock key, his/her name, phone numbers, supervisor's, name, supervisor's phone number, the number of the assigned pad lock installed on the Group Lock Box and expected time of departure.

39.5.1.2.20 Shall notify ROCC/MOC and any other authorities, that the LOTO De-Energization procedures have been completed.

39.5.1.2.21 Shall complete the LOTO De-Energization procedure checklist and ensure all other related paper work has been properly documented, signed and filed in the site binder.

39.5.2 Lockout/Tagout Restoration Procedures:

39.5.2.1 The TSSM Power Coordinator shall:

39.5.2.1.1 Ensure the RWIC or designee is instructed to confirm with ROCC/MOC, following the clearance and inspection of the work area that all personnel and equipment are clear of the work area, protective equipment removed and the work area inspected for re-energization.

39.5.2.1.2 Obtain copies of the LOTO Restoration Procedure Checklist, Switching orders, support request and track rights form, LOTO log book and prepare to begin the restoration procedures.

39.5.2.1.3 Inventory and verify that the tools and equipment required for the LOTO and red tag power restoration activities are present.

39.5.2.1.4 Verify that all personnel required are to participate in the LOTO restoration procedures are present at the affected traction power substation and tie breaker room.

39.5.2.1.5 Determine if any personnel holding keys for the locks on the group lock box are absent or have not made a clearance report at the schedule stop time.

39.5.2.1.6 If key holder(s) are absent, make three attempts, using any means of communications available, to contact the absent key holder(s). If no response is received, instruct RWIC to perform an inspection of the wayside in an attempt to locate missing key holder(s) and to determine the status of the work area.

39.5.2.1.7 Upon completion of the inspection of the work area, if absent key holder(s) still cannot be located and/or if equipment was found in the work area:

39.5.2.1.7.□□□□□□39 Advise RWIC to clear any tools and equipment and re-inspect the work area for re-energization of third rail power.

39.5.2.1.7.□□□□□□39 Cut and remove a privately owned pad lock from the group lock box.

39.5.2.1.7.□□□□□□39 Complete the LOTO restoration procedure and/or;

39.5.2.1.7.□□□□□□39 Restore third rail power in accordance with OAP 200-2, PP # 16, SOP # 28 and SOP # 41 if required.

39.5.2.1.8 If the absent personnel were located, contact ROCC/MOC, and;

39.5.2.1.8.□□□□□□39 Complete the LOTO restoration procedure and/or;

39.5.2.1.8.□□□□□□39 Restore third rail power in accordance with OAP 200-2, PP # 16, SOP # 28 and SOP # 41 if required.

39.5.2.1.9 When permission is granted, cut the pad lock and complete the LOTO Clearance and Inspection checklist documenting the activities resulting from the inspection.

39.5.2.1.10 Instruct all personnel holding keys for pad locks installed on the group lock box, to remove their pad locks and document the LOTO log book as required.

39.5.2.1.11 Using the copy of the switching orders, identify the correct breakers cubicles and remove the lock out devices and pad locks in a safe manner.

39.5.2.1.12 Upon completion of the removal of the pad locks, lock out devices and the tagout tags, perform an inspection and verify that no debris or other objects are remaining in the breaker cubicles.

39.5.2.1.13 Release the red tag to ROCC/MOC for restoration of third rail power in accordance with OAP 200-2 P/P # 16 and SOP # 28.

39.5.2.1.14 Notify ROCC/MOC when third rail power restoration activities have been completed.

39.5.2.1.15 Inventory and secure all LOTO equipment.

39.5.2.1.16 Ensure the LOTO Restoration procedure checklist and other related paper work has been properly documented, signed and filed in the site binder.

39.6 REFERENCES

39.6.1 OAP 200-2 – Maintenance Operation Center Policy Procedure # 16 – Electrical Power Outage/Restoration.

39.6.2 SOP # 28 - Removal and restoration of third rail power for work by WMATA maintenance forces mainline revenue system.

39.6.3 SOP # 41 – WMATA Escorts

39.6.4 Lockout Tagout De-energization Procedure Checklist

39.6.5 Lockout Tagout Restoration Procedure Checklist

39.6.6 Lockout/Tagout (LOTO) Procedure Log Book Form

39.6.7 Lockout/Tagout Clearance and Inspection Report Checklist

39.6.8 TRAINING AND CERTIFICATION

WMATA and Contractor management and supervisory personnel shall develop and execute training programs that will provide employees with the knowledge and skills necessary to safely and effectively perform the steps of the Lockout/Tagout Procedure. These training programs at a minimum shall include but is not limited to, conducting reading sessions, question and answering session and signing a statement of understanding of the Lockout/Tagout procedure. This training is applicable to WMATA, Contractor and other personnel required to perform LOTO duties, individuals responsible for supervising and managing such activities and personnel that request such activities.

39.6.9 TOOLS AND EQUIPMENT

The tools and equipment required for performing LOTO duties may include but are not limited to:

- All required PPE
- Portable radio
- Approved third rail voltage tester (Hot Stick)
- Bolt Cutters
- Multimeter
- Flashlight
- High Security Pad Locks
- Privately Owned Pad Locks
- Circuit Breaker Cubicle Lock Out Device
- Tagout Tags
- Block Tags
- Pad lock labeling kit
- LOTO Site Binder
- LOTO De-energization Procedure Checklist
- LOTO Restoration Procedure Checklist
- Key Lock Box
- Group Lock Box

SOP # 41 WMATA ESCORT PROCEDURES FOR NON-ROADWAY

41.1 PURPOSE

The purpose of these procedures is to ensure consistency and to establish guidelines for WMATA personnel to use in coordinating and executing escort duties in order to provide safe work areas for WMATA employees and contractors. These procedures shall be accomplished with the guidelines outlined in these procedures, in accordance with SOP 28, MSRPH, and other related rules and procedures.

41.2 SCOPE

41.2.1 These procedures are applicable to WMATA personnel certified and required to perform escort duties, individuals responsible for supervising and managing such activities, and personnel that request such activities while working on the revenue system in Non-Roadway work areas.

41.2.2 This SOP does not apply to personnel working in the Roadway. Procedures requiring escort into Roadway areas shall be referred to the Roadway Worker Protection Manual (RWPM).

41.3 DEFINITIONS

Escort: A WMATA employee responsible for the safe movement of personnel through and to Non-Roadway work areas and facilities, and must comply with all WMATA policies and procedures.

41.4 RESPONSIBILITIES

41.4.1 Supervisors and Managers are Responsible for:

41.4.1.1 Familiarization and compliance with the guidelines set forth in this procedure.

41.4.1.2 Familiarization and compliance with the guidelines established in SOP # 28, MSRPH, and other applicable rules and procedures.

41.4.1.3 Ensuring that assigned personnel have been properly trained and certified in accordance with Escort Training Program requirements.

41.4.1.4 Enforcement of escort procedures and applicable publications, policies and procedures.

41.4.1.5 Coordinating escort requirements.

41.4.1.6 Ensuring that personnel are adequately equipped with the tools, equipment, materials and instructions required to carry out the steps of this procedure.

41.4.1.7 Ensuring that a Non-Roadway and Facilities Escort Information Sheet is completed, and provided to the escort, MOC, ROCC, and personnel required having knowledge of it.

41.4.1.8 Ensuring escort equipment is pre-positioned at scheduled work locations are made available to the escort in advance of schedule escort activities.

41.4.1.9 Ensuring the requirements of this procedure is executed properly and in the safest manner possible.

41.4.2 Personnel assigned escort duties are responsible for:

41.4.2.1 Familiarization and compliance with the guidelines set forth in this procedure.

41.4.2.2 Familiarization and compliance with the guidelines established in SOP # 28, MSRPH and other applicable rules and procedures.

41.4.2.3 Ensure each member of the WMATA and Contractor workforce has a valid ID card.

41.4.2.4 Briefing personnel of the work crew on applicable WMATA safety rules/procedures, and any restrictions on the work area as specified by the power outage or General Orders and Track Rights System (GOTRS).

41.4.2.5 Remaining at the work site and advising MOC and ROCC of any change in the assigned escort.

41.4.2.6 Remaining at the work site monitoring work crews to ensure safety of the work area.

41.4.2.7 Preparing and submitting completed and signed copies of the Non-Roadway and Facilities Escort checklist to the supervisor, management and other personnel as directed.

41.4.2.8 Ensuring the steps of this procedure is executed in a safe and expedient manner while keeping in compliance with all applicable OAPs and the MSRPH.

41.4.2.9 If a work activity requires a System Safety Work Plan (SSWP), a copy shall be given to the escort prior to the work being performed.

41.5 PROCEDURES

Procedure #	Content
41.5.1	Non-Roadway and Facilities Escort Procedures

41.5.1 Non-Roadway and Facilities Escort Procedures:

Escorts shall implement the following procedures for installing protective equipment, assisting with a low voltage power outage, performing safety inspections and monitoring WMATA and contractor personnel while working in facilities and/or in other Non-Roadway areas on the mainline revenue system. Escorts shall:

41.5.1.1 Report to the scheduled escort location not less than 1/2 hour before the scheduled work time and report presence, arrival time and purpose to MOC.

41.5.1.2 Give a detailed description of the work to be performed to MOC, including the facilities in which the work is scheduled to be performed and whether a low voltage power outage is scheduled for the work.

41.5.1.3 Inventory and test all required equipment and other items required for the escort activities in accordance with sections 5, 6 and 7.

41.5.1.4 Prior to the scheduled start time or at the scheduled meeting time, meet the WMATA maintenance personnel or contractor personnel at the designated meeting location. Advise the personnel of the activities that must take place before work is permitted to begin. Instruct personnel to remain clear of facilities/work areas and wait in a designated area until such time the facility/work area has been inspected and/or protected and permission to enter has been granted by ROCC and/or MOC. In addition, the briefing should include but is not limited to the following items. WMATA and contractor personnel shall:

41.5.1.4.1 Comply with applicable safety rules while working in WMATA facilities and other Non-Roadway work areas.

41.5.1.4.2 Wear the approved PPE at all times.

41.5.1.4.3 Check with the escort before leaving the work area.

41.5.1.4.4 Use the route designated by the escort when entering and leaving the Non-Roadway work area.

41.5.1.4.5 Only work on the equipment for which authorization has been approved. Tampering with any equipment is prohibited.

41.5.1.5 When preparing a work area where no power outage is required, the escort shall:

41.5.1.5.1 Request permission to enter the facility or work area to install safety equipment, if required, and begin work.

41.5.1.5.2 If required, install safety equipment in accordance with the Non-Roadway and Facilities Escort Information Sheet and or applicable procedures or instructions by MOC/ROCC. This safety equipment may include but is not limited to:

- Orange safety cones
- Work lights
- Orange safety netting/fencing
- Yellow safety tape
- Wet floor safety cones
- Work signs (do not open; do not remove; out of service; etc...).
- Lanterns

41.5.1.5.3 If required, perform visual safety inspections of tools and equipment being used. These safety inspections of equipment may include but is not limited to inspections of:

- Step ladders
- Extension ladders
- Scaffolds
- Secured chains
- Secured ropes
- Extension cords
- Locks
- Mounts, brackets and other hardware

41.5.1.5.4 When the safety equipment installations and equipment and tool inspections have been completed, confirm to MOC/ROCC that the required safety equipment is installed and equipment inspections complete. Request permission to begin work.

41.5.1.5.5 In the event an emergency or a requirement to clear the facility or work area occurs, WMATA and contractor personnel and equipment shall be clear of the facility and/or work area, and shall remain clear until such time that the protective equipment has been re-installed and re-entry to the facility or work area has been authorized by MOC/ROCC and the escort.

41.5.1.5.6 In the event the initial escort must leave the facility or work area or the work continues through a shift change, advise MOC/ROCC of the new escort name and call number in accordance with SOP # 28.

41.5.1.6 When preparing a work area where a power outage is required, the escort shall:

41.5.1.6.1 Request permission to enter the facility or work area to install safety equipment, if required, and begin work.

41.5.1.6.2 Request MOC to remove power according to approved switching order.

41.5.1.6.3 When MOC notifies the escort that power has been de-energized, verify that the affected equipment and/or circuits are de-energized with an approved multimeter in accordance with the Non-Roadway and Facilities Escort Information Sheet and/or the information contained on the low voltage power outage switching orders.

41.5.1.6.4 When the safety inspection and low voltage power outage verification have been completed, confirm to MOC/ROCC that the inspection has been completed and/or the affected equipment and circuits are de-energized.

41.5.1.6.5 If required, install safety equipment in accordance with the Non-Roadway and Facilities Escort Information Sheet and or applicable procedures or instructions by MOC/ROCC. This safety equipment may include but is not limited to:

- Orange safety cones
- Work lights
- Orange safety netting/fencing
- Yellow safety tape
- Wet floor safety cones
- Work signs (do not open; do not remove; out of service; etc...).
- Lanterns

41.5.1.6.6 If required, perform safety inspections of tools and equipment being used. These safety inspections of equipment may include but is not limited to inspections of:

- Step ladders
- Extension ladders
- Scaffolds
- Secured chains
- Secured ropes
- Extension cords
- Locks
- Mounts, brackets and other hardware

41.5.1.6.7 When the safety equipment installations and equipment and tool inspections have been completed, confirm to MOC/ROCC that the required safety equipment is installed and equipment inspections complete. Request permission to begin work.

41.5.1.6.8 In the event an emergency or a requirement to clear the facility or work area occurs, WMATA and contractor personnel and equipment shall be clear of the facility and/or work area, and shall remain clear until such time that the protective equipment has been re-installed and re-entry to the facility or work area has been authorized by MOC/ROCC and the escort.

41.5.1.6.9 In the event the initial escort must leave the facility or work area or the work continues through a shift change, advise MOC/ROCC of the new escort name and call number in accordance with SOP # 28.

41.5.1.7 When permission is granted for the new or replacement escort, perform a safety inspection of the facility/work area. The safety inspection may include but is not limited to the following checks:

41.5.1.7.1 Ensure door locks are operational;

41.5.1.7.2 Ensure lights are operational;

41.5.1.7.3 Ensure telephone is operational;

41.5.1.7.4 Ensure radio is operational in facility/work area;

41.5.1.7.5 Ensure floor and stairs are free of water and oil;

41.5.1.7.6 Ensure loose and hanging objects are corrected;

41.5.1.7.7 Ensure adequate ventilation and ensure fans and other devices that produce loud damaging noises are disabled.

41.5.1.8 Restoration Procedures:

41.5.1.8.1 Escorts shall implement the following procedures for removing protective equipment, removing and securing safety equipment and tools, assisting with the restoration of low voltage power outages, performing safety inspections of work areas to ensure they are returned to normal or modified configurations.

41.5.1.8.2 Prior to, or, at the scheduled work stop time, direct the WMATA or contractor crew member in charge of the work to remove all equipment and personnel from the facility or work area.

41.5.1.8.3 Contact ROCC/MOC. Advise that the WMATA or contractor personnel and equipment are clear of the facility and/or work area, that the work area will be disassembled, the protective equipment removed and the facility /work area inspected.

41.5.1.8.4 Inventory all work tools, equipment and protective equipment remaining at the work site. Ensure equipment is in their designated locations and properly and safely secured.

41.5.1.8.5 Contact ROCC/MOC and advise that all protective equipment have been removed, work tools and equipment secured and the facility/work area inspected. Advise that the low voltage tag can be cleared.

41.5.1.8.6 Complete the Non-Roadway and Facilities Escort Checklist and fax to immediate supervisor and other locations as directed.

41.6 REFERENCES

41.6.1 OAP 200-2, P/P # 16

41.6.2 SOP # 28

Washington Metropolitan Area Transit Authority

METRORAIL SAFETY RULES AND PROCEDURES HANDBOOK

PERMANENT ORDER

NO. T-13-13 SOP #49 • Designation of Qualified TBS & TPSS as "Special Construction Sites"

Date: December 27. 2013

TO: All Personnel

Permanent Order T-13-13 establishes a new Metrorail Safety Rules and Procedures Handbook (MSRPH) Standard Operating Procedure, SOP #49 - Designation of Qualified TBS & TPSS as "Special Construction Sites". This SOP establishes procedures for designating Tie Breaker Stations (TBS) and Traction Power Sub Stations (TPSS), which meet certain criteria, as "Special Construction Sites". This SOP also provides contractor access to TBSs and TPSSs deemed "Special Construction Sites". without a Level 4 Escort. The SOP also provides contractor roadway access without Level 4 escort provided SAFE concurs with methods proposed to mitigate the risk of that access.

SOP #49 is attached and contains the following procedures:

- Designation of "Special Construction Sites"
- Additional Requirements for Roadway accessible TBSs and TPSSs
- Restoration of a "Special Construction Site" upon completion of work
- Additional Requirements for TBS and TPSS locations declared as "Special Construction Sites" within Shutdown and Single Tracking limits

Approval of Permanent Order T-13-13

Recommended:
Charles J. Dziduch
Director, ROCC
Chair, Rail Rule Book Committee

Concur:
Hercules Ballard
Managing Director
Department of Rail Transportation

Concur:
David Newman
General Superintendent
Systems Maintenance

Concur:
Darvin Kelly
General Superintendent
Track and Structures Maintenance

Approved:
Robert Troup
Deputy General Manager
Operations

Concur:
James M. Dougherty
Chief Safety Officer
System Safety and Environmental Management

SOP #49 DESIGNATION OF QUALIFIED TBS & TPSS AS "SPECIAL CONSTRUCTION SITES"

49.1 PURPOSE

The purpose of this Standard Operating Procedure is to designate Tie Breaker Stations (TBS) and Traction Power Sub Stations (TPSS), which meet all criteria listed below, as "Special Construction Sites".This SOP also provides contractor access to TBSs and TPSSs deemed "Special Construction Sites", without a Level 4 Escort.

49.2 SCOPE

49.2.1 This SOP is valid only during periods where the TBS and the TPSS are taken completely out of service, utility feeders and track feeders are disconnected, and equipment is de-energized.

49.2.2 This SOP requires contractors to be accompanied by a WMATA employee at all times while working in TBSs and TPSSs.

49.2.3 This SOP applies to contractors working in TBSs and TPSSs with a contractor representative on site who has successfully completed "OSHA 30 Hour Construction Industry Procedure" training.

49.2.4 This SOP applies only to TBSs and TPSSs which are non-Roadway accessible.

49.2.S This SOP applies to Roadway accessible TBSs and TPSSs only with prior written approval from SAFE.

49.3 DEFINITIONS

49.3.1 Roadway: Any location where Roadway Worker Protection is required. For a complete definition of Roadway, refer to the MSRPH.

49.3.2 Special Construction Site: TBSs and TPSSs which meet all criteria of this SOP are to be considered "Special Construction Sites." TBSs, TPSSs, and their respective accesses that are declared "Special Construction Sites"will be considered non-Roadway.

49.3.3 Tiebreaker Station (TBS):The facility containing track feeder breakers to connect or disconnect gapped sections of third rails via a DC bus.This facility does not transform or rectify utility high voltage but connects third rails together via the bus.

49.3.4 Traction Power Substation (TPSS): The facility which transforms and rectifies local utility high voltage alternating current to 750 Volts Direct Current (VDC).

49.3.S Utility: Local company which supplies power to room/equipment.

49.4 RESPONSIBILITIES

49.4.1 CENI is responsible for:

49.4.1.1 Ensuring each location has an approved SSWP routed to all affected departments per OAP 200-33.

49.4.1.2 Request and confirm electrical isolation of facilities from MOC.

49.4.1.3 Ensuring contractors have properly trained personnel on-site.

49.4.1.4 Maintaining possession of the Red Tag issued by TAMC.

49.4.1.5 Holding a restoration meeting upon completion of work with SMNT, the contractor, and TAMC.

49.4.1.6 Attending Shutdown or Single Tracking meetings when "Special Construction Sites" are within the limits of Single Tracking or Shutdowns.

49.4.1.7 Completion of site assessment and plan to determine location of special markings or barriers to separate Metro property into roadway and non-roadway territory. Determination of non-Roadway territory requires approval by SAFE.

49.4.1.8 Providing, installing, and removing, upon completion, special markings and or barriers per site assessment plan.

49.4.1.9 When it is required, providing basic electrical safety briefing related to TBS and/or TPSS.

49.4.2 When a TBSII'PSS is declared as a "Special Construction Site," a Level 2 Escort or Inspector is responsible for:

49.4.2.1 Following all requirements pertaining to this SOP.

49.4.2.2 Receiving basic electrical safety briefing related to TBS and/or TPSS by PWR CENI, if their regular duties are not related to work within TBS or TPSS.

49.4.2.3 Providing a Safety Briefing to contractors prior to entering a TBS or TPSS.

49.4.2.4 Calling MOC at (202) 962-1530 upon entry and upon exit of the TPSS and TBS.

49.4.2.5 Calling MOC at (202) 962-1530 in cases of emergency.

49.4.2.6 Calling Mobile Command or the RWIC upon entry and exit of a "Special Construction Site"when it falls within Shutdown or Single Tracking limits.

49.4.2.7 Ensuring contractors receive a safety briefing at the designated entry point when a "Special Construction Site" is within the limits of a Shutdown or Single Tracking.

49.4.3 SMNT is responsible for:

49.4.3.1 Removal and insulating track feeder cables from third rail and equipment in the event the contractor is not required to perform this work.

49.4.3.2 Providing and installing cables to jumper third rails in the event the contractor is not required to perfonn this work.

49.4.3.3 Re-configuration of ETS for proper functionality while facility is being bypassed.

49.4.4 MOC is responsible for:

49.4.4.1 Coordinating and confinning with the Utility to de-energize both incoming feeder cables.

49.4.4.2 Coordinating and confirming with the Utility for removal of all incoming feeder cables from equipment and grounding.

49.4.4.3 Receiving notification from Level 2 Escort or Inspector upon entering or exiting a TBS or TPSS which has been declared a "Special Construction Site."

49.4.4.4 Notifying ROCC, if necessary, based on playbook.

49.4.5 TAMC is responsible for:

49.4.5.1 Issuing Switch Orders for electrical isolation and the restoration of the TBS and TPSS.

49.4.5.2 Notifying Mobile Command and CENI when a "Special Construction Site" will be within the limits of a Shutdown or Single Tracking.

49.4.5.3 Attending restoration meeting held by CENI.

49.4.6 SAFE is responsible for:

49.4.6.1 Additional Requirements for Roadway accessible TBSs and TPSSs:

49.4.6.1.1 Review and approval of CENI site assessment and plan for Roadway accessible sites.

49.4.6.1.2 Confirming installation of all additional protection to declare TBS, TPSS, and their access as non-Roadway.

49S PROCEDURES

Procedure #	Content
49.5.1	Desimtation of "Special Construction Sites"
49.5.2	Additional Requirements for Roadway accessible TBSs and TPSSs
49.5.3	Restoration of a "Special Construction Site" upon completion of work
49.5.4	Additional Requirements for TBS and TPSS locations declared as "Special Construction Sites" within Shutdown and Single Trackina limits

49.5.1 Designation of "Special Construction Sites":

The following procedures must be implemented prior to designation as a "Special Construction Site":

49.5.1.1 CENI requests MOC for electrical isolation of facility.

49.5.1.2 Establish third rail power outage per SOP #28.

49.5.1.3 Remove all breakers per lockout/tagout procedures in SOP #39.

49.5.1.4 SSWP must address, and clearly state, the escort's responsibility around any remaining electrified circuits.

49.5.1.5 Additional Requirements for establishing TPSS as "Special Construction Site" where either or both the AC or DC gear will be completely replaced:

49.5.1.5.l Utility to de-energize both incoming feeder cables.

49.5.1.5.2 Utility to remove all utility feeder cables from AC switchgear.

49.5.1.5.3 Utility to ground incoming feeder cables.

49.5.1.5.4 SMNT or contractor to remove track feeder cables from third rail and insulate.

49.5.1.5.S SMNT or contractor to install third rail jumper cables between affected contract rails.

49.5.1.5.6 SMNT or contractor to remove track feeder cables from gear and insulate.

49.5.1.5.7 SMNT confinns to MOC electrical isolation complete.

49.5.1.6 Additional Requirements for establishing TBS as "Special Construction Site":

49.5.1.6.1 SMNT or contractor to remove track feeder cables from third rail and insulate.

49.5.1.6.2 SMNT or contractor to install third rail jumper cables between affected contact rails.

49.5.1.6.3 SMNT or contractor to remove track feeder cables from gear and insulate.

49.5.1.6.4 SMNT confinns to MOC electrical isolation complete.

49.5.2 Additional Requirements for Roadway accessible TBSs and TPSSs:

49.5.2.1 Site assessment and plan will be completed and prepared by CENI to detennine location of special markings or barriers to separate Metro property into Roadway and non-Roadway territory.

49.5.2.2 SAFE to review and approve CENI assessment. SSWP to include additional requirements approved by SAFE to establish non-Roadway territory.

49.5.2.3 CENI to install special markings and/or barriers per approved assessment.

49.5.2.4 SAFE to inspect installed markings and/or barriers and provide final approval that the TBS, TPSS, and access are non-Roadway.

49.5.3 Restoration of a "Special Construction Site" upon completion of work:

49.5.3.1 CENI to hold a restoration meeting with SMNT, the contractor and TAMC.

49.5.3.2 TAMC to issue Switch Orders to restore the TBS or TPSS.

49.5.3.3 SSWP to include restoration process per location.

49.5.3.4 CENI to remove all installed special markings and or barriers.

49.5.4 Additional Requirements for TBS and TPSS locations declared as "Special Construction Sites" within Shutdown and Single Tracking limits:

49.5.4.1 TAMC to notify CENI red tag holder that a "Special Construction Site" is within shutdown limits.

49.5.4.2 CENI to attend Shutdown coordination meetings.

49.5.4.3 Inspector/Escort and contractors to receive safety briefing at shutdown entry point prior to entering a "Special Construction Site".

49.5.4.4 Inspector/Escort to notify Mobile Command and MOC via telephone, when entering or exiting a "Special Construction Site".

49.5.4.5 Restoration of a "Special Construction Site" is prohibited while within the established confines of a Shutdown or Work Zone area.

49.5.4.6 Restoration may occur at the conclusion of a Shutdown or Single Tracking once confinnation that everyone has cleared and the Roadway has been established.

49.6 REFERENCES

49.6.1 MSRPH

49.6.2 OAP 200-33

49.6.3 SOP #28

49.6.4 SOP #39

49.6.5 SOP #41

Washington Metropolitan Area Transit Authority

DEPARTMENT OF OPERATIONS

Administrative Procedure

CATEGORY	TOPIC
Operational Interdepartmental Activity	Site Specific Work Plan

PROCEDURE NO.	TITLE
200-33	Site Specific Work Plan

LATEST REVISION NO.	LATEST REVISION DATE	LATEST REVIEW DATE	EXPIRATION DATE
REV.00	June 2, 2006	June 2, 2007	None

OAP APPLIES TO

All WMATA Employees and Contractors

OFFICE/INDIVIDUAL OF PRIMARY RESPONSIBILITY

Office of Rail Reliability and Technical Services, Track Access for Maintenance and Construction Branch

EFFECTIVE PAGES

DISTRIBUTION	COORDINATION WITH OTHER PUBLICATIONS
ALL OAP MANUAL HOLDERS AND USERS AND ALL OPRs	

APPROVAL: Director of Rail Reliability and Technical Services	DIRECTED BY: Chief Operating Officer for Rail Service
Chris C. Barker **Date:**	Steven A. Feil, **Date:**

SITE SPECIFIC WORK PLAN

1. PURPOSE

The purpose of this Operations Administrative Procedure (OAP) is to delineate responsibilities and requirements for the development of a Site Specific Work Plan (SSWP) for all personnel performing work, other than approved maintenance activities, on, around, or to WMATA rail facilities.

The purposes of a Site Specific Work Plan are as follows:

A. To describe the performance of construction and/or maintenance activities to be performed at specific locations where track access or other interface with the operating system is required. It includes all activities necessary to perform any work within the operating system.

B. To describe how each activity affects the operating system.

C. To define the scope of work, the schedule, the cut-in requirements, contingency plans for returning the system back to normal operations, and any modifications to the operating system between start and finish of the work.

D. To allow potential problems to be monitored and give warning of possible overruns by its schedule provisions.

E. To facilitate the implementation of the work crew supervisor's or contractor's contingency plans when schedule overruns cannot be averted.

F. To provide for review and approval of work activities.

2. SCOPE

This OAP is applicable to all personnel including Contractors and Consultants having a need to perform work on or adjacent to WMATA property. The Site Specific Work Plan (SSWP) shall provide pertinent information to all parties involved. All applicable parties must sign the SSWP to indicate their approval of the plan before track access is granted.

3. RESPONSIBILITIES

A. The Director of Rail Reliability and Technical Services (RRTS) is responsible for implementing and for approving revisions to this OAP.

B. The Manager of Track Access for Maintenance and Construction (TAMC) is designated the Reviewing Authority, and as such, is responsible for periodic review of this OAP and for reporting accomplishment of the review by January 31 of each year.

C. All personnel to include Contractors and Consultants who work on or adjacent to WMATA property are responsible for submitting a Site Specific Work Plan (SSWP) in compliance with this procedure and are responsible for performing the work as stated in their approved SSWP.

D. The Operations Liaison Office (OLIA), Department of System Safety and Risk Protection (SARP) and Track Access for Maintenance and Construction (TAMC) are responsible for the review, comments and approval of each SSWP.

E. The originating office must insure that all of the required signatures have been obtained.

F. The Manager of Track Access for Maintenance and Construction (RRTS/TAMC) is required to have the original Site Specific Work Plan (SSWP) with all of the designated signatures before track access is granted.

4. DEFINITIONS

BOCC: Bus Operations Control Center A sub-unit of OCC, responsible for the real time monitoring and control of Metrobus movement.

Contingency Plan: An alternate process for the completion of each milestone event.

General Orders and Track Rights System (GOTRS): is a mainframe computer program that is used by WMATA employees only to enter track rights requests in accordance with OAP 100-9

Milestone: A clearly identifiable point in a project/work activity that represents the completion of a related or important set of tasks.

MOCC: Maintenance Operations Control Center A sub-unit of OCC and it functions as a control and dispatch center for maintaining the Authority's fixed assets.

OCCO: Operations Control Center Operations is composed of MOCC, POCC, and ROCC.

Piggybacking: permission to work in the same section of track given by the supervisor of the work crew which possesses the track rights.

Point of No Return: A defined milestone in the project where it is determined that any further activities being performed will not allow the restoration of service to its functional state of revenue operations.

Rail Service Adjustment (RSA): A temporary adjustment to the Metrorail passenger train operating schedule in order to accommodate maintenance or construction activities on the Metrorail main line during revenue service.

ROCC: Rail Operations Control Center A sub-unit of OCCO charged with the oversight, control and direction of all vehicle movements on the Metrorail main line.

ROW: Right-Of-Way The land occupied by a railroad, the physical facilities, track, tunnels, surface and elevated structures through which Metrrorail trains operate.

Timeline: a table listing scheduled activities or events within a specific period.

Track Rights: the right of access and control that has been transferred from ROCC to another party for a specific time period and within specific geographic limits in the right-of-away.

Site Specific Work Plan (SSWP): Describes the construction and/or installation and associated schedule of work to be performed at specific locations where track usage or other interface with the operating rail road is required.

5. POLICIES

A Site Specific Work Plan (SSWP) shall be generated by the office planning to perform or manage a maintenance and / or construction activity in, or around any WMATA property. The requirements for a SSWP can be waived for routine preventive maintenance or inspections by the Manager of Track Access for Maintenance and Construction (TAMC) in conjunction with the Office of Operations Liaison (OLIA) and Department of System Safety and Risk Protection (SARP).

A. An Site Specific Work Plan (SSWP) is required as per Standard Operating Procedures (SOP) #19, in addition to the requirements of this OAP.

B. A written detailed plan must be submitted for review to the Office of Operations Liaison (OLIA), Manager of Track Access for Maintenance and Construction (TAMC) and Department of System Safety and Risk Protection (SARP) 45 days prior to the date of the requested work activity and it should include any required and approved Engineering Modification Instruction (EMI), as per OAP #200-4.

C. A Site Specific Work Plan (SSWP) that will require a Revenue Service Adjustment (RSA) must have approval of OCCO as required in OAP 100-9. The approved RSA form must be attached to the SSWP. (See attachment A Revenue Service Adjustment (RSA) form.)

D. Comments must be returned to the requesting party within 14 calendar days after the initial submission of the SSWP.

E. A Site Specific Work Plan (SSWP) must have signed approval from representatives from OLIA, SARP, TAMC and the maintenance manager or project manager submitting the work plan before track rights will be granted. The approved SSWP must be given to RRTS/TAMC 21 days prior to the date of the requested work.

F. Representatives from OLIA, SARP, TAMC and the maintenance manager or project manager submitting the work must sign off on the SSWP a minimum of 14 calendar days prior to the requested start date of work.

G. . The Manager of Track Access for Maintenance and Construction (TAMC) in conjunction with an OLIA representative shall coordinate final scheduling of all approved Site Specific Work Plans (SSWP). This coordination activity shall have input from those personnel designated below, or their representatives during the Major Projects Meeting.

1) ROCC - Rail Operations Control Center (ROCC) Superintendent
2) MOCC - Maintenance Operations Control Center(MOCC) Superintendent
3) PLNT - Plant Maintenance, General Superintendent
4) SARP - Department of System Safety and Risk Protection
5) TSSM/ATC - Automatic Train Control Branch Superintendent
6) TSSM/COMM - Communications Branch Superintendent
7) TSSM/POWR - Power Branch Superintendent
8) TSSM/STRC - Structures Superintendent
9) TSSM/TRAC - Track Superintendent
10) .COM - Department of Communications
11) Other WMATA Offices/Branches/Sections, as required

H. All coordination activities shall be conducted and completed a minimum of 14 days prior to the date of the proposed work.

I. Any approved request(s) for track access may be canceled by the ROCC Superintendent in conjunction with the MOCC Superintendent to meet any emergency maintenance or other situation that could affect revenue service as stated in OAP #100-9.

J. The approval of an SSWP does not replace the General Orders and Track Rights (GOTRS) entry requirement as per OAP 100-9.

K. All SSWP's expire 60 days from the actual starting point of the work activity.

L. The Office of Operations Liaison (OLIA) will distribute copies of all approved SSWP's to all applicable departments.

6. PROCEDURES

***Note*: All SSWPs shall be submitted in writing a minimum of forty-five (45) days prior to the desired start date for the work activity.**
All numbers correlate with Attachment B for the Site Specific Work Plan (SSWP) form.

1. Scope: List a brief description of work to be completed.

2. Identify Start and Finish, Time and Date: List the program/project begin and end dates, as well as the time, for the proposed work activities.

3. Engineering Modification Instruction (EMI) Required and Approved: A comprehensive document is established to permit safe and efficient implementation of the effected equipment, facilities/systems. (as required in OAP #200-4)

4. Location: Identify the line, track and chainage of the proposed work activity. Include the following: (as required in SOPs #19, #28, #33)

- power outage
- track rights
- work area
- rail service adjustment (RSA)

5. Escort: Identification of qualified personnel required to perform the duties of the setting up the right-of-way (ROW) work area and giving access to WMATA facilities.

6. Support Personnel: Identification of the required support departments needed to accomplish scope of work. (as required in OAP #100-9 and SOP #19)

7. Equipment: Identification of all equipment necessary for the successful completion of the work activities. All contractor equipment shall be inspected, calibrated and certified by the applicable department for performing work in and around WMATA's property.

8. Material and Staging: Identify all materials required for the completion of the work activity. Identify the placement of all personnel and material to allow for schedule adherence. (as required in SOP #19)

9. Safety Requirements: Identification of the proper personal protective equipment (PPE) and work area, to include the protected and actual work zones. Include schematics of work site breakdown. (as required in SOPs #19, #28, #33)

10. Schedule Breakdown: Detailed summary of the work activity.
Include the following:
    - time and date of each activity
    - person/department/agency performing work
    - duration of tasks in hours

11. Critical Milestones: A clearly identifiable point in a project/work activity that summarizes the completion of a related or important set of tasks. (as required in SOP #19)

12. SSWP Review: A copy of the SSWP should be sent to OLIA, SARP, OCCO, TAMC and the affected Rail Line Director for forty-five (45) day review and comments. Allow 14 business days for return of comments.

13. Incorporation of Comments: After receiving comments, the project manager is responsible for reconciling and incorporating all comments received into the SSWP and resubmitting the SSWP to OCCO, OLIA, SARP and TAMC.

14. Signatures: The SSWP shall be approved and signed by the following departments (in this order):

    - Project Manager/Maintenance Manager
    - Director/General Superintendent
        - OLIA
        - SARP
    - RAIL/LINE DIRECTOR only when RSA is required
    - RAIL/OCCO only when RSA is required
        - RRTS/TAMC

7. ATTACHMENTS

A. Revenue Service Adjustment (RSA) form

B. Flow Chart for Site Specific Work Plan

C. Site Specific Work Plan (SSWP) form

CONSTRUCTION SAFETY AND ENVIRONMENTAL MANUAL

March 2013

Concurrences and Approval

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Date *1*

CONSTRUCTION SAFETY AND ENVIRONMENTAL MANUAL

This Construction Safety and Environmental Manual (CSEM) provides guidelines for Washington Metropolitan Area Transit Authority (WMATA) construction, maintenance, and rehabilitation projects on which the contractor(s) provides all insurance coverage required under the contract. This CSEM is an essential contract document. This CSEM establishes WMATA specific procedures for certain activities and establishes safety responsibilities for WMATA and contractor personnel involved in construction and rehabilitation projects.

The prevention of accidents, injury, illness and environmental incidents in the course of completing, maintaining, and rehabilitating Metrorail and Metrobus Systems and facilities is of primary importance to everyone associated with WMATA. Accidents, injuries and illness cause suffering and hardship to those immediately involved and result in job delays and additional expense to the contractors and WMATA. Environmental incidents can cause damage to the environment and endanger public health.

The prevention of accidents and incidents is the direct result of a carefully planned safety and environmental management program, effectively implemented by the contractors' management and supervision.

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1.0 Purpose

This Construction Safety and Environmental Manual (CSEM) is established under Section 18.3 of the Washington Metropolitan Area Transit Authority (WMATA) System Safety Program Plan (SSPP), dated January 2012. This CSEM provides guidelines for WMATA construction and rehabilitation projects on which the contractor(s) provides all insurance coverage required under the contract and it is an essential contract document. This CSEM establishes WMATA specific procedures for certain activities and it establishes safety responsibilities for WMATA and contractor personnel involved in construction, maintenance and rehabilitation projects. It is intended to assist contractors in complying with the safety and environmental requirements of WMATA contracts.

2.0 Scope

This CSEM applies to all construction, rehabilitation, or maintenance projects administered by the Office of Chief Infrastructure Services (CENI). It in no way releases the contractor from the responsibilities and conditions contained in a contract with the Authority or required by federal, state or local regulations.

3.1 Objectives

The objectives of the guidelines delineated in the CSEM are:

1. Minimize personal injury and illness.

2. Maximize property conservation.

3. Achieve greater efficiency.

4. Reduce Direct and Indirect costs due to accidents.

5. Minimize exposures to chemical, biological and physical hazards.

6. Minimize impact on the environment and the community.

4.0 Safety Responsibilities

4.1 General Responsibilities

The contractor shall be responsible for ensuring compliance with the most stringent provisions of the applicable occupational safety and health statutes and regulations of the District of Columbia, State of Maryland, Commonwealth of Virginia or political subdivision in which the work is performed and the U.S. Department of Labor OSHA standards, pertaining to the safe performance of the work.

The contractor shall ensure compliance with the most stringent of federal, state and local environmental regulations and statutes including but not limited to: U.S. Environmental Protection Agency, D.C. Department of the Environment, Virginia Department of Environmental Quality and Maryland Department of the Environment.

WMATA Project Managers and Authority Representatives are responsible for monitoring the contractors' compliance with applicable safety and environmental regulations and ensuring contractors' compliance with the safety and environmental contract specifications.

The prime contractor is responsible for the safety and welfare of contractor and subcontractor employees and for the protection of property and the general public within the contractor's scope of work.

4.2 Prime Contractor Safety Responsibilities

The prime contractor shall take the initiative in accident, injury, and illness prevention, and has primary responsibility for safety on the project. This includes all individuals on site, the public, WMATA employees, subcontractors and suppliers working for the contractor. The prime contractor's responsibility cannot be delegated to subcontractors, suppliers or other persons. The contractor's safety superintendent is appointed to perform safety inspection services under the direction of the prime contractor's project manager. It is recognized that many potential hazards will be promptly corrected by mutually accepted means of informal communication between the safety superintendent and the WMATA Authority Representative.

However, it must be understood that formal communication concerning accident prevention is to be maintained between the contractor's Project Manager and WMATA Authority Representative in order to preclude any misunderstanding.

4.2.1 The prime contractor is responsible for all of the requirements for accident, injury and illness prevention and for construction and environmental safety contained in the contract with the Authority. The prime contractor shall contractually require its subcontractors to conform and adhere to the requirements of the CSEM and its provisions relating to specific subcontractor responsibilities found in Sections 4.0 and 5.0 of the CSEM.

In those contracts which interface with the Metrorail operating system, the contractor and subcontractors shall comply with the Metrorail Safety Rules and Procedures Handbook (MSRPH). In those contracts which interface with the Metrobus system, the contractor and subcontractors shall comply with the WMATA Department of Bus Service Employee Handbook (BSEH). In compliance with contract specifications and where applicable provisions of the MSRPH and BSEH, the prime contractor shall:

4.2.1.1 Upon notification of a contract award, submit a copy of the contractor's Health and Safety Plan together with a letter of management's statement of safety policy, signed by an executive officer of the corporation, in relation to the following:

1. The contractor's safety policy based upon compliance with WMATA's Construction Safety and Environmental Manual (CSEM), including detailed disciplinary action to be taken with respect to employees violating safety or environmental requirements.

2. The contractor's awareness and knowledge of all local, state and federal safety, health and environmental standards and regulations applicable to the contract with WMATA.

4.2.1.2 Submit resumes of the work experience and qualifications of the contractor's safety superintendent and designees to the Authority Representative (AR) as required by the contract. These individuals may be required to appear for a personal interview by the AR and WMATA's Department of Safety and Environmental Management. All information provided must be verifiable.

4.2.1.3 Establish and maintain an orientation program for new employees that include a review of the contractor's Health and Safety Plan including:

- Safety and health hazards present in the assigned and general work area
- Required personal protective equipment
- Method for reporting any unsafe conditions that the worker(s) may encounter
- OSHA and EPA mandated written programs applicable to the work
- Exposure monitoring that may be conducted
- Required training, licensing, certification, or medical surveillance
- Emergency procedures including emergency telephone contact numbers, emergency escape routes, and areas of refuge, nearest hospitals and accurate directions and route maps to hospitals
- Tobacco use policy – smoking is prohibited in the Metrorail system, in WMATA facilities and in WMATA vehicles
- Electronic Device Policy, including cellular phones, texting, etc.

4.2.1.4 Furnish copies of all warnings and/or citations of safety violations received from any jurisdiction, state or federal agency. Copies shall be sent within 48 hours to the AR.

4.2.1.5 Ensure that all employees, including subcontractors, comply with federal, state and local safety regulations and standards and with this CSEM.

4.2.1.6 Ensure that all personnel, including subcontractors and suppliers, receive the required WMATA Contractor Right of Way (ROW) Safety Training covering the rules and procedures for working in rail stations, in, or adjacent to, the train roadway, or in the yards, prior to starting such work.

NOTE: The training is valid for 12 months from the date of receiving the training.

4.2.1.7 If the site contains hazardous waste, hazardous substances, or a hazardous chemical release, develop a Health and Safety Plan which establishes policies and procedures to protect the workers and the public from the hazards posed by a hazardous waste site cleanup operation and hazardous chemical release.

4.2.1.8 The storage of hazardous and flammable materials (including such items as rags, mops, paper towels, or other combustible materials contaminated with hazardous or flammable products) on WMATA property, is restricted. Contractors seeking to store hazardous or flammable materials on WMATA property must request permission from the AR, who will review with SAFE-EMIH. It may not always be possible to grant permission to store hazardous or flammable materials on WMATA property.

If permission is granted, the contractor must store the materials in compliance with the jurisdictional codes and regulations. In addition, a copy of the Material Safety Data Sheet (MSDS) for each specific chemical and the quantity of each chemical to be stored on the site shall be provided to the Authority Representative. The contractor shall acquire permits for the use of hazardous materials as required by the jurisdictional Fire Marshal and/or other authority having jurisdiction (AHJ).

4.2.1.9 If the work requires transportation of hazardous materials or hazardous substances, contractors and subcontractors are required to provide evidence of Department of Transportation General Awareness Driver's Training in compliance with 49 CFR §172 and Commercial Driver's License in compliance with 49 CFR §390-397, prior to commencement of work.

4.2.1.10 All hazardous materials and hazardous substances must be stored in "Performance Oriented Packaging" in compliance with 49 CFR §178, Subpart L.

4.2.1.11 Contractors must submit MSDS for ALL chemicals to be used on Authority property to the Authority Representative. For projects in the operating system, all MSDS will be reviewed by WMATA's Department of System Safety and Environmental Management

(SAFE) and if approved, the materials can be used in the system. If they are rejected, the contractor must identify a substitute that will meet SAFE's criteria for approval in addition to the Authority Representative's criteria for performance. The MSDS must be recent (less than 3 years old) and comply with the OSHA Hazard Communication Standard 29 CFR §1910.1200. The contractor is responsible for complying with the requirements of the MSDS.

4.2.1.12 Contractor shall maintain a complete file of (MSDS) for all materials used at the job site. The contractor shall assure that all the employees at the job site receive proper training before the use of each chemical product.

This training must include information about the chemical and physical hazards and the proper use of the required personal protective equipment.

4.2.1.13 Establish and enforce disciplinary action for violating safety rules, procedures, or regulations.

4.2.1.14 After an incident involving a fatality or multiple hospitalizations, the contractor shall notify ROCC [if the incident occurs in the operating system] or "911" and preserve all evidence and immediately secure and stabilize the incident scene. The contractor must also notify the appropriate jurisdictional OSHA agency.

Note: if "911" is called, it must be from either an outside line or a wireless phone. The phones in the roadway will not access local fire and EMS.

4.3 Prime Contractor Environmental Responsibilities

The prime contractor shall take the initiative in environmental incident prevention, as the prime contractor has primary responsibility for environmental management on the project, including all individuals on site, public, subcontractors and suppliers working for the contractor. The prime contractor's responsibility cannot be delegated to subcontractors, suppliers or other persons. The prime contractor shall:

4.3.1 Assure all employees, including subcontractors, comply with federal, state, and local environmental regulations for air, water, land, noise, and wastes. Consolidated Plans (available on the WMATA Intranet and through the Authority Representative) are prepared by WMATA for bus divisions and rail yards in order to maintain the safety and health of employees, WMATA customers, and the community.

4.3.2 Obtain all environmental permits required by the contract and the federal, state, or local EPA regulations. Examples of some of these permits are: Prevention of Significant Deterioration (PSD) Permit, National Emission Standards for Hazardous Air Pollutants (NESHAP) Permit, National Pollutant Discharge Elimination System (NPDES) Permit, Spill Prevention Control and Countermeasure Plan (SPCC) Permit, and U.S. Army Corps of Engineers Permit for work in navigable waters and waters of the U.S. Copies of all permits should be forwarded to the WMATA Authority Representative. It is the responsibility of the prime contractor to ensure compliance with all permit requirements. In addition, the following information shall be maintained by the prime contractor at the work site:

1. Listing of any hazardous wastes and monthly volumes (kg/month) generated on site
2. Copies of Hazardous Waste Manifests
3. Copies of exception reports
4. Permits for the Treatment, Storage, and Disposal Facility (T/S/D/F).

4.3.3 Ensure that contractor and subcontractor employees cooperate with representatives of the Authority and federal, state, or local regulatory agencies during site inspections or investigations. Inspection and investigation activities may involve interviews with contractor and subcontractor personnel.

4.3.4 If waste water will be generated, submit a Waste Water Discharge Plan that describes how the contractor will treat and release waste water generated from the work site.

4.3.5 If the work involves response to spills of hazardous materials, ensure that the prime contractor or subcontractor personnel have appropriate training that complies with 29 CFR §1910.120.

4.3.6 If the work involves removal of paints or coatings, test the paint or coating to determine if they contain heavy metals such as lead that require special handling and disposal considerations. As a minimum, testing should be considered for the eight Resource Conservation and Recovery Act (RCRA) metals:

- Arsenic
- Barium
- Cadmium
- Chromium
- Lead
- Mercury
- Silver
- Selenium

If any of these are present, the components will require special handling and disposal to prevent exposure to workers, the public, and the environment. The contractor and/or subcontractor shall have all licenses and certifications required by the jurisdiction in which the work is performed. Jurisdictions that do not have their own state plans fall under the auspices of the EPA. The contractor's and subcontractor's employees are required to have medical monitoring and training required by the jurisdictional regulations. Documentation shall be provided to the Authority Representative prior to commencement of work. All documentation shall be authentic and verifiable. All materials must be handled and disposed of in compliance with the jurisdictional regulations. MSDS for replacement paints/coatings must be reviewed and approved, prior to use, by WMATA.

4.3.7 If the work requires disposal of hazardous wastes, utilize an EPA licensed Treatment/Storage/Disposal facility and ensure that the waste hauler has a state or local license and U.S. EPA identification number. The contractors and subcontractors shall be required to provide evidence of all applicable licenses and permits along with the name and address of the waste disposal facility where hazardous waste materials are to be disposed, prior to commencement of work.

4.4 Prime Contractor's Project Manager

The prime contractor's project manager is the management representative of the prime contractor. The prime contractor's project manager is responsible for the safety of all individuals on-site, including all employees and subcontractor employees, suppliers, agency officials and the public. As such, in addition to the responsibilities as might be assigned by the prime contractor noted in 4.2 and 4.3, the prime contractor's project manager shall:

4.4.1 Be responsible for the supervision of the Safety Superintendent in carrying out the duties and responsibilities of this position.

4.4.2 Plan and execute all work so as to comply with the stated objectives of the most current CSEM.

4.4.3 Comply with all of the provisions of the contract dealing with safety, environmental management and accident prevention requirements.

4.4.4 Comply with federal, state, and local safety and environmental codes, standards and regulations and WMATA safety rules and procedures.

4.4.5 Cooperate with WMATA's representatives and representatives of federal, state, and local regulatory agencies.

4.4.6 Authorize necessary immediate action to correct substandard safety and environmental conditions existing, reported or observed.

4.4.7 Review and take necessary immediate action on safety records through directives or personal interviews with superintendents, job foremen or subcontractors' management.

4.4.8 Attend safety meetings as required.

4.4.9 Participate in safety planning meetings held by the WMATA Authority Representative at the beginning of each phase of the job.

4.4.10 Ensure that personnel operating cranes and other mobile equipment, requiring a riding operator, are trained and certified by a recognized entity, to operate the equipment to which they are assigned.

4.4.11 Enforce disciplinary action for violating safety rules, procedures, or regulations. Disciplinary action shall include removal of persons who continually and deliberately violate safety requirements.

4.4.12 Cooperate with WMATA's designated safety representatives.

4.5 Prime Contractor's Safety Superintendent

On those contracts which require a safety superintendent, he/she shall:

4.5.1 Make daily safety inspections of job sites when work is performed and take necessary immediate corrective action to eliminate nonconformance with safety regulations or procedures. Record observations on WMATA Form C-21 (available from the Authorized Representative) Construction Safety Survey in compliance with reporting procedures.

4.5.2 Assure Form C-24, Supervisor's Report of Accident (available from the Authorized Representative) is properly completed and distributed in compliance with instructions.

4.5.3 Review accidents and incidents and recommend immediate corrective action.

4.5.4 Provide job foreman with appropriate material for use in conducting weekly tool box meetings.

4.5.5 Review safety meeting reports submitted by job foremen.

4.5.6 Periodically attend foremen "tool box" safety meetings and evaluate effectiveness.

4.5.7 Assist in the preparation of all accident investigation reports and ensure that reporting procedures are established.

4.5.8 Implement training programs for supervisors and employees as they apply to their specific responsibilities.

4.5.9 Encourage programs for recognition of individual employee's safety efforts and their contribution toward improved work methods.

4.5.10 Be responsible for ensuring that the necessary safety equipment, including required personal protective equipment, is made available to and used correctly by employees.

4.5.11 Coordinate activities with those of WMATA's designated safety representative and take necessary steps to immediately implement their appropriate recommendations.

4.5.12 Coordinate public relations aspects of the Contractor's Health and Safety Plan.

4.5.13 Attend safety meetings held by the Authority. The safety superintendent should share his/her experience, questions and problems with other superintendents at these meetings.

4.5.14 Participate in safety planning meetings held by the WMATA Authority Representative at the beginning of the job and on as needed basis.

4.5.15 Enforce and ensure compliance of the contractor's and subcontractor's employees with the prohibition on smoking in the Metrorail system, at WMATA facilities, and in WMATA vehicles.

4.5.16 Maintain a complete file of MSDS for all materials used at the job site. Assure that all the employees receive proper training before use of each chemical product. This training must include information about chemical and physical hazards and the proper use of required personal protective equipment.

4.5.17 Cooperate with WMATA's designated safety and environmental representatives.

4.5.18 Shall have Stop-Work Authority.

4.5.19 Shall have completed an OSHA 30-Hour Construction Training Course.

4.6 Contractor/Subcontractor Job Superintendents

Contractor's and subcontractor's job superintendents have the following specific safety responsibilities:

4.6.1 Plan and execute all work so as to comply with stated objectives of the WMATA Construction Safety and Environmental Manual.

4.6.2 Implement the safety and loss control requirements contained in the contract documents.

4.6.3 Provide and enforce the use, at all times, of the personal protective equipment required by WMATA, local, state and federal regulations.

4.6.4 Complete supervisory investigation report on all accidents (reference Supervisor's Report of Accident Form C-24).

4.6.5 Attend supervisory personnel safety meetings schedule by Prime Contractor's Project Manager.

4.6.6 Schedule weekly "tool box" safety meetings to be held by job foremen for all employees.

4.6.7 Periodically attend foremen's weekly "tool box" safety meetings to evaluate effectiveness and offer suggestions for improvement.

4.6.8 Take immediate action to correct unsafe practices or conditions when identified.

4.6.9 Report to the Prime Contractor's Safety Superintendent or Project Manager, all observed unsafe conditions or practices and violations of job security which are within their jurisdiction.

4.6.10 Cooperate with WMATA's designated safety and environmental representatives.

4.6.11 Enforce and ensure compliance of the contractors' and subcontractor's employees with the prohibition on smoking in the Metrorail system, at WMATA facilities, and in WMATA vehicles.

4.7 Contractor/Subcontractor Job Foremen

Job foremen are an integral part of an effective safety program and the amount of effort that they put into accident prevention on their daily assignments helps to determine whether or not a good accident record is maintained. A foreman's safety responsibilities shall include:

4.7.1 Instructing workers under his/her supervision in safe work practices and work methods at the time work is assigned.

4.7.2 Supplying and enforcing the use of proper protective equipment and suitable tools for the job.

4.7.3 Continuously checking to see that no unsafe practices or conditions are allowed to exist on any part of the job.

4.7.4 Acquainting the staff will applicable safety requirements and seeing that they are enforced.

4.7.5 Setting a good example for employees.

4.7.6 Making a complete investigation of accidents to determine facts necessary to take corrective action.

4.7.7 Promptly supply information for completing the Accident Report and Investigation Form (as directed by the Safety Superintendent and/or Project Manager).

4.7.8 Holding weekly “tool box” safety meetings with employees to:

- Discuss observed unsafe work practices or conditions.
- Review any accidents or near misses that have occurred with the crew.
- Encourage safety suggestions from employees and report them to the safety supervisor.

4.7.9 Seeing that prompt first aid is administered to an injured employee.

4.7.10 Reporting unsafe acts and violations of site security immediately to Project Manager, Job Superintendent, or Safety Superintendent.

4.7.11 Enforcing and ensuring compliance of the contractor’s and subcontractor’s employees with the prohibition on smoking in the Metrorail system, at WMATA facilities, and in WMATA vehicles.

4.8 WMATA Authority Representative (AR) or Project Manager

The WMATA Authority Representative (AR) is the collective term for individuals designated by the WMATA contracting officer as responsible for

administering/supervising contracts [e.g., Project Manager (PM), Resident Engineer (RE), Contracting Officer Representative (COR), Contracting Officer Technical Representative (COTR)]. The AR has the following safety responsibilities:

4.8.1 Be familiar with this CSEM and applicable OSHA and environmental regulations, WMATA safety rules and procedures and assure that all required programs and documents are submitted for SAFE's review prior to starting work and as required during construction.

4.8.2 Oversee the contractor's assumption of responsibility for timely application of safety and accident prevention procedures to all activities and to all persons on the project, including subcontractors, visitors and suppliers of materials and equipment.

4.8.3 Report to SAFE any observed unsafe working conditions. A degree of judgment is to be exercised by the WMATA Authority Representative in reporting unsafe working conditions. First-time infringements should be corrected by prompt reference of the incident to the contract's safety superintendent or, in his/her absence, the contractor's job superintendent. Consistent lack of good housekeeping practice, use of equipment in obviously poor condition, nonconformance with WMATA safety rules and procedures, and failure to adhere to occupational safety and health or environmental regulations are to be followed by appropriate corrective action and be reported to SAFE by the AR.

However, in the event of conditions that are immediately dangerous to life and health, the AR shall immediately stop the dangerous activity, notify SAFE and notify the contractor of what corrective action shall be implemented before the work can resume.

4.8.4 In cases involving consistent failure to comply with safety and environmental rules and regulations, notify the contractor in writing of nonconformance and include specific required corrective actions. Copies of all such notices shall be forwarded to SAFE.

4.8.5 In the event certain individuals continually and deliberately violate safety requirements, the WMATA AR shall have the individual removed from the work site.

4.8.6 Receive, review and maintain copies of the contractor's safety superintendent's daily inspection report (C-21), exposure monitoring results, and accident/incident report forms C-23, 24 and 26. Ensure that any required corrective is implemented immediately.

4.8.7 After an incident involving a fatality or multiple hospitalizations, the AR shall ensure that the contractor notifies OCC [if the incident occurs in the operating system] or 911 and preserves all evidence and immediately secures and stabilizes the incident scene. The contractor must also notify the appropriate jurisdictional OSHA agency.

NOTE: If "911" is called, it must be from a pay phone or a wireless phone. The phones in the ROW will not access "911." Most of the WMATA facility phones are such that, if an outside line is accessed, all "911" calls would be routed through the District of Columbia's "911" system, even if the call is made from a phone located in Maryland or Virginia.

4.8.8 At the beginning of the job and regularly on as needed basis, hold safety planning meetings with the prime contractor and representative(s) of SAFE.

4.8.9 Provide WMATA RWIC's (formerly Escorts) for contractors' forces working in or adjacent to the Roadway (ROW). All RWIC's shall have Level IV training.

4.8.10 Ensure that all members of the AR staff and all contractor personnel take WMATA's Contractor ROW Training offered by SAFE before commencing work on the Roadway or projects that affect the Roadway. The ROW training is valid for 12 months from the date of receiving training.

NOTE: All contractor ID badges shall be returned to WMATA at the completion of the project, prior to the release of retained funds, or a back charge of $100.00 per ID will be assessed.

4.8.11 Ensure that all members of the AR and Project Management (PM) staff receive OSHA 10-hour construction or equivalent training available through SAFE.

4.8.12 Receive, review, and monitor compliance with all environmental permit applications and final permits. Ensure that contract personnel involved are knowledgeable of the relevant environmental permit requirements.

4.8.13 Provide copies of all environmental permits to SAFE – Deputy Chief, Office of Environmental Management and Industrial Hygiene (EMIH) for all work in the operating system. For all work in the non-operating system, forward copies of permits to CENI Manager, Environmental Planning and Compliance.

4.8.14 Coordinate with SAFE to begin Safety and Security Certification, in accordance with the WMATA Safety Rules and Procedure Manual Procedure No. 2.2/0. Safety and Security Certification shall begin at the earliest practicable phase of the project, to ensure timely completion, prior to system, facility, or equipment operation, or start of revenue service.

4.9 Department of Safety and Environmental Management (SAFE)

The SAFE staff member assigned to the project shall be responsible for the following activities:

4.9.1 Monitor the effectiveness of the WMATA AR in enforcing the provisions of this manual, WMATA safety rules and procedures, and Occupational Safety and Health and environmental regulations and standards, and provide assistance where needed.

4.9.2 Act as liaison between WMATA, federal, state, and municipal authorities on matters relating to construction safety, occupational safety and health and environmental safety.

4.9.3 Work with WMATA rail and bus operations, and CENI to develop and coordinate safe work procedures.

4.9.4 Provide special assistance to contractors with unusual or complicated safety problems, as requested through the AR.

4.9.5 Assist with writing contract specifications on matters relating to safety, health and the environment.

4.9.6 Assist the Office of Media Relations (MREL) in public relations work regarding safety, health and the environment on CENI projects.

4.9.7 Participate in pre-work surveys of individual job site and in the Safety Planning Meeting with all new prime contractors.

4.9.8 Conduct periodic on-site safety inspections.

4.9.9 Direct the contractors, through the AR, to correct any unsafe or unhealthy condition(s) observed and/or brought to the attention of the project safety superintendent.

4.9.10 In the event of failure by a contractor to correct unsafe or unhealthful condition(s), recommend to the AR or the Chief Safety Officer, or designee that the work activity be stopped until condition(s) is corrected. SAFE/CENI will work with the AR to ensure that the contractor implements the required corrective action, prior to resuming the work activity.

4.9.11 In the event of a condition immediately dangerous to life or health, the SAFE representative has the authority to immediately suspend the dangerous activity. SAFE must immediately notify the AR or PM, who will contact the Chief of CENI or the appropriate Manager. SAFE will coordinate with the AR and the contractor, to develop the required corrective action. The AR will ensure that the contractor immediately implements the appropriate, effective corrective action prior to resuming the work activity.

5.0 Requirements

5.1 Contractor's Safety Submittals

The Prime Contractor, performing the work, shall submit the following documentation as required by the contract, which shall be subject to approval by the Authority Representative. The first four items shall be submitted in pre-award phase.

- For work and sites not addressed in the original Organizational Health and Safety Program, addenda may be added when the work and sites are identified; however, the addenda must be submitted to the Authority

Representative for review by WMATA prior to the commencement of specified work;

- Job Hazard Analysis (prior to each phase of work);
- Site-specific Emergency Response Plan;
- Site-specific Emergency Evacuation Plan;
- Site-specific Temporary Fire Protection System Plan;
- Site-specific Waste Water Discharge Plan (if waste water us generated);
- Site-specific Pollution Control Program;
- Site-specific Dust and Debris Control Plan;
- Bloodborne Pathogens Exposure Control Plan;
- Hearing Conservation Program if employees are exposed to continuous noise in excess of the OSHA Action Level (29 CFR §1910.95);
- Respiratory Protection Program if employees are required to wear respirators. If a respiratory program is required, the contractor also must provide documentation of training, medical clearance for respirator use and respirator fit testing for tight-fitting respirators;
- Hot Work Program;
- Lockout/Tagout Program;
- Site-specific Confined Space Program;
- Documentation of applicable training, licenses, and certifications;
- Results of noise monitoring, air monitoring, and soil, water or waste sampling;
- Documentation of medical surveillance;
- Documentation of Safety superintendent's experience in construction safety;
- Identify all materials or chemicals the contractor will use on Authority property (including welding rods), MSDS for these products, and a brief explanation of how they will be used and if any wastes will be generated;
- Documentation of licenses and certificates required for lead or asbestos abatement or other work requiring licensing;
- Documentation of licenses, certificates, and U.S. EPA identification numbers required for transportation of hazardous materials, hazardous substances, or hazardous wastes;
- Documentation of licenses, permits, and certificates required for disposal of hazardous wastes including the name and address of the waste disposal facility where hazardous waste materials are to be disposed; and Certificate of Insurance, including pollution liability coverage, endorsed to WMATA is required for contractors or subcontractors performing work involving hazardous materials, hazardous substances, hazardous wastes, or contaminated soil or water.

5.2 Protection of the Public

Many of the contracts which are subject to this manual involve contact with Metro customers and the public. Therefore, it is critical that contractors and subcontractors take all necessary precautions to prevent injury to customers, employees and the public and prevent property damage. For the purpose of this manual, the public shall include all persons not employed by the contractor or a subcontractor working under his/her direction. Precautions to be taken shall include but not be limited to the following:

5.2.1 For work that affects areas occupied by, or providing thoroughfare to the public, ensure that such work is specifically permitted by the contract or in writing by the WMATA AR.

5.2.2 When it is necessary to maintain public use of work areas involving sidewalks, entrances to buildings, lobbies, corridors, aisles, stairways, rail tracks, and vehicular roadways, the contractor shall protect the public with substantial guardrails, barricades, temporary fences, overhead protection, partitions, and shields. Provide effective artificial illumination to ensure adequate visibility. The protection shall be consistent with the type of hazard created or resulting from the work performed and be in accordance with the contract and this manual.

5.2.3 Keep sidewalks, entrances to building, lobbies, corridors, aisles, doors or exits clear of obstructions to permit safe ingress and egress of the public at all times.

5.2.4 Post conspicuous, appropriate warning, caution, and instructional safety signs where necessary. In addition, a flag-person shall control the moving of motorized equipment in areas where the public might traverse such pathways.

5.2.5 Provide sidewalk sheds, canopies, catch platforms and appropriate outside walls on any structure. The protection required shall be in accordance with the codes and regulations of the jurisdiction in which the work will be performed and requires approval by the AR.

5.2.6 Install a temporary fence around the perimeter of above-ground operations adjacent to public areas, except where a sidewalk shed or fence is provided by the contract, or as required by § 5.2.5. Perimeter

fences shall be at least six (6) feet high or as directed by the Authority Representative. They may be constructed of wood or metal frame sheathing, wire mesh or a combination of both as provided in contract specifications. When the fence is adjacent to a sidewalk near a street intersection, at least the upper section of fence shall be open wire mesh from a point not over four (4) feet above the sidewalk and extending at least twenty-five (25) feet in both directions from the corner of the fence, or as otherwise required by the local jurisdiction. The fence shall be constructed of solid material such as plywood, if demolition is to occur in the adjacent work area.

5.2.7 Provide substantial guardrails on both sides of vehicular and pedestrian bridges, ramps, runways and platforms. Pedestrian walkways elevated above adjoining surfaces, or walkways within six (6) feet of the top of excavated slopes or vertical banks shall be protected with guardrails, except where sidewalk sheds or fences are provided as required by § 5.2.5. Guardrails shall be made of rigid materials capable of withstanding a force of at least two hundred (200) pounds applied in any direction at any point in their structure.

The height shall be approximately forty-two (42) inches. Top rails and posts may be two (2) inches by four (4) inches dressed wood or equal. Vertical posts shall not be spaced over eight (8) feet apart.

5.2.8 Install barricades, meeting the requirements of the political subdivision having jurisdiction, where sidewalk sheds, fences or guardrails as referenced above are not required between work areas and pedestrian walkways, roadways or occupied buildings. Barricades shall be secured against accidental displacement and shall be maintained in place except where temporary removal is necessary to perform the work. During the period a barricade is removed temporarily for the purpose of work, a flag person shall be placed at all openings.

5.2.9 Provide temporary sidewalks when a permanent sidewalk is obstructed by the contractor’s operations. They shall be in accordance with the requirements of the political subdivision having jurisdiction. Guardrails shall be provided on both sides of temporary sidewalks.

5.2.10 Maintain warning signs and lights, including battery operated lanterns, and electric lights, meeting requirements of the political subdivision

involved, from dusk to sunrise along guardrails, barricades, temporary sidewalks and at every obstruction to the public. They shall be placed at both ends of such protection or obstructions and not over twenty (20) feet apart alongside such protection or obstructions.

5.2.11 Prohibit fuel-burning types of lanterns, flares or other open flame devices within fifty (50) feet of open utility manholes.

5.2.12 Provide temporary walkways, including bridges over demolished work, with non-skid surfaces and maintain in good repair at all times.

5.2.13 Continuously control dust generated by construction operations by water sprinkling or other approved methods. In operating stations, or other locations where dust generated by the contractor's work will remain in the air to the discomfort of passengers or WMATA employees, dry vacuuming using a high-efficiency particulate aerosol [HEPA] vacuum will be employed to remove the dust before revenue hours.

5.3 WMATA Specific Requirements

The following specific requirements are required for work on WMATA projects. Items marked (S) must be addressed in contractor's submittal to the AR. Items marked (O) are to be observed by the safety superintendent at load test and noted on that day's C-21 Construction Safety Survey as observed.

5.3.1 Use of Crane to Raise and Lower Mancage or Work Platform

The use of a crane to lift/lower and/or suspend work platforms and mancages will be permitted only when other means of reaching the work areas are not feasible.

5.3.1.1 Requests for use of crane-suspended work platforms or mancages shall be submitted to the WMATA AR for approval with the following:

- Statement why conditions, methods or operations require the use of a crane-suspended work platform or mancage; (S)
- Description of the crane to be used and the manufacturer's instructions and requirements in the use of the crane to

lift/lower and/or suspend personnel on work platforms or mancages; (S)

- Drawing with certified structural calculations of the work platform or mancage suspension bridle and other components with computations used in the design sealed by a professional engineer in this field; and (S)
- Documented emergency plan in the event of crane failure. (S)

5.3.1.2 Prior to putting the crane and work platform or mancage in service, the contractor shall notify the WMATA AR in writing when he has complied with crane and work platform or mancage requirements. (S)

5.3.1.3 Copies of the last annual inspection report as well as the latest monthly inspection report shall be submitted to the WMATA AR prior to use of the crane. The WMATA AR shall ensure that daily inspections are made, and will receive monthly crane inspection reports. (S)

5.3.1.4 When a crane and work platform or mancage are to be used to lift/lower and/or suspend personnel, the contractor shall be responsible for ensuring compliance with the most stringent crane and work platform or mancage provisions of the applicable statutes and regulations of the District of Columbia, State of Maryland, Commonwealth of Virginia or other political subdivision in which the work is being performed, as well as with WMATA Crane and Work Platform/Mancage Safety requirements contained herein, and with the U.S. Department of Labor – Occupational Safety and Health Act provisions and ANSI A10.28-1983.

Further, the contractor shall comply with the crane manufacturer's requirements in the selection and use of a crane for lifting/lowering and/or suspending of personnel on a work platform or in mancages.

5.3.2 Crane Safety Requirements

5.3.2.1 Cranes used to lift/lower and/or suspend personnel on work platforms or in mancages shall have the following safety features installed and operating:

- Power-up and power-down load line, power shall not be disengaged while handling personnel; (S)
- The load line attached to the work platform or mancage shall have a minimum safety factor of eight (8), manufacturer's specifications shall be submitted, weight of loaded platform shall be submitted; (S)
- Automatic braking (dead-man control), load will stop when operator releases controls; (S)
- Anti-two block device shall be provided capable of preventing damage to the hoist rope and/or other machine components; (O)
- Boom angle indicator; and (O)
- Telescoping crane boom shall be marked to indicate, to the operator, its extended length. (O)

5.3.2.2 Alterations or modifications to the basic crane shall be prohibited, unless prior written authorization is obtained from the manufacturer.

5.3.3 Crane Test and Load Requirements

5.3.3.1 Crane load rating capacities shall be reduced by 50% of published load chart values when handling personnel on work platforms or in mancages. The following calculations shall be submitted:

1. Load Radius
2. Boom Angle
3. Capacity from Load Chart, 50% of Capacity
4. Weight of Loaded Platform (S)

5.3.3.2 The weight of the platform, personnel, attachments and all equipment contributing to the total weight of the boom and load shall be calculated to determine the maximum allowable load, and the calculations shall be submitted. Prior to handling personnel for the first time, the crane, with platform/mancage attached, shall be load-tested at one and one-half (1-1/2) times the rated capacity of the platform. (O) (S)

- Testing shall include movement of the platform/mancage through its entire permissible range of movement. (O)

- The test shall not produce instability of the crane or cause permanent deformation of any component. (O)

5.3.3.3 A visual inspection of the crane, platform/mancage and suspension components shall be conducted by a competent person and appropriately documented. (O)

5.3.3.4 A daily inspection of the crane, platform, or mancage and suspension components shall be made. Simulated lifts shall be made for each work situation, to ensure all systems and controls are functioning properly and all safety features provide are operating satisfactorily, prior to handling personnel.

5.3.4 Crane Operating Requirements

5.3.4.1 Crane shall be level during operations within one (1) degree. If crane is equipped with outriggers, they shall be fully extended and jack pads set on firm, level terrain at all times when handling personnel. Devices provided on outrigger jacks to prevent loss of support under load shall be engaged. (O)

5.3.4.2 A minimum of three (3) wraps shall remain on drum of the load line, when platform/mancage has reached its lowest point of travel. (O)

5.3.4.3 Lifting and lowering speeds shall not exceed 100 feet per minute. (Cable speed indicator is not required. Intent is that operator will conduct lift/lower operations slowly and cautiously at all times.) (O)

5.3.4.4 Personnel shall not occupy the mancage or platform while the crane is traveling. (O)

5.3.4.5 Brakes and locking devices shall be engaged when platform is in working position, with personnel aboard mancage or platform. (O)

5.3.4.6 Platform or mancage shall be used only with the specific crane for which it was approved and tested. (O)

5.3.4.7 A qualified signal person shall be assigned and positioned, so that he is constantly visible to both the crane operator and personnel

on the work platform, or in the mancage. He/she shall have no other duties while personnel are occupying the platform or mancage. (O)

5.3.4.8 When platform is used below ground or when clear, unobstructed visibility between personnel on platform and crane operator cannot be maintained, radio or telephone communications between the signalman on the platform and the crane operator shall be provided. Unassisted voice communication is not acceptable. (S) (O)

5.3.4.9 The crane operator shall be certified by the National Council on Crane Certification. The crane operator shall be thoroughly trained with related experience and shall be familiar with safe crane practices and also have a complete understanding of all manuals, including maintenance and operating instructions provided for specific crane in use. He/she shall have no physical deficiencies which would impair physical, visual or mental reactions or capabilities. (S) (O)

5.3.4.10 The crane operator shall remain at the controls at all times when handling personnel. If for any reason the operator must leave the controls, personnel shall be removed from the platform or mancage prior to his/her leaving. (O)

5.3.4.11 Handling of personnel shall be discontinued upon indication of any impending danger, including presence of thunderstorms. (O)

5.3.4.12 Special precautions shall be taken to protect personnel from electrical hazards. Maintain specified distances from electrical sources. (O)

5.3.4.13 The crane operator shall have a complete understanding of the WMATA crane and operational safety requirements and shall operate the crane accordingly. (O)

5.3.5 Work Platform and Mancage Design Criteria

5.3.5.1 The work platform or mancage shall be designed with a safety factor of eight (8), in conformity with established engineering

criteria. Design calculations shall be submitted and sealed by a professional engineer in this field. (S)

5.3.5.2 Platform shall be designed for a minimum of four (4) point suspension. Commercially manufactured mancages or torpedo cages may have three (3) point suspension. (S)

5.3.5.3 The work platform or mancage shall be posted as to the maximum allowable load. Workers shall be considered as weighing 250 pounds each. (O)

5.3.5.4 Guardrails of metal angle, channel or pipe conforming to 29 CFR 1926.500(f)(1)(OSHA Construction Regulations) shall be provided on work platform. Rebar is not to be used. The guardrail system must be enclosed from the toe board to the mid-rail to keep tools, materials and equipment from falling from the mancage or platform. (O)

5.3.5.5 The floor of the work platform or mancage shall be constructed of a non-slip material. (S) (O)

5.3.5.6 Overhead protection shall be provided on work platform or mancage, when exposure exists, to personnel from falling objects. (S)

- Overhead protection shall be designed as an integral part of the work platform or mancage.
- For special-purpose work platform where the nature of the work makes overhead protection impractical, special precautions must be taken to protect against falling objects. No work shall be permitted above the personnel-occupied work platform.

5.3.5.7 Provisions shall be made to secure tools and materials while platform is in motion. (S)

5.3.5.8 A grab rail shall be provided inside the platform or mancage to permit the worker to stabilize and support his/her body, rather than to hand-grasp the top guard rail, which could result in injury from striking or bumping into equipment or structures. (O)

5.3.5.9 Safe means of ingress and egress shall be provided to the platform. If a gate is used, it shall swing in only and have a positive latch/lock device. (S) (O)

5.3.6 Rigging Requirements

5.3.6.1 Wire rope, shackles, bull rings, cable eyes and other rigging hardware, shall have a safety factor of eight (8). Rotation resistant, wire rope shall have a safety factor of ten (10). All rigging equipment shall be in good condition, with no broken parts. All rigging equipment shall be inspected for damage and excessive wear by a competent individual, before each use. (S) (O)

5.3.6.2 Platform and mancage bridles and rigging shall not be used for any other purpose. (O)

5.3.6.3 The platform shall be suspended by a bridle consisting of at least four (4) separate wire rope cables with an angle of at least sixty (60) degrees from the horizontal. This does not apply to mancages as in 5.3.5.2 above. (O)

5.3.6.4 All cable eyes shall be manufacturer-fabricated with thimbles. Manufacturer's specifications shall be made available to the AR, upon request. (O)

5.3.6.5 The cable legs comprising the work platform bridle shall be connected to a bull ring or shackle, as means of attachment to the load line. (O)

5.3.6.6 The bull ring or shackle of the lifting bridle shall be attached directly to the load line block with a safety shackle. The bridle shall not be attached to a hook. Where a load block without hook cannot be fitted to the load line to permit use of a closed connection to the bull ring of the lifting bridle, a supplementary safety line connecting the work platform shall be added. This will connect the platform to the load line at a point above the hook, using closed connections, such as shackles.

The safety line will be designed to support the shock load of a loaded platform, which has fallen off the hook. Design calculations

shall be submitted and sealed by a professional engineer for safety line and connecting fittings. (S) (O)

5.3.7 Access and Egress for Work Stations

To reduce the risk of serious falls by workers, as soon as the work condition permits, as determined by the AR, the contractor shall replace temporary ladders with temporary stairs and/or personnel hoists or elevators, as the primary means of access to and egress from work stations. This same requirement shall apply to work stations at heights, such as aerial structures and multi-story structures.

Temporary stairs, personnel hoists and elevators shall be constructed, installed, and maintained, in compliance with provisions of applicable statutes and regulations of the U.S. Department of Labor Occupational Safety and Health Administration, the District of Columbia, State of Maryland, Commonwealth of Virginia, or other political subdivision in which work is being performed.

No materials, equipment or tools shall be transported on escalators or elevators in the operating system without advance approval of the WMATA AR.

5.3.8 Occupational Health Requirements

As set forth in the Contract Specifications Article “Protection of Persons and Property” of the contract, the contractor’s safety superintendent shall be familiar with industrial hygiene equipment and testing, as required for the protection of customers, contractor employees, WMATA employees and the public.

Instrumentation shall be provided by the contractor(s) at the job site to evaluate anticipated exposures to toxic substances and physical agents. Testing shall be conducted as necessary to assure the protection of customers, contractor employees, WMATA employees and the public. Copies of test results shall be promptly provided to the WMATA Authority Representative. Costs incurred in providing exposure monitoring shall be included in the contract price with no additional cost to WMATA. Examples of industrial hygiene/environmental monitoring that may be required include:

- Toxic substances such as, but not limited to carbon monoxide, nitrogen dioxide, sulfur dioxide, hydrogen sulfide, heavy metals, welding fumes, silica, volatile organic compounds and asbestos;
- Oxygen deficiency;
- Combustible and flammable gases;
- Illumination;
- Respirable dust (respirable particulate not otherwise specified)
- Occupational and environmental noise (continuous and impact/impulse);
- Water sampling;
- Soil sampling;
- Confined space monitoring; and
- Ventilation testing results.

5.3.9 Accident and Incident Reporting

All job related accidents and incidents shall be reported and investigated. All data relative to an accident or incident shall be complete and timely, with verification of the facts, and recommendations for specific action to control the cause of similar accidents or incidents. The prime contractor shall be responsible for the reporting and investigation of all accidents and incidents occurring incidental to work performed under the contract. An accident includes personal injuries requiring medical attention away from the work site or property damage exceeding $1,000.00. An incident includes near misses, overexposure to toxic substances, hazardous material spills/releases and events of non-compliance with safety or environmental regulations, procedures, or requirements.

Accidents and incidents shall be reported to the WMATA AR immediately. Refer to Section 5.3.10, Emergency Guidelines, for details.

Accident Reports C-23 and C-24 shall be completed and submitted to the AR within 48 hours after the accident or incident. For accidents involving conditions that are immediately dangerous to life and health, work shall be suspended until corrective actions are implemented.

5.3.10 Emergency Procedures Guidelines

5.3.10.1 The Prime Contractor will set up emergency procedures in their Health & Safety Plan for the following categories:

- Fire;
- Injury to Metro customer, employee, or WMATA employee;
- Injury to general public resulting from a possible slip, fall or vehicular injury;
- Property damage, particular to utilities; i.e., water, gas, sewage, electrical, telephone or pedestrian and vehicle routes;
- Public demonstrations;
- Bomb and chem-bio threats;
- Emergency evacuation;
- Hazardous chemical releases;
- Other incidents at contractor's job site.

5.3.10.2 Wherever practical, teams should be established, in advance, to handle the various types of emergencies. In other cases, emergencies must be handled by the ranking person present, with whoever is available to assist.

- Post, in a conspicuous place, a list of emergency phone numbers, along with the type of information to be transmitted for each emergency situation.
- Delegate responsibility for making emergency calls.

5.3.10.3 Actions to be taken during emergencies should be discussed regularly with contractor's supervisory personnel and at "tool box" safety meetings.

5.3.10.4 When an emergency occurs, which requires a response by the fire and emergency services, the person in charge shall:

- For emergencies in the Metrorail operating system, immediately notify the WMATA Operations Central Control (OCC) on 202-962-1970 and Metro Transit Police Department (MTPD) on 202-962-2121. Emergencies in the bus facilities should be directed to Bus OCC on 202-962-1815 and MTPD on 202-962-2121.
- For emergencies in the non-operating rail system [e.g., Metrorail extensions] call 911. Also notify the WMATA [SAFE] Rail Oncall Officer on 202-747-4485.

- For environmental incidents involving operations, maintenance, and support functions, including capital improvement and major construction renovation in the operating systems, immediately contact the Maintenance Operations Center (MOC) on 202-962-1530.
- Evacuate personnel and provide first aid;
- Stabilize the situation;
- Secure the area, preserve evidence;
- Notify the Authority Representative;
- Cooperate with the responding emergency services;
- Initiate an incident investigation – MTPD will be in charge of criminal or potentially criminal incident scene in the operating system. SAFE will be in charge of non-criminal investigations of accident/incident that occur in the operating system.

5.3.10.5 Provide information regarding the situation only to WMATA AR and WMATA Safety representative or regulatory agencies. Questions from the media should be referred to the WMATA, Media Relations Office on 202-962-1051.

5.3.10.6 Review emergency procedures regularly and modify as required. All such procedures shall be approved by and coordinated with the WMATA AR.

5.3.11 Accident Investigation Committee

At the discretion of the WMATA CSO/SAFE, the appropriate Safety Subcommittee may be convened to evaluate all reports and information obtained from investigative sources on any accidents resulting in a loss of life or serious injury, or any accident involving the operating Metrorail, Metrobus or MetroAccess system. The contractor shall make its employees available for interviews with the Safety Subcommittee as required. The Safety Subcommittee shall submit a written report to the CSO/SAFE. The AR will be responsible for ensuring that contractors implement corrective action plans that result from a SAFE, Safety Subcommittee, or external agency investigation.

5.3.12 Technical Inspection Tours

WMATA staff members, who are escorting technical and/or other official visitors in hazardous work areas, will comply with the safety requirements established by this CSEM, the MSRPH, BSEH, and/or the AR. Contractor or vendor personnel who request to inspect a site in the ROW, shall be provided a safety briefing by the AR (or Designee) and be escorted at all times by a WMATA employee, who has been trained as an RWIC in ROW safety. All tours shall be coordinated with the WMATA AR. An escort is required for each group of six (6) for tours on the ROW. Groups will be provided with appropriate personal protection equipment. Shoes must be safety shoes or sound leather shoes that tie. No athletic type shoes or open-toe shoes are permitted in any WMATA facility.

5.3.13 Metro Tours Safety Guidelines

It is of the utmost importance that a high degree of protection be afforded all persons touring Metro construction sites. The following guidelines have been prepared as general instructions for those personnel who are responsible for the organization, direction and safe conduct of these tours. Except for certain technical inspection tours made by WMATA staff members and their guests, the following procedures shall be implemented:

5.3.13.1 All group tours will be cleared through the WMATA Media Relations Office and the DGMO, allowing maximum advance notice.

5.3.13.2 The Media Relations Office will contact the WMATA AR for the sites to be visited to coordinate the tour plan and to assure that necessary safety precautions are taken.

5.3.13.3 The Media Relations Office will coordinate the following items with the person requesting the tour:

- Number of Visitors – Individual tour groups in non-hazardous areas should be limited to no more than 20 persons per tour escort; i.e. group of 40 will require at least two escorts.
- Clothing – Long pants, short or long-sleeved shirts, low-heeled shoes with hard soles and laces that provide full coverage to the feet. No athletic type shoes or open-toe shoes are permitted.

- Children – Children under age 16 will not be permitted to accompany tours.
- Protective Equipment – Hard hats, safety glasses, boots, reflective vests, raincoats, ear plugs, etc., will be supplied as required.
- Release and Hold Harmless Agreement – Each visitor will be required to complete this form prior to the beginning of the tour. (See Appendices)

5.3.13.4 Immediately prior to entering a job site, all visitors should be briefed about the need for careful and orderly conduct, and be briefed on the hazards of the location.

5.3.13.5 Groups shall be accompanied at all times by a member of the WMATA AR's staff while on the job site.

5.4 WMATA Construction Safety Recognition Awards Program

5.4.1 All WMATA construction contractors shall participate in the WMATA Safety Recognition Award Program and shall keep accurate records of each employee hours worked, exposure and accident experience and submit monthly reports to the AR in accordance with reporting procedures.

5.4.2 The awards based on the statistics reported on WMATA Form C-26, Injury and Illness Experience Summary, shall be made as follows:

- Special awards are issued for 100,000, 250,000 and 500,000 employee hours for work without a lost time injury. The project safety superintendent will also receive a personalized plaque.
- SAFE will approve all awards and will notify the AR when a contractor becomes eligible for an award. Awards will be presented to contractors at the WMATA safety meetings.
- A Special Safety Commendation Award will be presented to a contractor who performed an outstanding safety related service to the community. This award may also be presented to an individual employed on a Metro project for distinguished work in the field of safety. Recommendations for this award must be submitted through the WMATA AR to SAFE.

6.0 Contacts

6.1 Department of Labor OSHA

Each contractor shall be familiar with the Federal Occupational Safety and Health Act (OSHA) as it pertains to his/her work responsibility, and will implement it as federal law requires.

All fatality cases and/or accidents in which three (3) or more persons are injured in any one accident shall be reported to OSHA, Virginia OSHA or Maryland OSHA, depending on where the accident occurs, within 8 hours of the accident.

Regional Administrator
U.S. Department of Labor – Region III
(Delaware, D.C., Maryland, Pennsylvania, Virginia and West Virginia)
15220 Gateway Center
3535 Market Street
Philadelphia, PA 19104
Phone: (215) 596-1201

U.S. Department of Labor – Baltimore Area Office
G.H. Fallon Federal Building
Charles Center
31 Hopkins Plaza
Baltimore, MD 21201
Phone: (410) 962-2840

Commonwealth of Virginia – Department of Labor & Industry
P.O. Box 12064
Richmond, VA 23241-0064
Phone: (804) 786-2376
Manassas
Phone: (703) 392-0900

Safety Division
7890 Backlick Road
Springfield, VA 22150
Phone: (703) 451-1524

State of Maryland – Department of Labor & Industry (MOSH)
Laurel, MD 20707
Construction Safety Inspector Phone: (410) 383-2253
Washington Area Phone: (301) 470-1932
1040 West Street Phone: (301) 621-1930
Emergency - After Hours (410) 767-7233

Copies of the Occupational Safety and Health Act 1970 and related information on state plans, standards, and education and training programs may be secured from the offices listed above or from:

U. S. Department of Labor Occupational Safety & Health Administration
200 Constitution Avenue, N.W.
Washington, D.C. 20210
Phone: (202) 219-8063

6.2 WMATA–Department of Safety & Environmental Management

Department of System Safety & Environment Management
Washington Metropolitan Area Transit Authority
600 Fifth Street, N.W.
Washington, D.C. 20001
Office: (202) 249-SAFE (7233)

After Regular Business Hours Contact Safety Duty Officer via:
OCC – (202) 962-1970
ROCC – (202) 962-1952
BOCC – (202) 962 -1815

6.3 Public Relations Procedures

The procedure for handling inquiries from the press regarding emergencies such as accident, fire, explosion, etc., is immediate referral to WMATA AR by field or front office personnel of the contractor. Make no statement until such comment has been authorized by the AR. The same policy of referral to WMATA for action and approval should also be followed in connection with any news releases or

announcements related to the job by the contractor, subcontractor, suppliers, etc. Similarly, any requests for photo locations should be referred to the AR.

6.4 Emergency Medical Services

For incidents that occur on construction projects in the operating system immediately notify emergency services via the WMATA Operations Central Control (OCC) on (202) 962-1970 and Metro Transit Police Department (MTPD) on (202) 962-2121. Emergencies in the bus facilities should be directed to Bus OCC on (202) 962-1815 and MTPD on (202) 962-2121. Environmental incidents involving operations, maintenance, and support functions, including capital improvement and major construction renovation in the operating system, shall be immediately reported to the Maintenance Operations Center (MOC) on (202) 962-1530.

If you call 911 you must also call the above numbers to ensure required coordination between WMATA and the responding emergency services.

6.5 Government/Utility Contacts

Washington, D.C.	Telephone
U.S. Park Police	(202) 619-7310
U.S. Park Police Emergencies	(202) 619-7300
U.S. Coast Guard-Search & Rescue	1-800-418-7314 or (410) 576-2521
U.S. Coast Guard-Search & Rescue Command Center	(202) 267-2100
Harbor Police	(202) 727-4582
D.C. Occupational Safety & Health	(202) 576-6339
Federal Transit Administration-Office of Safety & Security	(202) 366-4043
Environmental Protection Agency (General Information)	(202) 260-2090
National Response Center (Emergencies)	1-800-424-8802
Sewer & Water Operations Division 24-hr. Emergencies	(202) 612-3400
Verizon Communications-Repairs	1-800-275-2355
Potomac Electric Power Co. (PEPCO)	(202) 833-7500
Emergencies	(202) 872-3432
Power Outage	1-877-737-2662
Washington Gas-Washington Division	(703) 750-1000

Alexandria, VA	Telephone
Construction Safety Inspector	(703) 838-4360
Traffic Engineering	(703) 838-4328
Virginia American Water Co. – Alexandria	(703) 549-0909
Virginia American Water Co. - Alexandria After Hours	(703) 491-8814
Sewer Maintenance	(703) 838-4488
Water and Sewer Emergency - After Hours	(703) 845-7622
Virginia Power Co.	1-888-667-3000
Verizon Communications – Repairs	1-800-275-2355
Washington Gas - Virginia Division	(703) 369-3536

Arlington County, VA	
Construction Safety Inspector	(703) 228-3800
Traffic Engineering	(703) 228-3575
Public Utilities - Water & Sewer Maintenance	(703) 228-6485
Public Utilities - Water & Sewer Emergency 24-hrs.	(703) 228-6555
Virginia Power Co.	1-888-667-3000
Verizon Communications – Repairs	1-800-275-2355
Washington Gas - Virginia Division	(703) 369-3536

Fairfax County, VA	
Virginia D.O.T.	(703) 383-2888
Water Authority	(703) 698-5800
After Hours Emergency	(703) 698-5613
Sewer Maintenance Emergency	(703) 323-1211
Sewer Location Information	(703) 324-5015
Virginia Power Co.	1-888-667-3000
Verizon Communications – Repairs	1-800-275-2355
Washington Gas - Virginia Division	(703) 369-3536

Montgomery County, MD	
Engineering Services	(240) 777-7220
Construction Section	(240) 777-7210
Traffic Engineering Emergency Services	(240) 772-2190
Utilities Water and Sewer (WSSC) Emergencies	(301) 206-4002
Potomac Electric Power Co. (PEPCO)	(202) 833-7500
Emergencies	(202) 872-2000
Verizon Communications – Repairs	1-800-275-2355
Washington Gas - Maryland Division	(703) 750-1000

Prince George's County, MD	Telephone
Construction Regulation Division	(301) 883-5730
Traffic Engineering - Highways & Bridges Division	(301) 883-5640
Traffic Engineering - Emergency Services	(301) 499-8600
Utilities Water and Sewer (WSSC) Emergencies	(301) 206-4002
Potomac Electric Power Co. (PEPCO)	(202) 833-7500
Emergencies	(202) 872-2000
Verizon Communications – Repairs	1-800-275-2355
Washington Gas - Maryland Division	1-800-752-7520 or (703) 750-1000

District of Columbia – Occupational Safety & Health	(202) 576-6339
950 Upshur Street, N.W., Washington, D.C. 20110	
620 First Street, N.E., Washington, DC 20001	(202) 523-1452
D.C. Environmental Health Administration	(202) 535-2500

Commonwealth of Virginia - Department of Labor & Industry	
P.O. Box 12064, Richmond, VA 23241-0064	(804) 786-2376
Manassas	(703) 392-0900
Safety Division	
7890 Backlick Road	
Springfield, VA 22150	(703) 451-1524
Virginia Department of Environmental Quality	(703) 583-3800

State of Maryland - Department of Labor & Industry (MOSH)	
Construction Safety Inspector	(410) 383-2253
Washington Area Phone	(301) 470-1932
1040 West Street, Laurel, MD 20707	(301) 621-1930
Emergency - After Hours	(410) 767-7233
MD Department of the Environment Underground Tanks	(410) 631-3442

6.6 "MISS UTILITY"

"MISS UTILITY" is a single telephone number for MD and DC, 1-800-257-7777, for VA the number is 1-800-552-7001, which should be called whenever excavating, boring, pile driving and/or digging for the location of gas, electric, water, sewer and telephone lines. This number has been established through a combined effort of the utilities for your convenience. Our objective is to eliminate service interruption and to promote safety. The use of this service will result in a safer atmosphere for you and your personnel and to the communities we serve. It will further reduce lost production of labor and equipment to your company.

Each participating utility company will, depending on conditions, locate and identify the location of its facility by staking and/or marking the horizontal path on the surface. Our locating personnel are well trained to meet your needs at no expense to you.

The “MISS UTILITY” office address is:
Miss Utility
The Greens
14504 Greenview Drive
Suite 300
Laurel, Maryland 20707
Office Business Lines:
Baltimore Metro Line – (410) 792-9080
Washington Metro Line – (301) 470-3484

We request that you call “MISS UTILTY” forty-eight (48) hours before work is to begin on all planned projects, preferably between 7:00 AM and 5:00 PM Monday through Friday, excluding holidays. More advance notice is desirable if known. Emergencies will be processed as promptly as possible. “MISS UTILITY” will be operative on a 24-hour basis with trained personnel at your disposal. Note: The “MISS UTILITY” field layout is valid for only two (2) weeks following the date of the survey. If the two (2) week period expires before excavating the survey area, “MISS UTILITY” must be notified to update the initial survey.

7.1 Acronyms

AC	Alternating Current
ACCS	Department of Access Services
AGM/ACCS	Assistant General Manager, Access Services
AGM/BUS	Assistant General Manager, Department of Bus Services
AGM/IT	Assistant General Manager, Information Technology
AGM/PLJD	Assistant General Manager, Department of Planning and Joint Development
AGM/TIES	Assistant General Manager, Transit Infrastructure and Engineering Services
AMTRAK	National Railroad Passenger Corporation’s intercity passenger train service
ANSI	American National Standards Institute
APCA	Air Pollution Control Act

APTA	American Public Transportation Association
AR	Authorized Representative of the Contracting Officer
ATC	Automatic Train Control
ATO	Automatic Train Operation
ATP	Automatic Train Protection
ATS	Automatic Train Supervision System
BMNT	Office of Bus Maintenance
BOCC	Bus Operations Control Center
BSEH	Department of Bus Service Employees' Handbook
BTRA	Office of Bus Transportation
BUS	Department of Bus Service
CAP	Corrective Action Plan
CCTV	Closed Circuit Television System
CDL	Commercial Driver's License
CENI	Office of Chief Infrastructure Services
CENV	Office of Chief Vehicle Program Services
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFO	Department of Finance, Chief Financial Officer
CFR	Code of Federal Regulations
CIT	Construction Inspection and Test
CMNT	Office of Rail Car Maintenance
CNG	Compressed Natural Gas
COG	Metropolitan Washington Council of Governments
COMM	Communications Branch
COOP	Continuity of Operations Plan
COUN	Office of General Counsel
CPO	Office of Performance
CPR	Cardiopulmonary Resuscitation
CSCM	Department of Customer Service, Communications and Marketing
CSO	Chief Safety Officer
CSX	Rail-Based Transportation Company
CQAL	Office of Corporate Quality Assurance (SAFE)
CWA	Clean Water Act
DCB	Design Control Board
DC DOT	District of Columbia Department of Transportation
DCO	Deputy Environmental Compliance Officers
DGM/A-CFO	Deputy General Manager of Administration-Chief Financial Officer
DGM/O	Deputy General Manager Operations

DOT	Department of Transportation
DST	Daily Safety Test
EAC	Equipment Advisory Committee
EAP	Employee Assistance Program
ECO	Environmental Compliance Officers
ELES	Office of Elevators and Escalators
ELT	Executive Leadership Team
EMI	Engineering Modification Instruction
EMIH	Office of Environmental Management and Industrial Hygiene
EMS	Emergency Medical Services
EOP	Emergency Operations Plan
EPCRA	Emergency Planning and Community Right-To-Know Act
ERTF	Emergency Response Training Facility
ESC	Executive Safety Committee
ETEC	Emergency Tunnel and Evacuation Carts
ETS	Emergency Trip Stations
F&I	Fire and Intrusion Alarm System
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FY	Fiscal Year
GM/CEO	General Manager/Chief Ex/Chief Executive Officer
HOMT	Heavy Overhaul Maintenance
HR	Department of Human Resources
HRMS	Office of Human Resources Management Services
IDW	Intrusion Detection and Warning System
IRP	Infrastructure Renewal Program
IRPG	Office of Infrastructure Renewal Program
ISSAP	Internal Safety and Security Audit Process
IT	Department of Information Technology
MACS	MetroAccess
MARC	Maryland Area Regional Commuter Train Service
MAXIMO	IBM Asset Management Software
MCAP	Major Capital Projects
MCSR	Motor Carrier Safety Regulations
MD DOT	Maryland Department of Transportation
MOC	Maintenance Operations Center
MOSH	Maryland Occupational Safety and Health Service
MSDS	Material Safety Data Sheets

MSF	Metro Supply Facility
MSRPH	Metrorail Safety Rules and Procedures Handbook
MTPD	Metro Transit Police Department
NCA	Noise Control Act
NCTA	National Capital Transportation Agency
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NHTSA	National Highway Traffic Safety Administration
NRC	National Response Center
NTD	National Transit Database
NTP	Notice To Proceed
NTSB	National Transportation Safety Board
OAP	Operations Administrative Procedures
OCC	Operations Control Center
OCCO	Rail Operations Control Center
ODEV	Organizational Development
OEM	Office of Emergency Management
OIG	Office of Inspector General
OPMS	Office of Operations Management Services
OSHA	Occupational Safety and Health Administration
PA	Public Address System
PABX	Private Automatic Branch Exchange
PERS	Passenger Emergency Reporting System
P/I	Policy/Instruction
PIDS	Passenger Information Display System
PLJD	Department of Planning and Joint Development
PLNT	Office of Plant Maintenance
PME	Precision Measurement Equipment
PMI	Preventive Maintenance Inspection
PRMT	Office of Procurement and Materials
PSPC	Public Safety Policy Committee of Washington Metropolitan Council of Governments
QAAW	Office of Quality Assurance and Warranty
RCRA	Resource Conservation and Recovery Act
RFC	Requests for Change
RISK	Office of Risk Management
ROCC	Rail Operations Control Center
ROCS	Rail Operations Control System
ROW	Right-of-Way
RTRA	Office of Rail Transportation

RTTO	Office of Rail Transportation Train Operations
S&I	Service and Inspection
SAFE	SAFE Department of System Safety and Environmental Management
SARA	Superfund Amendments and Reauthorization Acts
SMNT	Office of Systems Maintenance
SOP	Standard Operating Procedures
SRPM	Safety Rules and Procedures Manual
SSCP	SSCP Safety and Security Certification Program
SSCPP	Safety and Security Certification Program Plan
SSO	State Safety Oversight
SSPP	System Safety Program Plan
STDS	Standard Time Distribution System
TIES	TIES Department of Transit Infrastructure and Engineering Services
TOC	Tri-State Oversight Committee
TPC	Third Party Claims
TRST	Office of Track and Structures
TSCA	Toxic Substances Control Act
TTY	Teleprinter System
UPS	Uninterruptible Power Supply
VA DRPT	Virginia Department of Rail and Public Transportation
VDC	Volts – Direct Current
VOSH	Virginia Occupational Safety and Health Service
VRE	Virginia Railway Express
WMATA	Washington Metropolitan Area Transit Authority
XML	Extensible Markup Language

APPENDICES

FORM C-21: Construction Safety Survey

Form C-21 is for recording nonconformance with safety regulations or procedures. This form may be used to report any nonconformance with environmental regulations. The main use of this form is by the Contractor's Safety Superintendent. Others that are expected to use it include the WMATA Authority Representative and WMATA's Department of System Safety and Environmental Management.

A. Contractor's Safety Superintendent

This form must be used to report the results of the required daily safety inspection made by the Contractor's Safety Superintendent in accordance with contract specifications. Any nonconformance with safety regulations or procedures detected during the safety inspections, or at any other time, should be corrected immediately and reported on this form.

Completed copies indicating action taken and date completed shall be submitted daily to the WMATA Authority Representative for review and verification of completion of required action. The WMATA Authority Representative shall be responsible for forwarding copies of these reports to WMATA's Department of System Safety and Environmental Management (SAFE).

B. WMATA Authority Representative

This form shall be used by the WMATA Authority Representative and his/her designee to record any nonconformance with safety or environmental regulations or procedures noted during his/her tours of jobs sites. The WMATA Authority Representative will make known his/her recommendations to the Contractor's Safety Superintendent and/or Contractor's Project Manager for immediate corrective action.

The WMATA Authority Representative will submit a copy to the Department of System Safety and Environmental Management (SAFE), indicating abatement action taken or date to be completed.

The Contractor shall fill in action taken under appropriate column and return a copy of this report the office of the WMATA Authority Representative within 48 hours.

The WMATA Authority Representative shall follow up on action taken by the contractor and verify compliance by documenting it in the "Action Taken" column and returning a copy to the Department of SAFE.

Washington Metropolitan Area Transit Authority
Construction Safety Survey

CONTRACT NUMBER _____ REPORT NUMBER_____

CONTRACTOR _____ _____

ITEM NUMBER	RECOMMENDATION	SAFETY REGULATION REFERENCE	ACTION TAKEN and/or DATE COMPLETED

DATE:_____

SURVEY MADE BY (PRINT):_____

SIGNATURE:_____

_____DATE:_____

CONTRACTOR'S PROJECT MANAGER (SIGNATURE)

_____DATE:_____

AUTHORITY REPRESENTATIVE (SIGNATURE)

19.45 C-21

FORM C-23: Report of Accident or Damage to Equipment/Property

The form (C-23) shall be prepared covering each and every accident involving damage to equipment or property.

1. The form shall be prepared from information as a result of investigation or direct reports of the person or persons involved or contractor responsible,

2. Report shall be furnished within 48 hours.

3. This form shall be prepared by the contractor, who shall retain the original and submit copies to the WMATA Authority Representative and the Department of System Safety and Environmental Management.

4. All accidents involving damage to property, including raw materials or equipment; installed equipment, motor vehicles and heavy construction equipment, are reportable.

5. Investigation of alleged damage to private property.

    a. All buildings or other property that may be affected by the contractor's work will have been inspected by the contractor and a report submitted to the WMATA Authority Representative prior to the commencement of work.

    b. If, in the course of the contractor's work, property damage occurs which is allegedly due to the contractor's operations, this reporting procedure is to be followed.

    c. If, however, a property owner reports damage to his/her property, of which his/her complaint is the first intimation, and alleges that it is due to construction, he/she will probably request prompt inspection.

    d. If the property owner makes his/her complaint and request to the WMATA Authority Representative, the complaint will then be reported on Form 23.

    e. In complying with an owner's request for report of damage allegedly due to the contractor's work, particular care is required to see and record only the facts, and to avoid expressing opinion. The owner's opinion shall be recorded as "remarks by owner."

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
CONTRACTOR REPORT OF ACIDENT OR DAMAGE
TO EQUIPMENT OR PROPERTY
FORM C-23

DATE OF REPORT _____
CONTRACTOR _____ CONTRACT NUMBER_____
SUBCONTRACTOR _____ REPORT NUMBER _____

LOCATION OF ACCIDENT _____
_____

EQUIPMENT INVOLVED (DESCRIPTION & SERIAL NUMBER & OWNER)_____
_____

DAMAGE RESULTING FROM ACCIDENT_____
_____

PERSONAL INJURIES □ YES □ NO IF YES, PREPARE FORM C-24

ESTIMATED VALUE OF DAMAGES - $_____

WITNESSES TO ACCIDENT

	WERE STATEMENTS OBTAINED FROM WITNESS? □ YES □ NO
	ARE STATEMENTS ATTACHED? □ YES □ NO

REMARKS

DATE OF ACCIDENT_____ TIME OF ACCIDENT_____AM/PM
WEATHER CONDITIONS_____ TEMPERATURE_____
ROADWAY OR SURFCE □ WET □ DRY □ ICY □ OTHER
IF OTHER EXLAIN _____

SIGNATURE_____ TITLE _____

IF MORE SPACE IS REQUIRES, USE A SEPARATE SHEET FOR ADDITIONAL INFORMATION AND/OR SKETCHES

FORM C-24: Supervisor's Report of Accident or Incident

This form (C-24) shall be submitted by the contractor for each job-related accident or incident involving any of the following:

a. Any injury (other than first aid) to an employee of the contractor or any subcontractor or supplier;

b. Any injury to persons not directly connected with the project (including any alleged injuries reported by a patron or a member of the general public).

c. A near miss accident involving the contractor or subcontractor employees, patrons, or members of the public.

d. Overexposure or suspected overexposure to toxic substances experienced by the contractor or subcontractor employees, patrons, or members of the public.

e. Events including all spills or chemical release, of nonconformance with safety or environmental regulations, procedures, or requirements.

Submittal shall be made as soon as possible, but in no case later than forty-eight (48) hours after the accident. Pertinent facts which are not available within the above mentioned time shall be submitted as soon as available in the supplemental report.

This form shall be prepared by the contractor, who shall retain the original and submit copies to the WMATA Authority Representative and the Department of System Safety and Environmental Management.

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY Supervisor's Report of Accident ~ Form C-24		
1. Contract #	2. WMATA Project Section (Example: F-10a)	
3. Date of Accident _____ Time of Accident_____am/pm	4. Date Supervisor Notified	5. Date of the Report
6. Name of Prime Contractor	7. Location On-Site Where Accident Occurred	
8. Name of Contractor/ Subcontractor Involved	9. Injury: O Lost Time O Medical Treatment Off-Site	
10. Narrative of How Accident Occurred:* O Fire O Property Damage O Equipment Damage		
Report of Accident or Damage to Equipment/Property		
11. Injured Name & Address	Employer Name & Address	12. Injured Occupation O Male O Female Age _
13. Nature of Injury	14. Part of Body Injured	15. First Aid By Whom?
16. Medical Treatment By Whom?	17. Name(s) of Witnesses	
18. Accident-Basic Type**	19. Immediate Causes**	20. Basic Causes**
21. Supervisor's Corrective Action and Signature		
22. Project Superintendent's Review Comments and Signature		
23. WMATA Resident Engineer's Comments and Signature		

*Use additional paper, if needed. **See reverse side.

Form C-24 continued…..

Accident Cause Analysis Flow Chart		
ACCIDENTS	IMMEDIATE CAUSES	BASIC CAUSES
<u>Basic Types</u> - Struck by… - Struck against… - Contact with… - Caught on… - Caught in or between… - Fall on same level… - Fall from different level… - Exposure… - Over-exertion… - Other…	- Operating without authority - Failure to warn or secure - Operating at unsafe speed - Nullifying safety devices - Using defective equipment - Using equipment improperly - Failure to use personal protective equipment - Improper loading or placement - Servicing equipment in motion - Servicing hazardous equipment - Horseplay - Inadequate guards or protection - Defective equipment or material - Congestion or inadequate work space - Fire and explosion hazards - Unexpected movement hazards - Projection hazards - Poor housekeeping - Hazardous environmental conditions - Hazardous placement or storage - Inadequate ventilation - Inadequate illumination - Unsafe personal attire	<u>Personal Factors</u> - Lack of knowledge or skill - Improper motivation attempting to: a) Save time or effort b) Avoid discomfort c) Attract attention d) Assert independence e) Seek group approval f) Express hostility - Physical or mental problem - Distractions <u>Job Factors</u> - Inadequate work standards - Inadequate design - Inadequate maintenance - Inadequate purchasing standards - Normal wear and tear - Abnormal use and wear

Distribution: Original – SAFE C-24 (rev. 10/11)
Copies – Insurance Carrier, WMATA Authority Representative

FORM C-26: Accident Experience Summary

1. This form (C-26) shall be submitted monthly by the contractor to reflect the monthly accident and man-hour experience of the contractor and each subcontractor so that the project accident experience to date is readily available.
2. This form shall be prepared the Prime Contractor who shall retain the original and submit copies to the WMATA Authority Representative and the Department of System Safety and Environmental Management.

3. This report must be mailed to the WMATA Department of System Safety and Environmental Management no later than the last day of each month. If the last day of a month falls on other than a working day, this report shall be telephoned into the WMATA Department of System Safety and Environmental Management, on or before the last working day of each month. The completed report should then be mailed in on the following work day.

Washington Metropolitan Area Transit Authority

Injury and Illness Experience Summary – OSHA Standards

Reporting Organization _____ Contract No._____ Date_____

INJURY AND ILLNESS CATEGORY		TOTAL CASES THIS MONTH	DEATHS	LOST WORKDAY CASES				NONFATAL CASES WITHOUT LOST WORKDAYS	TERMINATIONS OR PERMANENT TRANSFERS
				Total Lost Workday Cases	Cases Involving Days Away from Work	Days Away from Work	Days of Restricted Work Activity		
CATEGORY	CODE	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OCCUPATIONAL INJURIES	10								
- OCCUPATIONAL ILLNESSES -									
Occupational Skin Diseases or Disorders	21								
Dust Diseases of the Lungs	22								
Respiratory Conditions Due to Toxic Agents	23								
Poisoning (Systemic Effects of Toxic Materials)	24								
Disorders Due to Physical Agents	25								
Disorders Associated with Repeated Trauma	26								
All Other Occupational Illnesses	29								
TOTAL-OCCUPATIONAL ILLNESSES (Sum of codes 21 through 29)	30								

Total Hours Worked This Month (includes Prime & Subcontractors)		Signature of Project Superintendent

INCIDENCE RATES FOR

TOTAL RECORDABLE CASES	LOST WORKDAY CASES	NONFATAL CASES w/o LOST WORKDAYS	DAYS OF RESTRICTED WORK ACTIVITY	LOST WORKDAYS

The Incidence Rate is calculated as: N x 200.00/MH

Form C-26

N = Number of injuries and/or illnesses MH = Total hours worked by all employees during the month

200,000 = Base for 100 full time equivalent workers (working 40 hours per week, 50 weeks per year)

Release and Hold Harmless Agreement

In consideration of the below named representation of the Washington Metropolitan Area Transit Authority granting me permission to visit the construction of _____ site of the Authority, I hereby waive, release and hold harmless the Authority, its Directors, Officers, employees, agents, contractors and subcontractors from any and all claims I may now have, or may have in the future, for any and all injury, or losses to person or property arising from this exercise of visitation by this privilege.

Signature	Representing

Issued By	Title	Date

System Safety and Environmental Management

Material Data Sheet Review Request

Return this form to the Chemical Safety Liaison Officer at Metro Supply Facility
Email to msds@wmata.com or Fax to (202) 962-5548
Please allow 3 weeks lead time for requests
Attach clear copy of most recent MSDS

Please provide the following information.		
Today's Date:	***Requesting Dept.:***	***Contact Location:***
Contact Name:		***Phone:***
Locations where product will be stores:		
Material Status (check all that apply):		In Use_____New Material_____For Testing _____ Contractor MSDS_____Yes_____No Contractor Name: _____ Contract No.: _____
Trade Name (as shown on MSDS):		
WMATA Stock No.:		
SAFE MSDS No.:		
Give name and MSDS number of existing product use:		
Why is replacement necessary?		
Where will product be used?		
Description of Use:		
How will product be applied?		
Size of Container:		
Quantity Used Per Week:		
Physical State of Product:		Aerosol Spray_____Gas_____Liquid____Pellets____ Paste/Cream____Powder _Solid_____Other_____ *(Please specify)*_____
Manufacturer's Name & Phone No.:		
Vendor's Name & Phone No.:		
Best Time to Contact You (Requestor):		
Comments:		

Ingredients Restricted at WMATA
April 2005

Products containing restricted ingredients are **not** acceptable for use by WMATA employees or by contractors performing work in Authority operating, maintenance, support, or storage facilities. Such products will be evaluated by SAFE for restricted use **only** if no less hazardous substitute is available that will perform the required function. In this situation, the organization must submit a written request to SAFE for a chemical to be evaluated for restricted use. The request must demonstrate that an exhaustive market search was conducted to identify a less hazardous substitute, but that none were available. It is not required to conduct a search for consumer products for which there are no known less toxic alternatives. These include, but may not be limited to vehicle fuels, batteries, lead solder, and cementitious products (grout, Portland cement).

Carcinogens

- Carcinogens, suspected carcinogens, probable carcinogens or possible carcinogens (e.g., asbestos, methylene chloride, toluene diisocyante).
- Benzene
- Carbon tetrachloride
- Chloroform (trichloromethane)
- Trichloroethylene
- Tetrachloroethylene

Reproductive Toxicants

- Glycol ethers including 2-Butoxyethanol (butyl cellosolve, CAS# 111-76-2), 2-Methoxyethanol (EGME, CAS# 109-86-4), 2-Methoxyethyl acetate (EGMEA, CAS# 110-49-6), 2-(2-Methoxyethoxy) ethanol (CAS# 111-77-3), Ethylene glycol dinitrate (EGDN, CAS# 628-96-6), 2-Ethoxyethanol (EGEE, CAS# 110-80-5), and 2-Ethoxyethyl acetate (EGEEA, CAS# 110-15-9).
- Teratogens

Corrosives

- Products used at a dilution rate with a corresponding pH that is greater than 11.5 (alkaline) or less than 3.5 (acidic). Concentrated chemicals will be considered only if a tamper-proof metering system (dilution or proportioning) is provided. Alkaline soap used in the automatic bus wash systems cannot exceed a pH of 10 at the discharge. A variance is allowed for acids in vehicle and equipment batteries.

- Products used outside with a pH greater than 8.5 or less than 6. This is in order to comply with storm water discharge requirements.

- Products used indoors (i.e., vehicle washing operations) with a pH greater than 10 or less than 6. This is in order to comply with sanitary sewer discharge requirements. POTWs accept waste water within pH range of 6 to 10. Waste water discharges must be neutralized to this range.

- Hydrofluoric Acid

Flammables

- Flammable solids

- Flammable liquids with a flash point less than 100 degrees Fahrenheit. Variances may be possible for paints and adhesives used under controlled conditions (i.e. properly ventilated spray paint booth). Fuels, such as gasoline, are approved for use as fuel for vehicles, generators, and other powered equipment, except in the Metrorail stations and underground segments of the rail system. Diesel-powered equipment shall be used in these locations.

Sensitizers

- Respiratory and skin sensitizers

High Toxicity Chemicals

- Highly toxic chemicals with a median lethal concentration (LC_{50}) in air of 200 parts per million (ppm) by volume or less of gas or vapor, 2 milligrams per liter (mg/L) or less of mist, fume, or dust or 2,000 milligrams per cubic meter or air (mg/m^3) or less of mist, fume, or dust, when administered by continuous inhalation for one hour to albino rats weighing between 200 and 300 grams each.

- Toxic chemicals with a median lethal concentration (LC_{50}) in air of more than 200 ppm, but not more than 2,000 ppm by volume of gas or vapor, more than 2 mg/L but not more than 20 mg/L of mist, fume, or dust, or more than 2,000 mg/m^3, but not more than 20,000 mg/m^3 of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs) to albino rats weighing between 200 and 300 grams each.

Toxic Heavy Metals

- Arsenic, beryllium, cadmium, chromium, lead, mercury and compounds lead solder is allowed for uses other than plumbing, because there is not presently a suitable substitute for lead in solder for these applications.

Pesticides Banned or Severely Restricted by EPA

Ozone Depleting Substances

- Existing systems that require certain refrigerants will be exempted, but new systems that require refrigerants will be required to comply with environmental regulations. Non ozone-depleting substances are preferred for use at WMATA. (List from 40 CFR Part 82)

Chesapeake Bay Toxics of Concern

- Atrazine, benzo(a)anthracene, benzo(a)pyrene, chlordane, chrysene, copper, fluoranthene, naphthalene, PCBs and tributyltin. (Cadmium and compounds, chromium and compounds, lead and compound, and mercury, are included under toxic heavy metals.)

Phosphates

- Cleaning agents that contain phosphorous may not be purchased or used in the WMATA system with the following exceptions:

    1. Detergents used for metal cleaning or conditioning, surface cleaning, or appliance cleaning.

    2. Phosphoric acid cleaning products including sanitizers, brighteners, acid cleaners, or metal cleaners.

    3. Dishwashing detergents with 8.8 percent or less phosphorous by weight.

Chemicals Targeted for Elimination

- Products containing mercaptans which are characterized by strong, repulsive odors (excluding natural gas).
- Aerosol mixtures of n-hexane and acetone
- Methyl ethyl ketone
- Methyl isobutyl ketone
- 1,1,1-trichlorethane (methyl chloroform)
- Xylenes
- Cyanide compounds (including hydrogen cyanide)
- Toluene

Washington Metropolitan Area Transit Authority

SAFETY & SECURITY CERTIFICATION PROGRAM PLAN

March 2012

REVISION HISTORY

Date	Revision	Comments
July 2003	0	Initial Issue
October 2007	1	Total Document Revision
March 2012	2	Total Document Revision

PREFACE

System safety and security play important roles in achieving and maintaining the Washington Metropolitan Area Transit Authority (WMATA) mission to provide exceptional service in a safe and secure operating environment. WMATA has implemented a Safety and Security Certification Program to help in the achievement of this mission.

The goal of safety and security certification is to ensure that Metrorail extensions,new and rehabilitated facilities and vehicles; and new and rehabilitated Metrobus facilities and equipment are operationally safe and secure for customers, employees, and the general public. To this end,the Safety and Security Certification Program verifies, through a formal process, that safety and security requirements are incorporated into design, construction/ installation, procurement and testing activities; training programs; and operations and maintenance procedures.

This document identifies the management responsibilities and the technical process for the implementation of the Safety and Security Certification Program. Only with the effective coordination and a team approach can the Safety and Security Certification Program successfully fulfill its goals and objectives within WMATA.

CONCURRENCES AND APPROVAL

This Safety and Security Certification Program Plan is submitted by the Executive Safety Committee for approval.

3/9/2012

James M. Dougherty
Chief Safety Officer
Date

3/12/12

Michael A. Taborn
Chief, Metro Transit Police Department
Date

2012.03.15

Dave K
Deputy General Manager Operations
Date

3/12/12

Jack Requa
Assistant General Manager - Bus Services
Date

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Robert Troup
Assistant General Manager - Transit Infrastructure Engineering Services
Date

APPROVED:

Jlblil !/I z 2f//Z

Richard R. Sarles
General Manager and Chief Executive Officer
Date

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1 INTRODUCTION

1.1 Authority

The Federal Transit Administration (FTA) at, 49 CFR Part 659 – Rail Fixed Guideway Systems, State Safety Oversight requires rail safety oversight of the Metrorail system, a Washington Metropolitan Area Transit Authority (WMATA) rail fixed guideway system operating in the State of Maryland,the Commonwealth of Virginia and the District of Columbia. The Tri-State Oversight Committee (TOC) is the organization responsible for promulgating System Safety Program Standards and Procedures for, and providing rail safety oversight of, the WMATA Metrorail system.

TOC requires WMATA to prepare a System Safety Program Plan (SSPP) conforming to standards as defined in the Tri-State Oversight Committee Procedures Manual for State Safety Oversight of the WMATA Metrorail System. The TOC Procedures Manual also requires the development and implementation of a Safety and Security Certification Program for the Metrorail system. The FTA Circular 5800.1, Safety and Security Management Guidance for Major Capital Projects also requires the development of a Safety and Security Certification Program (SSCP) for major capital projects covered by 49 CFR Part 633. Additionally, Section 3.3.5 of the WMATA SSPP establishes a Safety and Security Certification Program requirement not only for Metrorail facilities and equipment, but also for Metrobus facilities and equipment. This Safety and Security Certification Program Plan (SSCPP) fulfills the TOC, FTA Circular, and WMATA SSPP requirements and establishes the process for verifying the incorporation of essential safety and security requirements into all new and rehabilitated WMATA alignments, facilities, systems and equipment.

1.2 Background

The SSCP presents a comprehensive approach to ensuring the safety and security of future extensions, capital improvements, and the integration of new and rehabilitated facilities, systems and equipment. The SSCP is modeled after the FTA Handbook for Transit Safety and Security Certification (Reference 17.5), tempered with the experience gathered from other transit safety and security certification programs and the unique requirements of WMATA and its tri-state operations.

The key documents that form the baseline for safety and security certification include:

- WMATA System Safety Program Plan;
- WMATA Security and Emergency Preparedness Plan;
- WMATA design criteria manuals and directive drawings, which determine the safety and security requirements to be reflected in the contract specifications;
- Metrorail Safety Rules and Procedures Handbook (MSRPH) and other applicable WMATA operating rules and procedures;
- National Fire Protection Association (NFPA), American Railway Engineering and Maintenance of Way Association (AREMA), the transit industry, and other applicable codes and standards; and
- Contractual documents and specifications, which define the safety and security features of facilities, systems, and equipment.

1.3 Purpose

The purpose of the Safety and Security Certification Program (SSCP) is to ensure that:

- Design and operating hazards and security vulnerabilities are identified, evaluated and properly controlled or mitigated, prior to the commencement of passenger service;
- All critical system elements are evaluated for compliance with the identified safety and security requirements during the design, construction/installation, testing, and start-up phases of a project; and
- WMATA bus and rail systems are operationally safe and secure for customers, employees, emergency personnel and the general public, prior to entering ,or re-entering after modification, revenue service or use by WMATA personnel.

1.4 Goals and Objectives

WMATA will self-certify that system extensions and new and rehabilitated facilities, systems and equipment are as safe and secure as reasonably possible, within available resources, for use by passengers, employees, contractors, emergency responders, and the general public. For this reason, the goal of the SSCP is to achieve and demonstrate an acceptable level of risk through:

- Systematic approach to hazard and threat/vulnerability management;
- Compliance with safety and security codes, standards, and industry practices;
- Safety and security criteria adherence and specification compliance; and
- Design,construction/installation, testing, and start-up phase verification and review.

Specific program objectives that support the above goals include:

- Identified safety hazards are identified, evaluated and resolved at the earliest possible phase of the project, with resolutions tracked and documented;
- Identified security issues are assessed and resolved at the earliest phase of a project, as possible, with actions taken tracked and documented;
- Appropriate codes, guidelines and standards are reviewed and applied so as to provide a basis for safety and security considerations in the design criteria;
- Facilities, systems, and equipment are designed, constructed, built, inspected and tested in accordance with design criteria and specifications;
- Necessary changes are made to system safety plans, system security plans, operating and maintenance plans and procedures, rulebook, and training programs;
- Personnel are trained and certified to operate and maintain the facilities, systems, and equipment; and
- Emergency response agencies are trained on the inherent hazards of WMATA operations and response to WMATA emergencies.

1.5 Scope

This Safety and Security Certification Program Plan (SSCPP) is applicable to all new rail extensions, rail and bus rolling stock, systems, and facilities. Rehabilitation and modification projects are included in the certification program if it affects safety or security critical systems. The Safety and Security Certification Review Committee {SCRC) evaluates and determines the level of certification comprehensiveness for the rehabilitation and modification projects.

Major rail capital projects over $100 million which are funded by the FTA, require project-specific certification plans, as described in the projects' Safety and Security Management Plans {SSMPs). FTA may also request a project-specific plan for other capital projects. The development of the project-specific appendices to this plan will be based on this program plan.

The SSCP addresses three separate, but overlapping functional areas:

- System Safety and Security;
- Fire/Life Safety; and
- Occupational Safety.

The scope of the SSCP encompasses the equipment, operating and maintenance plans, facilities, and procedures for the following:

- System Elements - includes the passenger vehicles, third rail,train control system, voice & data communications, CCTV cameras and recorders, intrusion detection system, traction power substations, track, automatic fare collection equipment, supervisory control,fire protection and suppression systems, auxiliary vehicles and equipment, and buses.
- Fixed Facilities - includes rail stations, parking garages and parking lots, bus stops, pedestrian overpasses and bridges, rail and bus yards and shops, structures, and the central control facility. Equipment installed in stations and shops (such as HVAC, escalators, elevators, and lighting) is considered part of the facility. Similarly, equipment installed along the guideway (such as tunnel lighting,emergency exits, blue light stations, pump,and fans) is considered part of the facility.
- Testing - includes contractual,integrated,and pre-operational tests.
- Safety. Security. System Assurance. Operational. Maintenance Plans and Procedures - includes items such as Emergency Preparedness Plan, Snow Emergency Plan, Operations and Maintenance Training Programs, Employee Qualification, Emergency Responder Training, Rule Book, Standard Operating Procedures, Quality Assurance/Qual ity Control Plans (including integrated testing and pre-revenue service), and Operations Administrative Procedures.

1.6 Revisions

The SSCPP is reviewed by the Department of System Safety and Environmental Management (SAFE) at least biennially and amended or revised,as required, to reflect process changes as determined by audit activities. Proposed revisions are reviewed by members of the SCRC and submitted to the Executive Safety Committee (ESC) for approval.

The SSCPP is a WMATA controlled document. Each Plan copy is numbered and recipients are required to sign for the document, upon initial receipt and for Plan updates.

1.7 Reference Documents

The following documents were used either in the preparation of the SSCP, or are references for related information:

- WMATA, System Safety Program Plan, January 20,2011;
- WMATA, Safety Rules and Procedures Handbook, September 2010,
- Tri-State Oversight Committee Program Standard for State Safety Oversight of the WMATA Metrorail System, January, 2011
- 49 CFR Part 659 Rail Fixed Guideway Systems, State Safety Oversight, Federal Transit Administrati on
- FTA Office of Safety & Security, Handbook for Transit Safety and Security Certification, November 2002
- Mil-Std-882D. Standard Practice for System Safety, U.S. Department of Defense, February 2000
- Mil-Std-882C. System Safety Program Requirements, U.S. Department of Defense, January 1993

1.8 Acronyms

Acronyms applicable to this Plan are presented below:

AGM	Assistant General Manager
BMNT	Office of Bus Maintenance
BUS	Department of Bus Services
CENI	Office of Chief Engineer, Infrastructure
CENV	Office of Chief Engineer, Vehicles
CFR	Code of Federal Regulations
COG	Metropolitan Washington Council of Governments
CSO	Chief Safety Officer
ELES	Elevator and Escalator Maintenance
ESC	Executive Safety Committee
FTA	Federal Transit Administration
Mil-Std	Military Standard
MTPD	Metro Transit Police Department
NFPA	National Fire Protection Association
OEM	Office of Emergency Management
SAFE	Department of System Safety and Environmental Management
SMNT	Office of System Maintenance
SSPP	System Safety Program Plan

SSCP	Safety & Security Certification Program
SSCPP	Safety & Security Certification Program Plan
SCRC	Safety & Security Certification Review Committee
TIES	Department of Transit Infrastructure and Engineering Services Tri-
TOC	State Oversight Committee
TSSM	Office of Track and Structures Systems Maintenance
TRST	Office of Track and Structures
WMATA	Washington Metropolitan Area Transit Authority

2 PROGRAM MANAGEMENT,ORGANIZATION,AND RESPONSIBILITIES

2.1 Organizational Management Structure

The WMATA SSCP is managed by a coordinated effort within the WMATA staff. Safety and Security Certification Program implementation is the responsibility of all project staff, including contractors. The SCRC oversees the effectiveness of the SSCP.

2.2 Organizational Responsibilities

2.2.1 Department of System Safety and Environmental Management

The Department of System Safety and Environmental Management (SAFE), is responsible for managing and monitoring implementation of the SSCP on a day-by-day basis, and for verifying completion of all tasks that address safety and security critical elements. Other responsibilities include:

- Reviewing and updating,as required, the Safety and Security Certification Program Plan;
- Chairing the SCRC;
- Identifying and defining the certifiable elements, items, and safety and security requirements;
- Developing the compliance checklists;
- Reviewing verification documentation for each certifiable element to ensure compliance with the identified safety and security requirements;
- Advising the SCRC of documentation discrepancies or completeness that require resolution;
- Determining the hazard severity, probability, and hazard risk index of identified hazards;
- Establishing a hazard/threat log to track all identified safety hazards and security vulnerabilities to resolution;
- Reporting progress of the Safety and Security Certification effort to the SCRC;
- Preparing for issuance Certificates of Compliance for each certifiable element and the system as a whole;
- Auditing the Safety and Security Certification process;
- Recommending revisions to the Safety and Security Certification Program;
- Providing a final Safety and Security Certification Report for each project that has undergone safety and security certification through the SCRC; and
- Transmitting a final Safety and Security Certification Verification Report for each Metrorail project to TOC.

2.2.2 Metro Transit Police Department (MTPD)

The Metro Transit Police Department, the OEM unit within the MTPD, works with project managers to ensure:

- Security requirements are incorporated in project contracts and specifications;

- Development of the security aspects in compliance checklists;
- Security verification documentation supports compliance with the security requirements; and
- An appropriate security risk index is assigned to an identified vulnerability or threat, based on severity and probability.

2.2.3 Office of Chief, Infrastructure Services (CENI)

The Chief of Infrastructure Services reports to the AGM-TI ES and is responsible for the safe delivery of major capital projects, infrastructure renewal projects, and managing adjacent construction and joint development projects. In addition, CENI is responsible for maintaining, updating and publishing the WMATA Emergency Response Maps. The Chief of Infrastructure Services has established procedures to ensure compliance with applicable safety requirements for all projects assigned to CENI. CENI staffs are charged with the responsibility for implementing the SSCP for each project when safety and security certification is required. Additional safety and security program responsibilities include:

- Participation as active members of the SCRC;
- Assisting in the identification of safety and security certifiable elements, items and requirements;
- Assisting in the development of safety and security compliance checklists;
- Assurance that the project management organization (internal and consultants) incorporate safety and security requirements into the project design criteria and specifications;
- Assurance that project staff and/or the contractor(s) develops an adequate project document record keeping and submittal system to facilitate the verification process;
- Assurance that the contractor meets the identified safety and security specification requirements, under their control;and
- Assurance of the successful completion of all safety/security related specification and integration test program activities.

2.2.4 Office of Chief, Vehicle Program Services (CENV)

The Office of Chief, Vehicle Program Services (CENV}, is responsible for planning, directing, and overseeing development and implementation of all new/rehabilitation passenger rail vehicle capital projects, and maintenance of the Authority's existing rolling stock. The CENV is responsible for clearly conveying to the CENV staff, other WMATA offices, WMATA executives, and consultants, the mission and goals of each new vehicle purchase or rehabilitation project. The CENV establishes management policy and provides direction for the rail car project. The CENV verifies that the program conforms to WMATA policies and the overall program objectives. During the execution of the project, the CENV will have oversight of the schedule, the budget and the key characteristics of the new vehicles; and also interfaces with various governmental agencies. The Chief, Vehicle Program Services, has the responsibility to implement the Safety and Security Certification Plan for rolling stock related projects subject to certification. The Office of Chief, Vehicle Program Services Project staff:

- Participates as active members of the SCRC;
- Assists in the identification of safety and security certifiable items and requirements;

- Assists in the development of safety and security compliance checklists;
- Assures that safety and security requirements are incorporated into the design criteria and specifications;
- Assures that staff and contractor(s) develop an adequate project document recordkeeping and submittal system to facilitate the verification process;
- Assures that the contractor meets the identified safety and security design and specification requirements; and
- Assures successful completion of all safety/security related specification and test activities.

2.2.5 Office of Bus Maintenance (BMNT)

The Office of Bus Maintenance is located within the department of Bus Services. The Managing Director of Bus Maintenance (BMNT) reports directly to the AGM-Bus, and is responsible for the acquisition, engineering, design, and maintenance activities of buses and motor vehicles, including training of maintenance staff. The Managing Director of Bus Maintenance implements the Safety and Security Certification Plan related to transit bus related projects subject to certification. The Office of Bus Maintenance project staff:

- Participates as active members of the SCRC for transit bus related projects;
- Assists in the identification of safety and security certifiable items and requirements;
- Assists in the development of safety and security compliance checklists;
- Assures that safety and security requirements are incorporated into the design criteria and specifications;
- Assures that staff and contractor(s) develop an adequate project document recordkeeping and submittal system to facilitate the verification process;
- Assures that the contractor meets the identified safety and security design and specification requirements; and
- Assures successful completion of all safety/security related specification and test activities.

2.2.6 Other WMATA Offices

The Department of System Safety and Environmental Management, Office of Engineering and Capital Projects,and Metro Transit Police are principally involved in the safety and security certification process. However, the Offices of Track and Structures (TRST) and Systems Maintenance (SMNT) are responsible for all track related renewal projects. Similarly, the Office of Elevator and Escalator Maintenance (ELES) has the responsibility for all elevator/escalator related renewal work that may be subject to the certification process.

Metrorail and Metrobus operations also support the certification process as it relates to the development of standard and emergency operating procedures and the training and qualification of maintenance and operating staff.

2.2.7 Safety and Security Certification Review Committee (SCRC)

The Safety and Security Certification Review Committee (SCRC) was established as a subcommittee of the Executive Safety Committee (ESC) under WMATA Policy/Instruction No. 10-2/2. SCRC is responsible for overseeing SSCP implementation and for ensuring that certifiable levels of operational safety and security items (i.e. system, subsystem, and programs) are completed and verified prior to the start of new revenue service, or the placement of rehabilitated facilities and systems into service/use. The SCRC is accountable to the ESC for the overall conduct and implementation of the SSCPP and approval of the certification documentation, in accordance with the WMATA SSCP. The SCRC is responsible for the following:

- Reviewing the Safety and Security Certification Program Plan to ensure it meets project safety and security requirements;
- At its discretion, establishing project specific working groups responsible for implementing the safety and security certification process;
- Ensuring the safety certification process begins in the planning and design phases and continues through the testing and start-up phases of the project;
- Ensuring certification checklists are prepared and completed in a timely manner;
- Resolving issues of verification documentation discrepancies and incompleteness (evidence of compliance with safety and security requirements);
- Approving mitigation/control measures for open issues, based on the recommendation of project staff, consultant/contractor, and SAFE. If consensus cannot be reached, the issue is submitted to the ESC for final resolution;
- Assigning responsibilities for implementation of mitigation/control measures for the open issue(s);
- Defining additional safety/security-related tests and analysis, as required;
- Determining whether to accept the existence of specific conditions or require corrective actions, including the specific method to mitigate and control the conditions, based on recommendations;
- Evaluating proposed hazard/threat resolution methodologies and evidence of compliance to safety/security requirements;
- Providing recommendations to the ESC regarding certification of projects; and
- Approving the final verification report for each project.

The Chief Safety Officer (CSO) or designee serves as chairperson of the SCRC and is responsible for preparing all committee materials, documents, agenda, and issuance of meeting minutes.

WMATA undertakes a wide variety of projects, using many construction management types. For example WMATA may select: a design-build contractor; a design-build-operate-maintain contractor; a systems contactor for rolling stock and other systems procurements; or, a facility constructed under the auspices of a political jurisdiction and then turned over to WMATA to operate and maintain. The SCRC membership may change to meet the special requirements of a particular project, such as adding the start-up manager during the testing phase. SCRC composition for the common construction approaches is depicted in the following matrix.

Table 1: Safety and Security Certification Participation by Department
(Participation including but not limited to)

SCRC Membership	Construction/Procurement Types			
	Design Build	Design Bid Build	DBOM**	Jurisdictional***
SAFE	X	X	X	X
Metro Transit Police	X	X	X	X
Infrastructure and Engineering and Services	X	X	X	X
Car Maintenance	Rail Only	Rail Only	Rail Only	Rail Only
Vehicle Program Services	Rail Only	Rail Only	Rail Only	Rail Only
Transportation	Rail Only	Rail Only	Rail Only	Rail Only
Track & Structures Maintenance	Rail Only	Rail Only	Rail Only	Rail Only
Bus Services & Transportation	Bus Only	Bus Only	Bus Only	Bus Only
Vehicle Maintenance	Bus Only	Bus Only	Bus Only	Bus Only
Technology System Support	Bus Only	Bus Only	Bus Only	Bus Only
Procurement & Materials	X	X	X	X
Plant Maintenance	X	X	X	X
System Maintenance	X	X	X	X
Elevator and Escalator Maintenance	X	X	X	X
Quality Assurance Sections	X	X	X	X
Engineering, Safety and Security, and Program Management Services Consultant	X	X	X	X
TOC*	Rail Only	Rail Only	Rail Only	Rail Only

X = Multimodal
* Observer
** Design, Build, Maintain, Operate
*** Constructed by other jurisdictions

Note: SCRC representative designees have the same decision-making authority as the primary representative.

As conditions require, subcommittees may be formed for specific purposes, using special expertise to resolve a hazardous condition or vulnerability. Other WMATA staff may be requested to provide their expert input on specific agenda items. Personnel from the following organizations may also be

requested to provide information, assistance, and advice:

- Local and State Police and Fire Departments;
- Engineering Design and Construction Consultants, to include resident engineers; and
- Metropolitan Washington Council of Governments (COG).

The SCRC meets at least monthly, to assess the status of the certification effort of each project's Safety and Security Certification Program. The SCRC may meet more frequently to resolve outstanding safety and security issues,as they arise, and to approve Certificates of Compliance, as they are completed, or less frequently if no committee business is pending.

SCRC actions are based on a consensus process involving all Committee members. In the event the SCRC is unsuccessful in resolving an issue, the Committee Chairperson summarizing the points of view prepares a written report. The report is submitted to the Executive Safety Committee for review and resolution. The final action taken will be noted in the SCRC minutes and the Open Items List.

2.2.8 Executive Safety Committee

The Executive Safety Committee is comprised of senior and executive management staff responsible for the oversight of several safety subcommittees, of which the SCRC is one. The ESC performs an executive management review of the Safety and Security Certification Program. The ESC is also responsible for issuing the Project System Safety Certificate for each project, as recommended by the SCRC. The ESC is also responsible for resolving issues that cannot be resolved by the SCRC.

2.2.9 Passenger Rail Safety Subcommittee

The Passenger Rail Safety Subcommittee reports to the Metropolitan Washington Council of Governments (COG) Fire Chiefs' Committee. It is a standing subcommittee whose purpose is to provide a liaison between WMATA and fire/rescue agencies. The Subcommittee is comprised of representatives from the six major fire jurisdictions and the Department of System Safety and Environmental Management. The responsibilities of the Subcommittee are to:

- Provide recommendations on Metro-related fire emergency equipment;
- Develop, update and maintain emergency procedures affecting WMATA;
- Review and recommend fire/life safety criteria changes as necessary for equipment and facilities during the design phase;
- Review and revise as necessary, Policy Agreements;
- Advise the Fire Chiefs' Committee on safety problem areas; and
- Provide liaison for fire service training.

The Subcommittee is informed of proposed facilities and systems and of design changes that may affect rescue procedures and fire protection and life safety features, before they are implemented by WMATA. WMATA and COG staffs also provide technical and logistical support to the SCRC.

3 SAFETY AND SECURITY CERTIFICATION PROCESS

3.1 Steps in the Safety and Security Certification Process

The Safety and Security Certification Process begins with system planning and design, and continues into the start of revenue service. It is imperative that the Safety and Security Certification process is completed and all Category I and II hazards, associated with the use of a new or rehabilitated system or facility, are eliminated or effectively controlled prior to the start of in-service use. Certification of all non-operational certifiable elements for any new or rehabilitated rail line segment or rail related system or opening of a rail related facility must be fully completed prior to entering the pre-revenue demonstration phase of the project. The pre-revenue demonstration phase must be started a minimum of 30 days in advance of the anticipated opening date. This timeframe is required to allow the operating department and the Tri-State Oversight Committee (TOC) to conduct an operations readiness review of the system or facility being placed into service. When establishing an opening date for the rail line segment, system, passenger vehicle use, or facility, this timeframe must be considered. Non-rail related facilities or systems are not permitted to be placed into service prior to the issuance of the System Safety and Security Certificate.

The steps required to attain System Safety and Security Certification are discussed in the subsequent sections:

Step 1: Identify safety and security certifiable elements and items, and prepare the Certifiable Elements List and Certifiable Items List (CIL);

Step 2: Develop safety and security design criteria;

Step 3: Develop design criteria compliance checklist and review for compliance with design criteria;

Step 4: Develop specification compliance checklist and review for compliance with construction specifications;

Step 5: Manage Test Requirements and Conduct Tests;

Step 6: Develop Operational Checklist and Verify Compliance with Operational Requirements;

Step 7: Manage "Open Items" and Safety Critical Items List (SCIL);

Step 8: Verify operational readiness;

Step 9: Issue Certificates of Compliance;

Step 10: Issue System Safety Certificate of Compliance; and

Step 11: Issue Safety and Security Verification Report and Final Project Close-out.

The above listed steps are performed for new extensions, systems, rolling stock, and facilities. The certification process for rehabilitated and modified systems, rolling stock, and facilities is tailored to the scope of the project and its safety/security affect, if any, on the current operating environment, including the operational elements. (See Section 3.3) The matrix below (Table 2) provides a list of the activities to be performed and the organizational elements available during each phase of the project, and designates responsibility for each task.

Table 2: Safety and Security Certification Program Responsibilities Matrix Key

Safety and Security Responsibility Matrix							
TASK	Task Type						
Develop Safety and Security Policy Statement	MGT	../	»	»	»	»	»
Establish Designated Function (OF) for Safety and Security throughout the Project	MGT	./	»	»	»	»	»
Develop Safety and Security Management Plan	MGT	../	»	»	»	»	»
Establish Safety and Security Committees	SAFE	./	»	»	»	»	»
Create Safety and Security Responsibilities Matrix	SAFE	./	»	»	»	»	»
Develop Safety and Security Certification Program Plan	MGTIENG	./	»	»	»	»	»
Develop and Implement Hazard and Vulnerability Resolution and Tracking	CTR	./	»	»	»	»	»
Prepare Preliminary Hazard and Vulnerability List	CTR	./	»	»	»	»	»
Identify Safety and Security Certifiable Elements	CTR	./	»	»	»	»	»
Establish Safety and Security Certifiable Items List	CTR	./	»	»	»	»	»
Establish Safety and Security Configuration Management	CTR	./	»	»	»	»	»
Create Safety and Security Certification Project Folders	CTR	./	»	»	»	»	»
Perform Preliminary Hazard Analysis and Threat and Vulnerability Analysis	CTR	./	»	»	»	»	»
Prepare Safety and Security Design Criteria	ENG	./	»	»	»	»	»
Perform Safety and Security Review of Preliminary Operations and	MGT SAFE	./					
Perform Safety and Security Design Reviews & Additional Hazard and	ENG/MGT	./	»	»	»	»	
Develop Design Criteria Conformance Checklists	CTR	./	»				
Complete Design Criteria Conformance Checklists	CTR	./					
Develop Test and Evaluation Requirements	CT	./	»	»	»	»	
Develop Specification Conformance Checklists	CTR	./	»				
Complete Specification Conformance Checklists	CTR	./					
Issue Notices and Occupancy Permits	SCRC	./	»	»			
Issue Certificates & Complete Folders	SCRC	./	»	»			
Complete Integrated Tests	CTR	./	»	»			
Review of Engineering Change Orders & Waivers	MGT/ENG	./	»	»	»		
Complete Operational Readiness Review	MGT/ENG				./		
Perform Final Safety and Security Compliance Assessment	MGT/ENG				./		
Issue Final Safety and Security Certification	SAFE				./		
Issue Final Safety and Security Verification Report	SAFE						./

MGT = Management
CTR = Contractors
Environmental Mana ement
PE = Preliminary Engineering
FD = Final Design
MTPD = Metro Transit Police Dept.
IN TEST = Integrated Testing
COM = Commissioning

Checks ../ indicate the initiation of the activit ,and shaded arrows » indicate on- oin erformance.

3.1.1 Step 1- Identify Safety and Security Certifiable Elements (CEL) and Items, and Prepare the Certifiable Elements List and Certifiable Items List (CIL).

The certification process begins with the identification of individual elements that are critical to the safety and security of WMATA customers, employees, emergency responders, or general public. These are referred to as "Certifiable Elements". Certifiable elements are typically defined by contract and/or specifications. These elements are broken down into four major categories; facilities/equipment, systems, integrated test requirements, and operational requirements (passenger vehicles, passenger stations, maintenance facility, training, etc.) as shown in Figure 1. A log of the certifiable elements is maintained and is referred to as the Certifiable Elements List (CEL). Many of the major certifiable elements on the CEL are composed of numerous sub-elements (equipment and subsystems) that also require certification to complete the certification process of a major certifiable element. For example, each traction power substation requires individual certification and each is tracked as a sub-element of the major element "Traction Power". Similarly, each passenger vehicle in the fleet needs to be certified before the fleet as a whole is certified.

The certifiable elements are composed of numerous items. These items make-up the whole of the major element and require safety or security verification before the major element is considered safe and secure for use. This is known as the Certifiable Items List (CIL). Specific certifiable items on the list are dependent on the project. For each of the certifiable items, the safety and security requirements are listed. The CIL and corresponding safety and security requirements are developed jointly by SAFE and the Project Management staff.

The CEL and CIL may be modified by SCRC, as needed, in order to meet the Safety and Security Certification Program requirements.

Figure 2 illustrates the process for tracking the certifiable elements and when elements are identified during the design phase and tracked throughout the project and certification process.

Figure 1: Certifiable Elements List Development

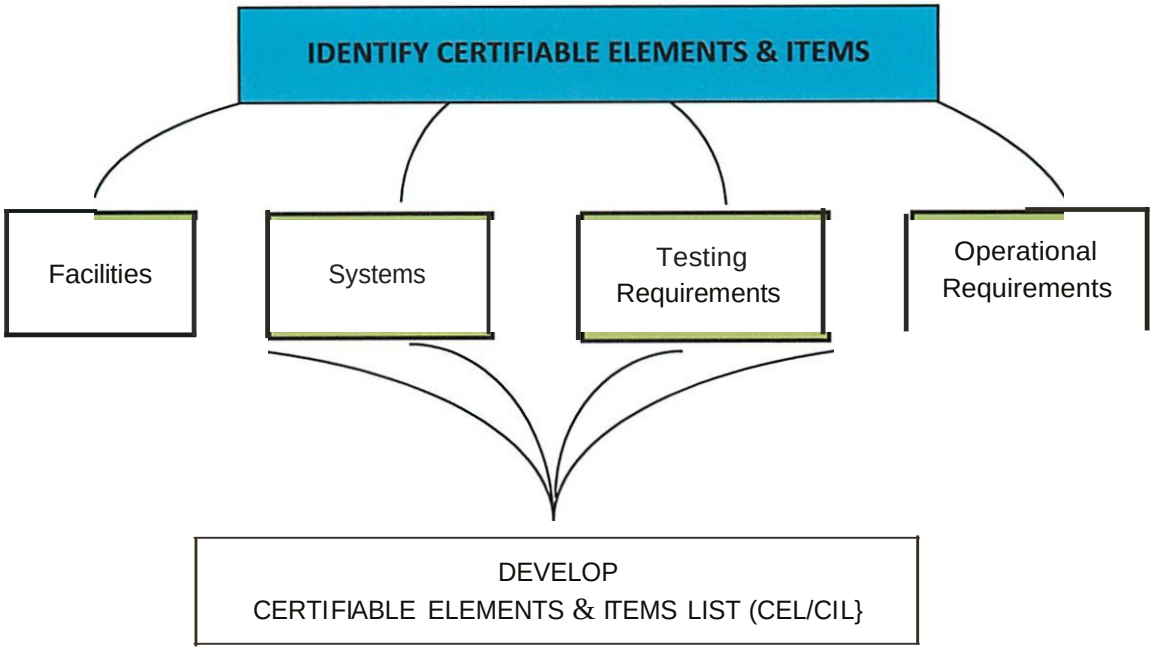
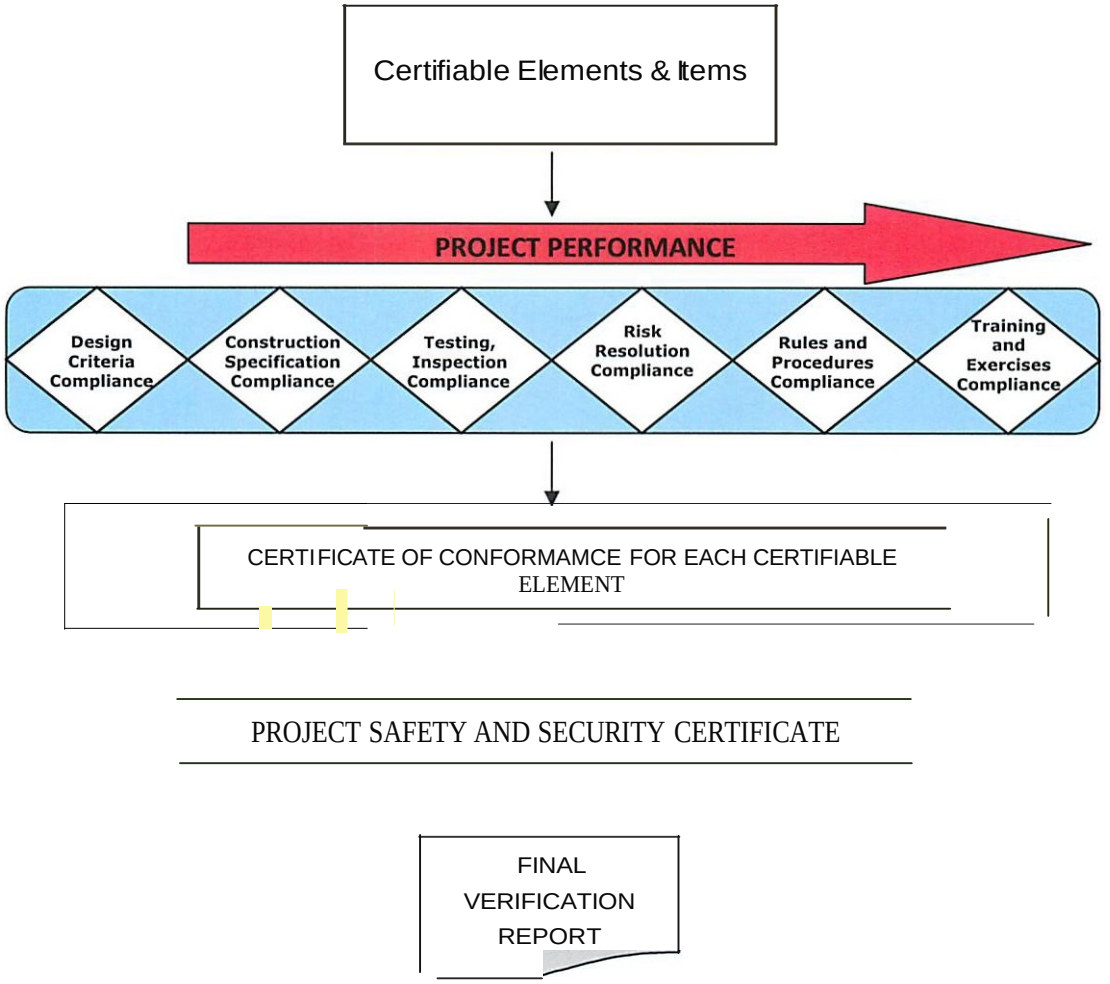


Figure 2: Certifiable Elements and the Certification Process



3.1.2 Step 2 - Develop Safety and Security Design Criteria

Suitable guidelines and controls are needed to guide project designs so that the safety and security aspects of each certifiable item are addressed. These guidelines and controls form specific criteria that are used to govern project design. Safety and security design criteria are generated from:

- Technical specifications from previous contracts;
- Existing agency design and performance criteria;
- Transit agency "lessons learned" from operating experience;
- The results of the preliminary hazard analysis (PHA);
- The results of the threat and vulnerability assessment (TVA);
- Transit industry safety and security practice and reports; and
- Applicable safety and security codes, standards, and regulations defined by Federal,State, and local agencies and standards boards and organizations.

Architectural and engineering design criteria and standards for the design,construction, reconstruction, maintenance, and operation of the Metro Rail and Metro Bus systems are established, maintained,and promulgated by the WMATA Design Control Board (DCB). The DCB is comprised of senior level representatives from Engineering and Capital Projects, Operations, System Safety, and Metro Transit Police. The DCB updates the design criteria and standards, as warranted.

Safety and security requirements are included in the following WMATA documents: Manual of Design Criteria, Design Drawings, Standard Drawings Technical Specifications and Scope of Work (SOW). Additional requirements are included from applicable local and state codes, hazard and vulnerability assessments and industry standards. These criteria define how the certifiable items' safety and security aspects are addressed in the completed project and how their requirements become manifested into the final design drawings and specifications.

3.1.3 Step 3 - Develop Certified Elements/Items Checklist (CEL/CIL) to Review Compliance with the Design Criteria

Safety and security are addressed during project design through the identification of safety and security design criteria for each certifiable element. Safety and security design criteria are intended to provide guidance to the project design team to support the definition of systems, sub-systems and components, the development of performance requirements, and the final specification of the engineered system (Figure 3). WMATA SAFE ensures that, Safety and Security Certification is referenced in all their project contracts and specific documentation is included in the procurement package for design/construction services. [Reference request for proposals (RFP) Section 00115)

A compliance checklist (see Attachment 1) is used to verify that the safety and security-related criteria requirements are reflected in the contract design documents from the preliminary to final design review stage. The checklist documents that:

- Design documentation contains the safety and security-related requirements identified in the criteria;
- Designs meet safety code and regulatory compliance;
- Designs reflect transit industry safety and security standards and practices; and

- Safety and security-related design comments were addressed and successfully resolved.

A solid Safety and Security Certification Program (SSCP) and its plan the SSCPP effectively manage the certification process, the criteria, code, and other requirements that are integrated on a single Design/Construction/Test Compliance checklist. These are combined under each element in constructi ng a CIL. This approach enables the use of a single checklist; and maintains a safety/security requirements continuity link as the project moves from the design phase to the specification/construction/installation/test phase.

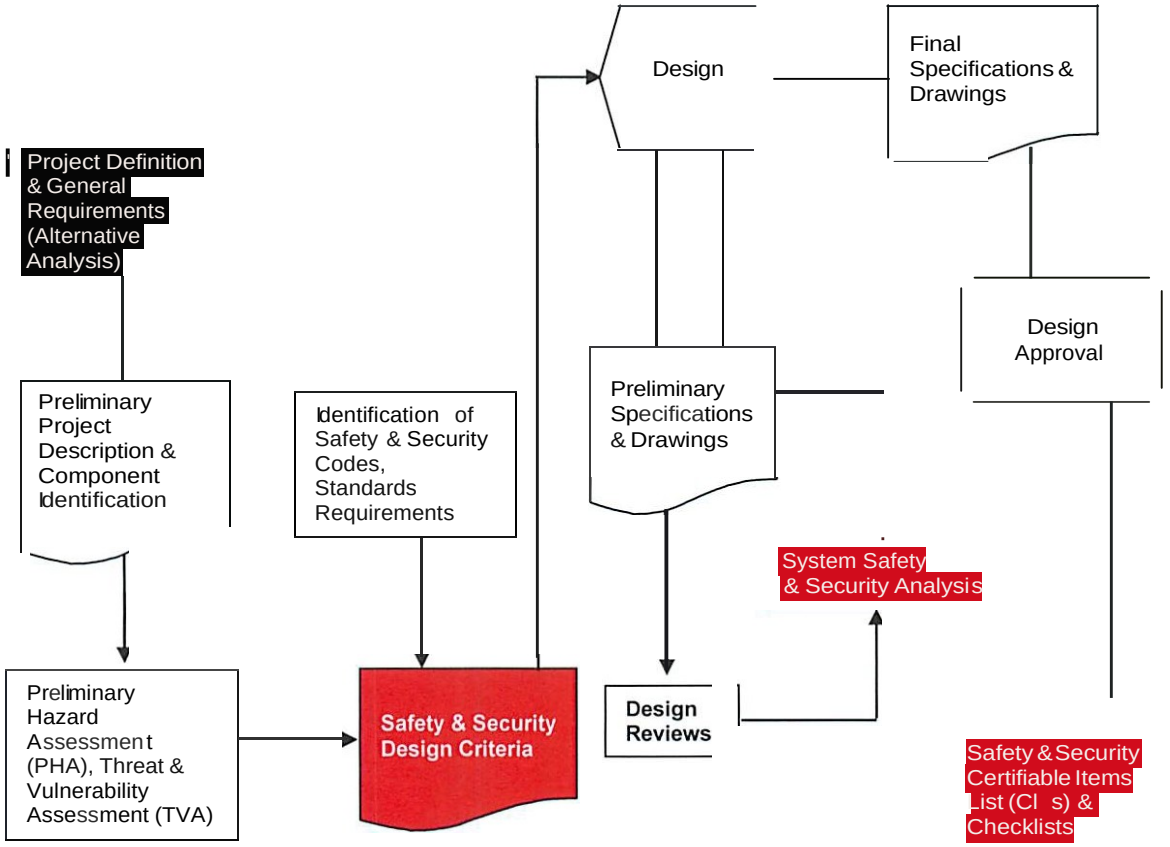
SAFE is responsible for the management/initial development of the checklist *. The checklist is then sent forward to Engineering and Capital Projects staff or the Chief Mechanical Officer, for rolling stock related projects. Modifications affecting existing track and elevators and escalators, are sent to TRST and ELES, respectively. The checklists are also sent to MTPD for security related systems. Project staff may recommend that:

- Items that are not certifiable be eliminated;
- Items that are not safety or security related be eliminated;
- Requirements considered to be safety or security critical are incorporated;
- Information to clarify the specific requirement and/or reference for an item be included; and
- Accepted industry practices are incorporated.

SAFE ensures that changes to the checklists are incorporated, if any, and assigns it to the appropriate Project Manager/Design Team Leader for completion. The Project Manager/Design Team Leader is responsible for having the appropriate design team member affirm that the design conforms to the referenced, pre-established codes, standards, and criteria and that these have been properly incorporated into the specifications and drawings. The design team members complete the Design portion of the checklist by identifying the specification sections and drawings, and other verification documentati on and by signature. As the checklists are completed, SAFE audits the documentation to ensure it supports the compliance with the criteria, codes, and standards. Any unresolved issues are tracked to resolution.

* Further development of the checklist by contractors depends on the specific RFP that the contract is based on.

Figure 3: Safety and Security Design Criteria and Project Specifications



3.1.4 Step 4 - Develop and Perform Technical Specification Compliance During Construction

Specification compliance is performed to establish a formal process to verify that all safety and security-related specification and contract document requirements are satisfied during the construction, installation, and testing phases of the project.

Many of the safety and security requirements in the specifications take the form of specific deliverables, such as manuals, hazard analyses, reports, approved contract submittals, factory test procedures and results, and inspection reports. However, other safety requirements may not take the form of specific contractor or in-house deliverable documents, but still require verification. Compliance with these types of safety and security-related requirements are subject to verification during audits, inspections and tests.

Prior to moving from the design phase to the construction phase, SAFE, in coordination with WMATA Project staff, develops the Construction and Test portions of the checklist within the Design/Construction/Test Compliance checklist (see Attachment 1). The safety and security requirements are derived from the contract documents, codes, and standards. Contractor and manufacturer conducted tests that verify safety or security functionality or performance requirements are included on the checklist. When consensus is reached on this section of the checklist, the checklist is given to WMATA Project staff for completion. The assigned Project Manager is responsible for completing the Construction/Test portion of the checklist.

As this section of the checklist is completed, Project staff prepares a binder that is used to assemble and organize the required verification documentation. Verification documentation includes:

- Inspection reports;
- Mill certificates;
- Photos;
- Visual inspection reports;
- Test reports; and
- Witnessing safety/security critical tests.

Drawings sets and other large volume documentation are only referenced.

A Visual Inspection Report (Attachment 2) may be used to verify safety and security requirements that cannot be verified with other documentation. The completed and signed Visual Inspection Report form, including comments to demonstrate compliance, is referenced on the Compliance Checklist and becomes part of the certification documentation.

Checklists are updated when subsequently approved engineering changes impact safety or security.

As certification activities advance, SAFE monitors progress on the various checklists. This step is to ensure that the documentation effort is keeping pace with the project schedule. Any items that are lagging in the certification documentation or experience problems achieving certification are tracked and discussed at the SCRC meetings for resolution.

After completing the Construction and Test portions of the checklist, the Project Manager submits the checklist to SAFE for review. SAFE audits the documentation to ensure that it supports the identified requirements. As a component of the audit process, walk-through inspections of completed facilities,

stations, vehicle rights-of-way, and vehicles are performed to determine that safety, security, and fire/life safety requirements have been incorporated into the construction/ installation of the project and that new, previously unidentified hazards are not present.

3.1.5 Step 5 - Conduct and Manage Test Requirements

3.1.5.1 General

During the construction and start-up phases, many contractual and integrated tests are conducted for the purpose of verifying proper operation of equipment being furnished and constructed for the project. These tests are reviewed for safety and security considerations and test procedures approved before any test results are considered as meeting the test requirements. The test results are then verified per the procedures. The test plan, procedures, and test results are part of the Safety and Security Certification documentation package and are subject to audit.

The need for additional tests may arise for various reasons throughout the project. SCRC reviews and determines the need and, if warranted, requests that the additional tests be conducted. The added tests are included in the Design/Construction/Test Compliance Checklist and their results documented.

SAFE and/or MTPD may observe safety/security critical tests, including but not limited to, first article inspections, mock-up reviews, qualification tests, performance tests, and acceptance tests. Testing of fire/life safety systems is coordinated with the jurisdictional fire marshal. Similarly TOC may wish to witness specific safety critical tests. Prior to or just after the start of each project, the Tri-State Oversight Committee will be requested to submit a list of those tests to WMATA. TOC will be provided a test schedule and be notified of the tests with sufficient time to permit attendance.

3.1.5.2 Test Required by Technical Specifications

Contractor testing, as required by the contract technical specifications, verifies the functionality of the involved system or equipment. Contractor testing is subject to certification. Contractor testing is tracked and verified on the Design/Constructi on/Test Compliance checklist. Typical specification tests include qualification, manufacturing, performance, and acceptance tests such as sprinkler systems, alarms, emergency management panels, fire management panels, and camera systems.

3.1.5.3 Integrated Tests and Pre-Operational Testing

WMATA specified tests may include integrated and pre-operational demonstration tests. Many of these tests are incorporated in the contract documents. Others are not necessarily required by contract specifications, but are required as part of an overall Test Plan. These tests are developed to verify the compatibly and safety/security functionality of equipment and systems. Non-contractual integrated and pre-operational demonstration tests are entered on the Design/Constructi on/Test Compliance checklist for tracking purposes. The Project Manager is responsible for the development and implementation of the integrated and pre-operational test demonstration plans, including test procedures related to each test, and the logging of all test documentation. SAFE assists in the development and/or reviews the development of the test plans and procedures.

Prior to conducting an integrated test, a number of safety and security specification compliance requirements completed and/or issues resolved. Requirements and issues are dependent on the type and nature of the test. The Project Manager notifies SAFE of the intent to conduct an integrated test. SAFE, in collaboration with the Project Manager, determines the current level of verification for each

element involved in the test. If the safety/security certification of the elements required for the test is not complete, SAFE issues a Temporary Use Notice (TUN), see Attachment 3. The TUN is forwarded to the engineer responsible for the particular element involved in the test. Only signatures for those elements that have not been issued a Certificate of Compliance are obtained. Any operation or test restriction is noted on the permit and the test procedure.

3.1.5.4 Temporary Use Notice - Other Uses

At times, it may be necessary to temporarily use a facility or system for purposes other than testing when it has not been certified. Such circumstances include, but are not limited to, the movement of a rail passenger car from one facility to another under its own power, or the use of a facility or system for training purposes. A

Temporary Use Notice (TUN) must be issued for that facility or system prior to use: By WMATA staff:

- When the facility or system is under the control of the contractor/vendor; and the facility/system is to be used by other; and
- On any portion of the current WMATA system.

The TUN is forwarded to each party involved in the temporary use, including the Project Manager and SAFE, for signature. All required signatures must be obtained prior to the facility or system being used. All restrictions noted on the TUN must be followed. The TUN expires upon completion of the task.

3.1.6 Step 6 - Develop Operational CIL and Verify Compliance with Operational Requirements

The safety and security-related plans and procedures, including training programs, are certified to assure that the major operations, maintenance, security, and safety programs, procedures, and plans have been modified as necessary to meet the system safety and security program requirements, and are in place prior to revenue service. In addition, the personnel who operate, maintain, provide security, and respond to emergency situations must have an in-depth knowledge of these plans, procedures, and programs prior to beginning revenue service.

The Safety and Security Certification process provides verification that:

- Rules, procedures, and manuals meet code and regulatory requirements, if applicable;
- Operations, maintenance, and emergency rules, procedures, and plans have been developed, modified, reviewed,and implemented;
- Manuals, showing how to operate and maintain system equipment and facilities, have been developed, reviewed, approved,and accepted by the project team;
- Training programs have been developed and incorporate information regarding safety features of the system for normal,abnormal and emergency conditions;
- Training adequately addresses the operation and maintenance of safety and security critical systems and equipment;
- Safety/security related training for operations and maintenance personnel has been delivered, and successfully completed by all affected WMATA personnel;and

- Emergency training has been developed, performed, and completed by all personnel, including fire, police, and emergency medical services personnel.

  Verification of these activities includes documentation of their completion and signatures of the appropriate officials or employees responsible for them. Operating and maintenance procedures and plans are judged as meeting the verification requirements or are recommended for modification. SAFE collects and maintains the required documentation.

3.1.7 Step 7 - Manage Open Items List and Safety Critical Items List (SCIL)

During the completion of the Compliance Checklists, instances of non-compliance with a safety or security requirement are noted. If the issue cannot be resolved at the project staff level, they are forwarded to the SCRC for resolution. Open items may be resolved by any of the following actions:

- Correction;
- Mitigation through physical modification, revised specifications or revised operating procedure;
- Deferral of corrections, with operational or use restrictions imposed; and
- Retention, as is, with supporting rationale.

In those cases where it is impractical to resolve the open item by meeting the original requirement, the SCRC will develop an acceptable alternative, including placing the item into service as-is, and provide rationale for the alternative.

If an open item is classified as a Category I (Catastrophic) or a Category II (Serious) hazard, it is transferred to a Safety Critical Items List (SCIL), (see Attachment 4). This includes those Category I and II open items identified through analyses or field reporting. All items on the SCIL are tracked to closure. When it is determined that an open issue or exception cannot be resolved to meet the safety requirement for issuance of a System Safety and Security Certificate, the SCRC will determine an acceptable alternative, notify the Executive Safety Committee Chair, and formally document the decision as part of the verification for the certifiable element. SAFE will coordinate the decision by issuing a document verifying closure or proposing an acceptable resolution for the exception. This process will ensure that the safety and security designed into the system are realized in the delivered, tested, and verified project.

3.1.8 Step 8 - Verify Operational Readiness

WMATA staff performs pre-revenue demonstration tests a minimum of 30 days prior to the revenue service start date to verify the functional capability and operational readiness of the system. The Tri-state Oversight Committee also reserves the right to conduct its own independent operational readiness review of a new line segment. During the pre-revenue phase of the system, the procedures and plans are tested for effectiveness under simulated operating conditions for normal, abnormal, and emergency situations.

In addition, a final "walk-through inspection" of completed facilities and systems is performed.

3.1.8.1 Emergency Drills

Prior to start of revenue service, simulated emergency drills are performed at selected sites and coordinated by the Office of Emergency Management (OEM). The drills will test the effectiveness of emergency response and procedures and assure that outside emergency response personnel are prepared to adequately respond to WMATA emergencies. The drills are certified to verify the adequacy of emergency response plans and procedures Emergency drills are developed and conducted to:

Familiarize emergency responders with WMATA operations and inherent hazards;

Familiarize and train response personnel in emergency procedures;

Evaluate, and identify improvements to, response procedures before a real emergency occurs; and

Maintain an adequate level of preparation for a possible emergency.

3.1.9 Step 9 - Review and Issue Safety and Security Certificates of Compliance

When a certifiable element or sub-element is ready for certification, a Certificate of Compliance is issued to document that all relevant safety and security requirements have been fulfilled. The following describes, in sequential order, the process for approving the Certificates of Compliance (Attachment 6).

Upon completion of the certification checklist for the certifiable element, the responsible project manager or engineer forwards the checklist, along with the supporting documentation to SAFE. The CSO initiates a review of the checklist for completeness and audits the supporting documentation. If the documentation adequately supports fulfillment of the safety and security requirements, the CSO prepares a certification package and forwards a recommendation regarding certification to the SCRC with restrictions, conditions, or approved temporary measures, as applicable.

The SCRC convenes to evaluate the evidence and resolves any exceptions to the requirements, open items or other issues related to issuance of the certificate. If the SCRC is satisfied that the requirements for the certifiable element or sub-element have been fulfilled, the appropriate project and WMATA staff signs a Certificate of Compliance, along with any restrictions, exceptions, conditions, or approved temporary measures.

The original, signed Certificate of Compliance and verification package are logged and filed in the Certification file. When removal of restrictions attached to a Certificate is appropriate, an addendum to the Certificate of Compliance is prepared. To become effective, the addendum is signed by the same levels of authority as that on the original Certificate.

3.1.10 Step 10 - Issue System Safety and Security Certificate

The System Safety and Security Certificate of Compliance (Attachment 7) provides formal notification that the applicable portion of the operating system is safe and secure for revenue service. Prior to complete integration into revenue service, the CSO prepares the final System Safety and Security Certificate of Compliance for the Project. The SCRC confirms the service readiness of the capital project for use in WMATA operations and/or revenue service, and the Certificate is distributed for signature. The original, signed copy is retained in the Certification file for the Project. Deferred work, approved temporary measures, and operational restrictions that remain in effect, if any, are highlighted under the "Restrictions" section of the certificate. The restrictions and approved temporary measures are tracked until finally resolved and approved by the SCRC.

The Safety and Security Certification process for all physical, non-operational elements of a rail

extension or rail related system or facility must be completed and all Category I and Category II hazards eliminated or effectively controlled prior to the start of the pre-revenue demonstration phase of the Project. Additionally, the pre-revenue demonstration phase must begin at least 30 days prior to the start of revenue service in order to satisfactorily demonstrate operational readiness. When determining the revenue service/ use start date for the new or rehabilitated line segment, system, or facility, sufficient time must be allocated in the project schedule for a readiness review by TOC and for the issuance of the System Safety and Security Certificate.

3.1.11 Step 11- Issue Safety and Security Certification Verification Report

Within 30 days after the start of revenue service, SAFE prepares a Safety and Security Certification Verification Report for the Project. The report summarizes the safety and security certification effort and the readiness of the line segment, facility ,or system to be placed into service; an annotated matrix of the Critical Items List indicating the status (open/closed) of each item; Open Items List; and recommended actions and schedule for permanently closing out all open items, restrictions, and approved temporary measures. The report includes copies of the certification checklists, Certificates of Compliance for each certifiable element, and the System Safety and Security Certification document. A copy of the report for rail projects is submitted to the TOC.

3.1.1 1.1 Follow-up and Closeout

Typically there are contingencies in place when the system/facility enters into revenue service. The SCRC tracks these items and any others to closure, with the support of SAFE, ensuring the documentation is complete and accurate.

3.2 Design-Build Projects Safety and Security Certification Program Plans

The FTA funded design-build rail projects valued over $100 million require Project Specific Safety and Security Certification Plans. Other projects that contain safety/security critical elements may require a Project Specific SSCP, as determined by the FTA or the WMATA Executive Safety Committee. Examples are infill rail stations, Metro Matters Yard facility projects, rail car rehabilitation projects, and bus procurements; The SSCP is developed and executed by the design-build contractor, and reviewed and approved by SAFE in collaboration with the Project Manager. The design-build project safety and security certification plan is required to conform to the provisions contained in the FTA Handbook on Transit Safety and Security Certification guidelines, the requirements of 49 CFR Part 659 and the Tri-state Oversight Committee, and the WMATA Safety and Security Certification Program Plan. Additionally, the plan must delineate the roles and responsibilities of WMATA and the Design-Builder's project staff in the design-build certification program. SAFE is responsible for auditing the contractor program to ensure that it is being implemented in accordance with the approved plan and within the required timeframes.

SAFE collaborates with the appropriate Engineering,Capital Projects, and MTPD project staff to identify those projects that require a project specific Safety and Security Certification Program Plan.

3.2.1 Project Specific SSCP Contents Minimum Requirements

The following is a list of bulleted items that at a minimum should be included within a project specific SSCP.

- Introduction- Project specific summary of the scope of work and background Information.
- Purpose- Purpose of the plan
- Responsibilities- Project management positions and their responsibilities in relation to the Safety and Security Certification Process
- Project's Scope of Work- A brief overview of the project's required scope, i.e., what twill the project work on, do.
- Project Safety and Security Certification Working Group (and possible other project committees related to the process)- Committee or group created for the project for the purpose of administering and maintaining the Project's SSCP and assuring that all participants assist and contribute to assuring certification processes are properly executed and the Certifiable Items List is appropriately populated toward the final safety and security certification and acceptance by the WMATA Safety Certification Review Committee (SCRC).
- References: Project Specific SSCP referenced documents
- Acronyms and Abbreviations: Project Specific SSCP's utilized acronyms and abbreviations
- Procedure: Description of how project items are identified as applicable for Safety and Security Certification, and how the certification of those selected items will be performed to sufficiently display the item is safe and secure for public use.
- Document Control: Description of how project documentation (specifically documentation related to the projects safety and security certification process) is going to be organized and maintained. In addition to descriptions and examples of project certification document certificate templates; certification process flow charts/figures, and a description of the process project contractor will utilize for the submission, review, and comment on certification documents such as an updated CIL and a revised SSCP. This includes an acceptable periodic timeframe for document submission in consideration of the fact that the projects safety and security certification process is expected to maintain a schedule in pace with that of the rest of the project. This should include a schedule for Safety and Security Certification within the Project Schedule. As well, it should include a description of how each element will be closed and how each of the forms for certification shall be used.

3.3 Rehabilitation and Modification System, Rolling Stock, and Facility Projects

Many facilities and systems, including rolling stock, require rehabilitation or modification due to their age and need for conformance with new requirements. These facilities and systems are subject to safety and security certification if the system or facility includes safety or security critical elements and/or has a safety/security impact on the current operating environment. However, certification is limited to the rehabilitated/modified sub-system itself, and to all systems and operational elements affected by the rehabilitation/modification. For example, an upgrade of a traction power substation transformer may require upgrading the rectifier, size of the cabling, switchgear, protective breakers, and the cabling to the third rail. In addition to verifying that those subsystems comply with the safety related specification

and test requirements, the certification process also includes assurance that drawings, manuals, other safety critical maintenance documentation, maintenance procedures, and training have been revised to reflect the upgrade. As a result, the verification steps involved for a particular project are dependent on the type of project and its affect on other systems/subsystems. Rehabilitation/modification projects fall into one of three project categories, as illustrated in Table 3.

Table 3: Typical Rehabilitation/Modification Projects Subject to Certification

Project Categories		
Category 1	Category 2	Category 3
• Automatic Train Control • Automatic Train Protection • Compressed Natural Gas Facilities and Systems • Rail Operations Control Systems • PROTECT Systems	• Traction Power Substation Equipment • Electro-Mechanical Equipment (Deemed Safety Critical or Security Sensitive by SAFE or MTPD) • Rail Car Vehicles • Bus Passenger Vehicle • Rail Non-Revenue Vehicles to include High-Rail Equipment (HRE)	• Communication Systems • Fire Protection Systems • Fire/Intrusion Alarm Systems • AC Power Switchgear • Traction Power Equipment • Emergency Ventilation Systems • Maintenance Facility Equipment

The verification steps required for each of the project categories is as follows;

Category 1 Design, construction, testing, training and manual/procedures/drawing updates verification steps are required

Category 2 - Specification, manufacturing/assembly, testing, training, and manual/procedures/drawing updates verification steps are required

Category 3* – Testing, training, and manual / procedures / drawing updates verification steps only are required.

*Only use Category 3 for Contractors/WMATA staff who are conducting the installation in accordance with existing WMATA departmental Standard Operating Procedures (SOP).

Other projects, such as garage repair and Smart Trip Vending Machines are not subject to the certification process. However, projects not identified in Table #3, may be added; based on the scope and safety/security impact of the project, and on the recommendation of the SCRC to the ESC. A sample list of those projects currently subject to safety and security certification is found in Attachment 8. Upon completion of the work, a Certificate of Compliance for Modification and or Rehabilitation Project (Attachment 5) is prepared and signed by all stake holders of the affected departments to include SAFE, the Project Manager, and Contractor/Operations.

3.3.1 Daily Certification to Ensure Operational Readiness for In-service Systems

Rehabilitation or modification work on safety critical rail operating systems, such as train control and track, may require the systems to be returned to revenue service at the end of the work shift or work period. To assure that the system may be returned for revenue service, a Site Specific Work Plan is developed to define the requirements for using the system in service. Prior to the start of the work, the Project Manager develops a Site Specific Work Plan in collaboration with SAFE, as described in OAP No. 200-33 -Site Specific Work Plan.

The daily testing plans and certifications are signed by the contractor employee performing the work, the Project Manager's designee, and SAFE. Daily testing and certifications are documented and maintained as part of the safety and security certification documentation.

4 HAZARD MANAGEMENT

4.1 Hazard Management Process

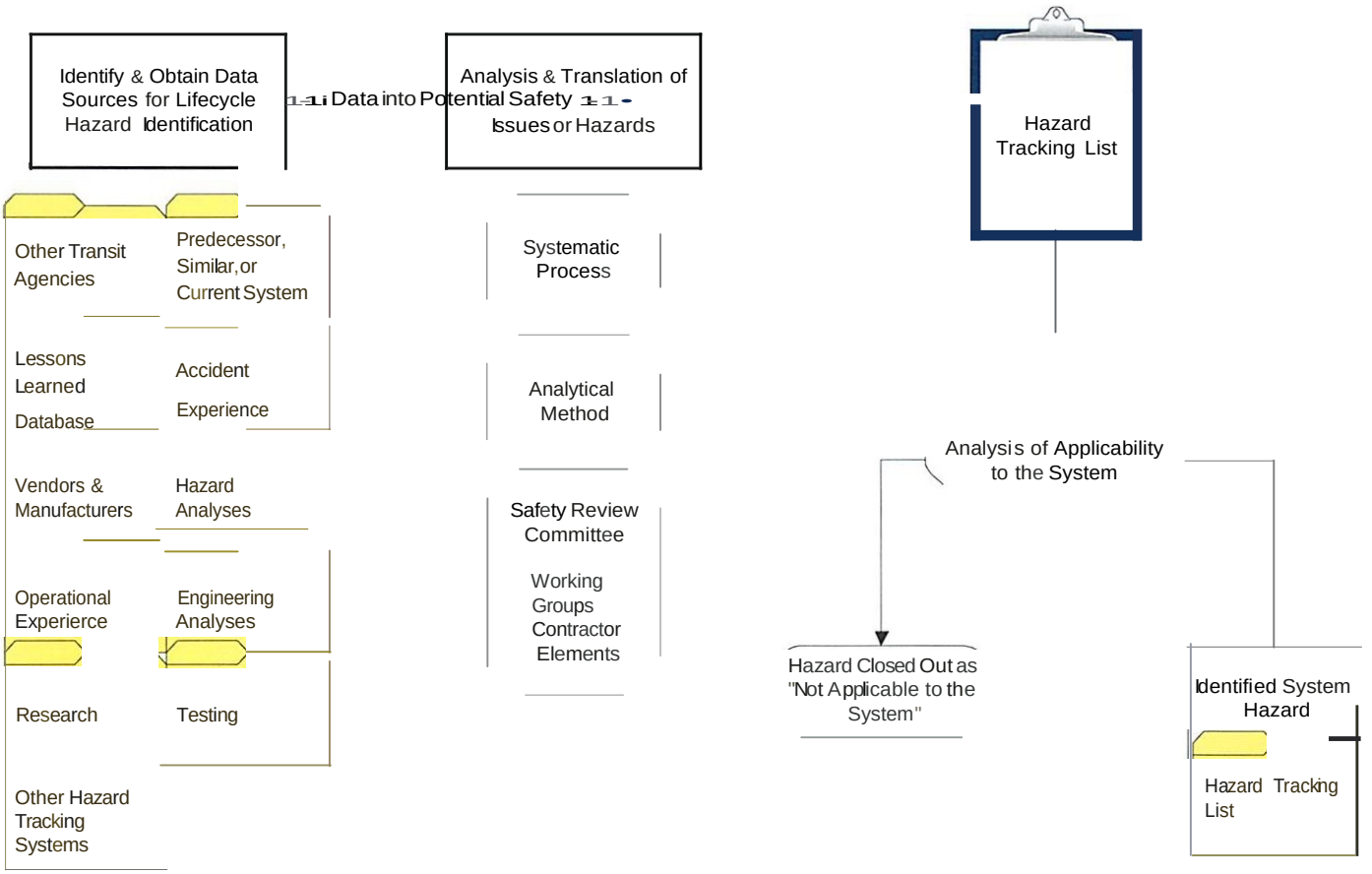
Hazard management is the formal process to systematically recognize, identify, evaluate, and resolve hazards associated with the design, construction, testing, start-up, and operation of the project for customers, employees, and the general public. Recognized hazards are identified and categorized as to their potential severity and probability of occurrence,and analyzed for potential impact. Those hazards are resolved by design,engineering control, procedure, warning device, or other method, so that they fall within the level of risk acceptable to WMATA management.

For capital projects, hazard management is most effective when applied during preliminary engineering and final design, but is used throughout each phase of a project, including start-up and operations. Hazard management is also used to evaluate the safety impacts of deviations from the baseline design, engineering/construction change orders and operationally approved temporary measures, and other modifications made during construction,testing,and project activation.

Figure 4 illustrates the process used for identifying,resolving, and tracking safety hazards throughout all phases of project development activity. A more detailed description of the hazard management process isfound inthe WMATA System Safety Program Plan.

See next page for Figure 4 - Safety Hazard Identification and Risk Acceptance Process

Figure 4: Safety Hazard Identification and Risk Acceptance Process



4.2 Hazard Identification and Resolution

System hazards are identified through specific hazard analyses, audits, inspections, or reviews. A Preliminary Hazard Analysis (PHA) is performed during the preliminary and final engineering phases of the project to identify hazards and recommend possible countermeasures. The identified hazards are tracked to closure to ensure they have been adequately addressed through the safety certification process. SAFE is responsible for tracking all open items.

FTA has adapted category ratings for hazards. The most severe of these are:

- Category I (Catastrophic) – Defined as death or system loss; and
- Category II (Critical) – Defined as severe injury, severe occupational loss, or major system damage.

The goal of hazard management at WMATA is to verify that all identified Category I & II hazards are resolved or controlled to an acceptable level. The SCRC monitors the safety hazards from the identification stage to final resolution. The status of each Category I & II hazards are required to be resolved 30 days prior to the system, facility, or equipment is placed into service

Once the control measures are implemented, additional analyses may be required to ensure that the mitigation measures adopted to eliminate or minimize the risks are effective.

4.3 Requirements for Safety and Security Analysis

(Hazard and Vulnerability Categorization, Assessment, and Resolution)

All potential hazards and vulnerabilities identified during Preliminary Engineering (PE), Final Design (FD), Procurement, Construction and Installation, Inspection and Testing, Start-up and Integrated Testing phases will be evaluated for validity, categorized, assessed, and resolved as specified by Section 4.0. The Project requirements for categorizing hazards and vulnerabilities based on their probability of occurrence and severity are shown below in Table 4-A and 4-B below.

Table 4-A: Hazard Categorization and Assessment

Probability of Occurrence of a Hazard			
Description	**Probability Level**	**Frequency For Specific Item(s) (Events/Hour)**	**Selected Frequency For Fleet Or Inventory (Multiple of single items)**
Frequent	A	Likely to occur frequently (Greater than 10^{-3})	Continuously experienced (10^{-}\ MTBE is less than 1000 operating hours
Probable	B	Will occur several times in the life of the item (10^{-6} to 10^{-3})	Will occur frequently in the system (10^{-3}) MTBE is equal to or greater than 1000 operating hours and less than 100,000 operating hours
Occasional	C	Likely to Occur sometime in the life of an item (10^{-6} to 10^{-5})	Will occur several times (10^{-4}) MTBE is equal to or greater than 100,000 operating hours and less than 1,000,000 operating hours.
Remote	D	Unlikely but possible to occur in life of an item (10^{-7} to 10^{-6})	Unlikely but can be expected to occur (10^{-6}) MTBE is greater than 1,000,000 operating hours and less than 100,000,000 operating hours.
Improbable	E	So unlikely, it can be assumed occurrence may not be experienced (Less than 10^{-7})	Unlikely to occur, but possible (10^{-7}) MTBE is greater than 100,000,000 hours.

WMATA has adopted a system for assessing the level of risk for each identified hazard to determine what action(s) must be taken to correct or document the hazard risk. This risk assessment system has been incorporated into the formal system safety analysis which enables the ESC decision-makers to understand the amount of risk involved in accepting the hazard in relation to the cost (schedule, cost, operations) to reduce the hazard to an acceptable level.

The Risk Assessment Matrix (Table 4-B) identifies the Hazard Risk Index (HRI) based upon hazard category and probability and the criteria for defining further actions based upon that index.

Table 4-B: Risk Assessment Matrix

HAZARD FREQUENCY	SEVERITY CATEGORY 1	SEVERITY CATEGORY 2	SEVERITY CATEGORY 3	SEVERITY CATEGORY 4
Frequent (A)	1A	2A	3A	4A
Probable (B)	1B	2B	3B	4B
Occasional (C)	1C	2C	3C	4C
Remote (D)	1D	2D	3D	40
Improbable (E)	1E	2E	3E	4E

Hazard Risk Index	Criteria by Index
1A, 1B, 1C, 2A, 2B, 3A	Unacceptable
1D, 2C, 2D, 3B, 3C	Undesirable – Management (ESC) decision
1E, 2E, 3D, 3E, 4A, 4B	Acceptable with ESC review
4C, 4D, 4E	Acceptable without review

Follow-up actions resulting from the Risk Assessment will be as follows:

- **Unacceptable:** The hazard must be mitigated in the most expedient manner possible before normal service may resume. Interim corrective action may be required to mitigate the hazard to an acceptable level while the permanent resolution is in development.
- **Undesirable:** A hazard at this level of risk must be mitigated unless a documented decision to manage the hazard until resources are available for full mitigation is issued by the CSO and forwarded to TOC [rail hazards only] for review and approval/disapproval.
- **Acceptable with review:** The CSO must determine if the hazard is adequately controlled or mitigated as is.
- **Acceptable without review:** The hazard does not need to be reviewed by the ESC and does not require further mitigation or control.

The Risk Assessment Process is used to prioritize hazardous conditions and focus available resources on the most serious hazards requiring resolution.

5 SECURITY RISK MANAGEMENT

5.1 Security Risk Assessment Process

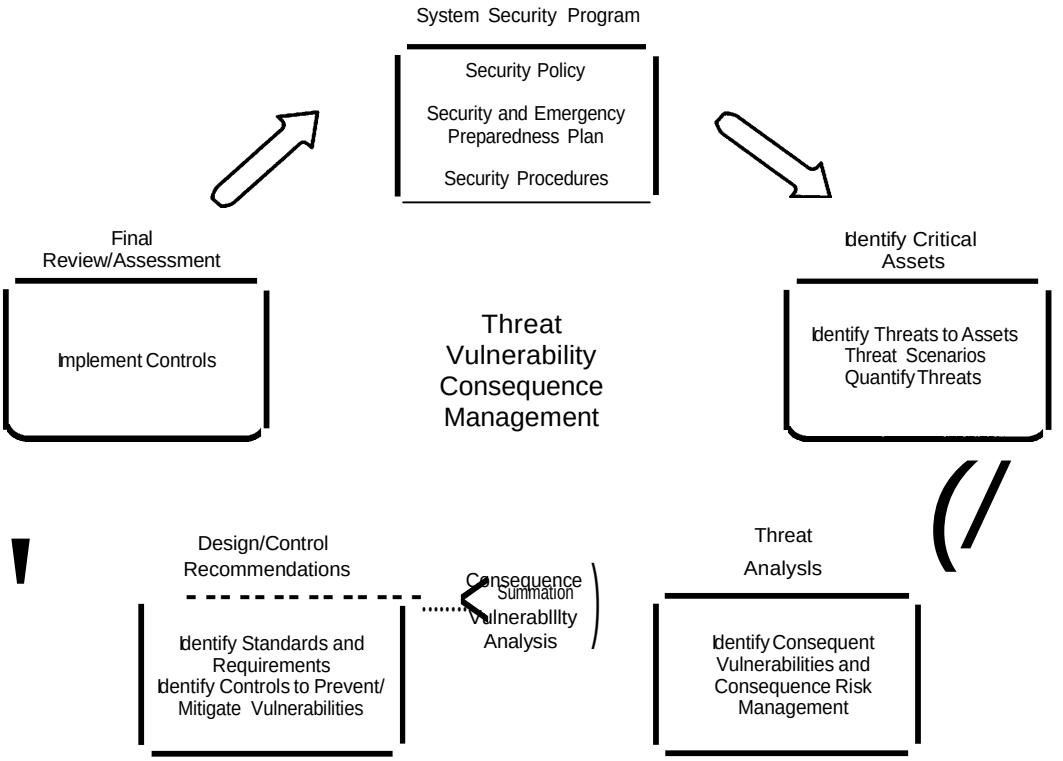
Planning in advance of a terrorist act, potential criminal activity committed on transit property, or other security incident is essential in providing passengers and employees with a safe and secure environment. A security incident may result in serious injuries or death, destruction of property and facilities, and the inability to continue transit operations to the region. To evaluate the susceptibility to potential threats and identify design corrective actions that can reduce or mitigate the risk of serious consequences from a security incident, WMATA conducts a Security Risk Assessment during each phase of each rail extension. Security Risk Assessments are also conducted for other capital projects, as determined by the SCRC or the ESC.

The Security Risk Assessment process consists of four activities:

- Identification of critical assets in the rail extension or other transit project;
- Analysis of the threats against the assets;
- Identification of vulnerabilities within the proposed system; and
- Summary analysis of security incident consequences.

The Security Risk Assessment identifies the likelihood of specific threats that may endanger WMATA assets (people and property), the potential vulnerabilities associated with the design of a particular project, and allows for mitigation efforts to be "designed into" the project in order to reduce the security risk and to minimize the consequences of the identified criminal and terrorism activities. It also identifies the security training needs of WMATA personnel and necessary security procedures. Security vulnerabilities identified in projects are managed in the certification process similarly to safety hazards, as discussed in Section 4. The Security Risk Assessment process is summarized in Figure 5.

Figure 5: Security Risk Assessment Process



5.1.1 Asset Identification

Assets are defined as people, information, and property. WMATA assets include:

- People - passengers, employees, visitors, contractors, vendors, community members, and others who come into contact with the transit system; and
- Property -fixed infrastructure and rolling stock.
- The range of transit assets is presented in Table 5.

Table 5: Typical Transit Assets

Typical Transit Assets	
• Passenger Stations, Stops, and Shelters	• Alternative Fuel Storage Facilities
• Tenant Facilities in Passenger Stations	• Switches, Signals, and Interlockings
• Passenger Vehicles	• Grade Crossing & Automatic Warning Devices
• Structures (Underground, At-grade, & Elevated)	• Electrification Systems (3'd rail, overhead catenaries)
• Customer and Employee Parking Lots	• Revenue Collection Facilities
• Vehicle Control Systems	• Vehicle Storage Facilities
• Communication Systems	• Operation Control Centers
• Heavy Maintenance Facilities	• Wayside Support & Maintenance Facilities
• Service and Inspection Facilities	• Ancillary Facilities and Storage
• Maintenance Vehicles and Equipment	• Administrative Facilities
• Back-up Power Systems	• Fuel Farms and Generators
• Emergency Equipment (Fans, Pumps, Fire Suppression)	• Transit Police/Security Facilities & Communications

5.1.2 Asset Criticality Determination

Assets are prioritized in terms of criticality. Most weight is given to those assets that present the greatest threat to life safety or service disruption, if attacked. In making this determination, consideration is given to:

- Impact on passengers, employees, and first responder;
- Impact on transit operations;
- Economic value of the asset, including current and replacement value;
- Intrinsic value of the asset to a potential adversary; and
- Asset location to other critical assets.

5.1.3 Identification of Threats against Critical Assets

A threat is any action with the potential to result in death, Injury, destruction, interruption of operations, or denial of services. Transit agencies face security threats from three primary classifications of crime: crimes against persons, crimes against property, and other crimes committed on transit property. Other crimes committed on transit property generally are minor crimes that affect quality of life. They degrade the quality of transportation service and interfere with passengers' use of the transportation system. The majority of crimes committed do not pose a physical threat to passengers but may erode passengers' sense of security and make passengers feel intimidated. Table 6 shows possible crimes that may be committed on transit property.

Table 6: General Crime Categories

Crime Category	Crime Types within Category
Crimes Against Persons	Pick-pocketing, purse snatching, assault, rape, homicide, robbery, terrorism
Crimes Against Property	Arson, vandalism, graffiti, burglary, motor vehicle theft, theft from automobiles, sabotage, terrorism
Other Crimes Committed on Transit Property	Drug dealing, drinking, prostitution and sex offenses, disorderly conduct, aggressive panhandling, loitering, fare evasion, trespassing

Metro Transit Police is the central point for the collection, reporting, and recordkeeping of security data and information involving the WMATA transit system. Analysis of the security data is conducted to identify criminal behavior patterns within the WMATA system. WMATA also receives security threat and crime intelligence through law enforcement sources in the Washington Metropolitan area, the National Joint Terrorism Task Force (JTTF), Transportation Security Administration, and other intelligence sources. The threat analysis defines the level or degree of threats against WMATA.

5.1.4 Threat Scenarios

Threat scenarios are developed to identify and evaluate vulnerabilities that may make the asset susceptible to an attack. Scenario development also provides identification of impacts of threats on critical assets and promotes mitigation strategies and capability needs. The scenarios are intended to represent potential real-world events and, as such, have been derived primarily from WMATA and other operating systems' experiences and worldwide security incidents.

5.1.5 Vulnerabilities

Vulnerability is the susceptibility of the system to a particular type of security incident or event that can be taken advantage of to carry out a threat. Vulnerabilities may surface as a result of the following:

- Impact on transit operations;
- Design and construction of the stations, guideways, wayside facilities, park and ride lots, aerial structures, tunnel infrastructure, operations and maintenance facility, and operations control center;
- Equipment and technology used;
- Operating procedures; and
- Policing and security practices.

A vulnerability analysis is used to identify specific weaknesses with respect to how the new facility or system may invite and permit a threat to be accomplished.

5.16 Security Incident Frequency

The likelihood of a security incident or event affecting a system or facility is categorized as follows:

High – Indicates that a definite threat exists against the asset and that the adversary has both the capability and intent to attack or commit a criminal act, and that the asset is targeted on a frequently recurring basis;

Frequent – Indicates that a credible threat exists against the asset based on knowledge of the adversary's capability and intent to attack or commit a criminal act against the asset, based on related incidents having taken place at similar assets or in similar situations;

Occasional – Indicates that there is a possible threat to the asset based on the adversary's desire to compromise similar assets;

Seldom – Indicates that there is a low threat against the asset and that few known adversaries would pose a threat to the asset; and

Never – Indicates no credible evidence of capability or intent and no history of actual or planned threats against the asset.

Table 7 is used to identify security incident/event probability. The probability categories - Levels A, B, C, D, or E - are used in conjunction with the Severity Categories (Table 8) as an essential part of the Criticality Matrix (Table 9).

Table 7: Security Event Probability Categories

Security Incident Probability Categories			
Description	Level	Specific Individual Item	Fleet or Inventory
High	A	Likely to Occur Frequently	Continuously Experienced
Frequent	B	Will Occur Several Times in Life of an Item	Will Occur Frequently
Occasional	C	Likely to Occur Sometime in Life of an Item	Will Occur Several Times
Seldom	D	Unlikely but Possible to Occur in the Life of an Item	Unlikely but can Reasonably be Expected to Occur
Never	E	So Unlikely, it can be Assumed Occurrence May not be experienced	Unlikely to Occur but Possible

The threat severity categories are summarized in Table 8.

Table 8: Threat Severity Categories

Threat Severity Categories		
Category	*Severity*	*Characteristics*
1	*High*	*Death or System Loss or Extensive Damage*
2	*Moderate*	*Severe Injury or Moderate System Damage*
3	*Low*	*Minor Injury or Minor System Damage*

5.1.7 Security Incident Severity

In addition to threats, the worst-case consequences of security incidents are evaluated. Severity is defined as the degree of injury or amount of damage that may be expected from a successful attack or criminal act against an asset. Examples of consequences include; injuries to the public or to transit personnel, loss of equipment causing financial losses, and disruption to transit operations. Severity categories are defined to provide a qualitative measure of the result of a security breach.

I. High – Loss of life and/or extensive damage requiring months to repair; very long term interruption.

II. Moderate – Serious injuries and/or significant damage requiring weeks to repair; long term interruption.

III. Low – Minor injuries and/or minor damage requiring 7 or less days to repair; short term interruption.

5.1.8 Security Criticality Matrix

The severity of a threat and the likelihood of occurrence are combined into a risk level (criticality) matrix to show the consequences. The consequences are assessed both in terms of severity of impact and probability of occurrence for a given threat. The criticality matrix organizes the resulting consequences into categories of high, serious, and low. The matrix helps to prioritize consequences and to focus available resources on the most serious threats requiring resolution while effectively managing the available resources. Threats with vulnerabilities identified as high may require further investigation and indicate that the condition cannot remain as is but must be mitigated. A serious consequence in the matrix indicates that the countermeasure should be implemented, if at all possible, within fiscal constraints. A low consequence means that to accept the risk without providing any countermeasures. The matrix is illustrated in Table 9.

5.2 Resolution Process

Security issues are resolved similar to the hazard management process. The each security issue is tracked to closure by the SAFE to ensure that they have been adequately addressed.

Table 9: Criticality Matrix

Frequency of Occurrence	Hazard Categories		
	I High	II Moderate	III Low
(A) High	H (IA)	H (IIA)	S (IIIA)
(B) Frequent	H (IB)	H (IIB)	S (IIIB)
(C) Occasional	H (IC)	S (IIC)	L (IIIC)
(D) Seldom	S (ID)	L (IID)	L (IIID)
(E) Never	S (IE)	L (IIE)	L (IIIE)

Hazard Risk Index		Risk Decision Criteria	
IA, IB, IC, IIA, IIB	II	High (H)	Threat must be mitigated
ID, IE, IIC, IIIA, IIIB,	II	Serious (S)	Threat should be mitigated if possible within fiscal constraints
IID, IIE, IIIC, IIID, IIIE,	II	Low (L)	Threat is acceptable with review by management

Source: Federal Transit Administration *Public Transportation System Security and Emergency Preparedness Planning Guide*

6 AUDITS

Each phase of the safety and security certification program, design through pre-revenue testing phase, is periodically audited to assure that the Safety and Security Certification Program is being properly implemented and effective. The audit is performed in accordance with the WMATA Internal Safety Audit Process (see Section 3.3.15 of the System Safety Program Plan).

Audits of capital project elements include:

- Assurance that the Safety and Security Certificates of Compliance are supported by traceable documentation;
- Evidence that safety hazards and security vulnerabilities are tracked, analyzed and resolved in accordance with the WMATA System Safety Program Plan;and
- Overall assessment of the Safety and Security Certification Program.

The audit findings are included in the WMATA Annual Internal Safety Audit Report to TOC.

7 DOCUMENTATION

7.1 Verification Documentation

Backup documentation is critical to the success of the Safety and Security Certification Program. Documentation provides a detailed audit trail of activities that demonstrate conformance with the safety and security for a project.

The documentation system promotes accountability, timeliness and accessibility. Accountability ensures that all certificates are completed accurately, signed by appropriate project staff, reviewed by the Safety and Security Review Certification Committee, and maintained in a secure manner. Timeliness ensures that each certifiable element is certified as safe and secure, prior to use. Accessibility allows quick verification that certificates are in place, and provides any other information required to support the certificates.

A master safety certification file resides within SAFE. The Project Safety and Security Certification file contains the following:

- Certifiable Elements and Items Lists;
- A summary sheet showing the certification status for the design, construction, testing, and pre-revenue phases of the project;
- Original copies of the completed checklists for each certifiable element;
- Support documentation that may not be contained within the project files, such as Visual Inspection Reports;
- Copies of test reports for safety critical systems;
- Copies of integration test reports;
- Original copies of the Temporary Use Notices;
- Original copies of the Certificates of Compliance for each certifiable element; and
- Original copy of the System Safety and Security Certificate for the project.

7.2 Configuration Management

During the life of a project, it is not unusual for design and/or construction changes to be made to the system elements being certified. The SCRC reviews these changes for impact to the certification effort. If the impact changes the safety or security requirement or the required documentation, the safety/security requirement is re-verified. The Project Manager is responsible for obtaining the supporting documentation required as a result of the changes and assuring that changes to the design of equipment and facilities are documented in accordance Policy/Instruction 4.10/1, Configuration Management.

8 REPORTING REQUIREMENTS

8.1 Periodic Reporting

An important part of the safety certification process is briefing the ESC of the safety and security certification program, including project certification effort status. Periodic reports are prepared by SAFE and submitted to the ESC. The frequency of the reports is dependent on certification activity levels, but quarterly at a minimum. The reports advise ESC of the:

- Safety and Security Program progress;
- Changes to Project Certifiable Items Lists, if any;
- Significant problems encountered in the certification effort;
- Safety and Security Certificates of Compliance completed during the reporting period;
- Safety and Security Certificates expected to be issued in the next reporting period; and
- Certification Program audit findings and recommendations for improvement, if any.

The SAFE also prepares project certification progress reports for TOC and FTA, as requested.

8.2 Final Safety and Security Certification Report

A final Safety and Security Certification Report is prepared for each Project falling under the Safety and Security Certification Program (see Section 3.1.10). Reports for rail projects are transmitted to the TOC.

ATTACHMENTS

ATTACHMENT 1
SAMPLE

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
SAFETY/SECURITY CERTIFICATION PROGRAM COMPLIANCE CHECKLIST (CIL)

Project:	**Design / Construction / Test**	SAFE Approval: Date: Page 1 of XX
Certifiable Element:	**Compliance**	Engineering Approval: Date:
Revision:	**CIL**	Project Manager Date:
Checklist type:		Approval:
Master:		
Sub:		

Item No.	Description	Design Criteria Specification Reference	Design Specification Reference			Construction Installation Verification			Test Verification			SAFE Verification			Comments
			Doc Ref.	Verified By	Date	Doc Ref.	Verified By	Date	Doc Ref.	Verified By	Date	Status	Verified By	Date	

Certification Checklist Guide	
Project Certifiable	The Project for which the checklist was prepared.
Element Revision	The current revision number of the specific checklist.
Date	The date of issue for the checklist.
SAFE Approval	SAFE staff approving the checklist.
Engineering Approval	Engineering design staff approving the checklist (design criteria only).
Project Manager Approval	Signature of the appropriate managers indicating formal approval of the checklist completed with the specified element type, safety and security requirements, criteria and specification reference.
Item No. Description	Describes the safety or security requirements for the certifiable element as stated in the criteria, contract specification or as shown on the contract drawings.
DESIGN PHASE	
Doc Ref	Identifies the specification section, drawing number or document control center (DCC) file where the safety or security requirement has been incorporated.
Responsible Designer	The name of the design team member assigned the responsibility for the verification of the checklist and assuring the collection of necessary documentation, including: CDRL approvals, inspection reports, factory certifications, and so on.
Verified By / Date	Initials/name of the engineer who verified that the requirement has been incorporated in the contract documents, and the date.
CONSTRUCTION AND TEST PHASES	
Verified By	Name of individual who verified the test results, and/or that the requirement had been met.
Date	Date when verification or the test took place.
Doc Ref	Complete with the applicable Document Control Number and where located. The entry should identify which document control system is used if approval has been granted not to use WMATA's.
SAFE VERIFICATION	
Status	Completed by SAFE with one of the conditions listed at the bottom of the form: OPN, CLD, and CEX for each safety or security requirement. NA: Not applicable OPN: activity or issue is not completed, documentation not identified, or other situation prevents completing the item. CLD: activity has been completed and documentation is identified and formally filed. CEX: Activity where the safety or security requirement cannot be completely satisfied but it presents no potential for a catastrophic or critical (Category I or II} hazard and the ESC has been formally advised. This designation would also be used in the case of an approved temporary measure.
Verified By	When each checklist page has been completed by the responsible engineer or project management staff, and the documentation has been verified, then the page will be signed and dated by SAFE. When the entire checklist is completed, the checklist package with the documentation will be transmitted to the Chief safety Officer and the document control center.
Date	Date when the verification took place.

ATTACHMENT 2
SAMPLE

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
SAFETY AND SECURITY CERTIFICATION PROGRAM

VISUAL INSPECTION REPORT

Certifiable Element: _____

Sub-element: _____

Safety/Security Requirement Item No.: _____

Safety/Security Requirement:

Comments:
This is to certify that conformance with the specified requirement was verified by visual inspection.

WMATA Verification by Date

ATTACHMENT 3
SAMPLE

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
SAFETY AND SECURITY CERTIFICATION PROGRAM

TEMPORARY USE NOTICE

Permit No:

Certifiable Element/Sub-Elements:

Restrictions Noted:

Project Manager Date	Facility/System Engineer/Manager Date
Test Engineer (if applicable) Date	Assistant Chief Safety Officer Date

Chief Safety Officer Date

TEMPORARY USE PERMIT EXPIRES UPON ISSUANCE OF CERTIFICATE OF COMPLIANCE

ATTACHMENT 4
SAMPLE

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
SAFETY AND SECURITY CERTIFICATION PROGRAM

SAFETY CRITICAL ITEMS LIST

Project:	Prepared By:	Date:
Certifiable Element:	Approved By:	Date:
Sub-Element:	Revision No:	Date:

Ref No.	Description	Potential Cause	Effect on System Subsystem	Effect on Other Systems Subsystems	Initial Risk Index	Control Measures	Residual Risk Index	Status

ATTACHENT S
SAMPLE

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
SAFETY AND SECURITY CERTIFICATION PROGRAM

CERTIFIABLE ELEMENT CERTIFICATE OF COMPLIANCE REHABILITATION/MODIFICATION PROJECT

Certifiable Element/Sub-Element:

Restrictions Noted:

The Certifiable Element complies with all applicable safety and security requirements and may be placed into service.

Contractor Project QA/Safety Rep. Date

Contractor Project Manager Date

WMATA Project Manger Date

Safety Officer Date

Assistant Chief Safety Officer Date

ATTACHMENT 6
SAMPLE

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
SAFETY AND SECURITY CERTIFICATION PROGRAM

CERTIFIABLE ELEMENT
CERTIFICATE OF COMPLIANCE

Certifiable Element/Sub-Element:

Restrictions Noted:

The Certifiable Element complies with all applicable safety and security requirements and may be used for passenger service.

Project Manager Date	Facilities/Systems Chief Engineer Date
AGM Rail/Bus Operations Date	Chief Metro Transit Police Date
Assistant Chief Safety Officer Date	Chief Safety Officer Date

ATTACHMENT 7
SAMPLE

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
SAFETY AND SECURITY CERTIFICATION PROGRAM

SYSTEM
CERTIFICATE OF COMPLIANCE

Restrictions Noted:

The System Certificate of Conformance signifies that all applicable safety and security requirements have been completed and the facility/system may be placed into service, with the noted restrictions.

WMATA Project Manager	Date	Chief Infrastructure Services Chief Engineer	Date
Rail/Bus Transportation	Date	AGM - TIES / AGM – BUS	Date
Deputy General Manager Administration	Date	Deputy General Manager Operations	Date
Metro Chief of Police	Date	Chief Safety Officer	Date

General Manager / CEO Date

ATTACHMENT 8

EXAMPLE OF REHABILITATION-MODIFICATION PROJECTS

SAMPLE CONTRACT Type	DESCRIPTION	SAFETY/SECURITY CRITICAL ELEMENT AND EFFECT ON SYSTEM	SAFETY / SECURITY CERTIFICATION STEPS			
			Step 3 Design	Step 4 Spec	Step s Testing	Step 6 Manuals/Training
Category 1	ROCS System Upgrade		X	X	X	X
Category 3	Replacement of AC Switchgear	Traction Power - Electrical Equipment Safety			X	X
Category 2	DC Traction Power Cable	Traction Power - Electrical Safety		X	X	X
Category 2	Dry Standpipe Replacement	Facilities-Fire-Life Safety		X	X	X
Category 2	FIA System Replacement	Facilities-Fire-Life Safety		X	X	X
Category 1	West Falls Church Yard Processor (New microprocessor)	ATC - Operational Safety	X	X	X	X
Category 1	PROTECT	Security-Detect/Respond Safety	X	X	X	X
Category 2	Bus Vehicle In-Ground Lift Replacement	Facilities-Employee Operational Safety		X	X	X
Category 3	Replace 6 GL-a Interlocking & NV Processors	ATC - Operational Safety	X	X	X	X
Category 3	Stinger	Facilities - Employee Safety			X	X
Category 3	Mainline Switch Machine (M3)	Track - Installation Safety			X	X
Category 2	Replacement for UPS/Battery	Electrical Operational Safety			X	X
Category 2	TPSS 3n1 Rail Equipment	Traction Power Operational Safety			X	X

SAMPLE CONTRACT Type	DESCRIPTION	SAFETY/SECURITY CRITICAL ELEMENT AND EFFECT ON SYSTEM	SAFETY / SECURITY CERTIFICATION STEPS			
			Step 3 Design	Step 4 Spec	Step s Testing	Step 6 Manuals/Training
Category 3	Replace MCC and Voltage Regulators	Electrical Operational Safety			X	X
Category 3	Rehab Standpipe System	Facilities – Fire/life Safety			X	X
Category 2	Rehab Station/Tunnel Ventilation	Facilities – Fire/life Safety		X	X	X
Category 3	ATC Room Power Supplies	ATC - Operational Safety			X	X
Category 3	TPSS Equipment Installation	Traction Power – Electrical (Using WMATA SOPs)			X	X
Category 2	TPSS Equipment Installation	Traction Power – Electrical (Not Using WMATA SOPS)		X	X	X
Category 1	Bladensburg Heavy Equipment/CNG	Facilities/Fire-life Safety	X	X	X	X
Category 2	Bus Vehicle In-Ground lift Replacement	Facilities (Not Using WMATA SOPs)		X	X	X
Category 1	Replacement of AF Track Circuit Systems	ATC - Operational Safety	X	X	X	X
Category 1	RTU Replacements (ATC System)	ATC - Operational Safety	X	X	X	X
Category 2	Public Address System and CCTV Replacement	Facilities -Security and Fire/Life Safety (Not Using WMATA SOPs)		X	X	X
Category 3	Replacement of Emergency Egress Hatches	Facilities – Fire/life Safety			X	X
Category 1	ATC J-Relays (Door dwell and station stop)	ATC - Operational Safety	X	X	X	X
Category 1	Chemical Sensor	Security/Detect/Respond	X	X	X	X

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DULLES CORRIDOR METRORAIL PROJECT

SAFETY AND SECURITY CERTIFICATION

APPENDIX – 1

TO WMATA SAFETY AND SECURITY

CERTIFICATION PROGRAM PLAN

March 2012

1 INTRODUCTION

The Dulles Corridor Metrorail Project (Project) is an extension of the existing 106-mile Metrorail system. The Metropolitan Washington Airports Authority (MWAA), the sponsor of the Project, has contracted with Dulles Transit Partners (DTP) to be the Design-Builder for all Project facilities and systems with the exception of the systems and equipment and revenue vehicles listed in figure 1below. WMATA is not a party to the Design-Build Contract, but will be the eventual owner and operator of the extension. Because WMATA does not have a contractual relationship with DTP, safety and security activities are coordinated through MWAA.

WMATA has a formal Cooperative Agreement with MWAA to support the Project by providing Transit Oversight Services and the WMATA unique systems and equipment described below in Figure 1. WMATA will implement its Safety and Security Certification Program Plan to ensure that the systems and equipment listed in Figure 1below and the revenue vehicles are safe and secure for passenger service.

Figure 1:WMATA Systems and Equipment

ITEM #	DESCRIPTION	COMPONENTS
1	Rail Vehicles	Heavy Rail Vehicles / Spare Parts - Procure & Commission 64 New Rail Vehicles
2	Communication Backbone	Communications - Fiber Optic System, Passenger Information Display System (PIDS), Local Area Network / Wide Area Network, Comprehensive Radio System, Telephone System Expansion,Smart Monitoring & Display System & Yard Security System Modification
3	Non-Revenue Vehicles, Equipment & Furniture	Heavy Maintenance Facility / Yard & Yard Track / Non-Revenue Vehicles - Procure Non-Revenue Vehicles, Portable Yard & Shop Equipment & Station Furniture
4	ROCS Upgrade, ATC	Train Control & Signals / Central Control – Rail Operations Control System Update (ROCS), OCC Modifications, Automatic Car Identification System & Destination Code Table Revisions
5	Automatic Fare Collection	Fare Collection System & Equipment - Provide / Install Automatic Fare Collection Equipment, Provide Install Smart Card Equipment for Parking Lots
6	System Graphics	System Graphics - Prepare System Maps, Customer Information,Schedules & Brochures and Perform System Signage Modifications
/	Art inTransit	At Grade Stations / Aerial Stations – Purchase Artwork

The Cooperative Agreement sets forth specific safety and security activities and responsibilities, including the execution of a safety and security certification program for the Project. Consequently, WMATA has a vested interest in assuring that the Project is designed and constructed in accordance with the WMATA design criteria and specifications.

2 PROJECT DESCRIPTION

The Project will extend the existing 106-mile Metrorail system from East Falls Church on the Metrorail Orange Line in Fairfax County through Tysons Corner to Washington Dulles International Airport and beyond the airport to Route 772 in Loudoun County in two phases. Most of the extension will be constructed in the median of the Dulles International Airport Access Highway (DIAAH) and Dulles Connector Road, but the alignment will also directly serve Tysons Corner and Dulles Airport. The extension will include 11 new Metrorail stations, a rail yard site on Dulles Airport property, and an expansion of the existing rail yard at West Falls Church.

Phase 1 of the project *(Extension to Wiehle Avenue)* will be the initial 11 miles of the Locally Preferred Alternative (LPA) from East Falls Church on the current Metrorail Orange Line to Wiehle Avenue in Reston. It will include 5 stations, improvements to existing WMATA Service and Inspection Yards, and tail tracks outbound of the interim terminus at Wiehle Avenue. Phased construction may require additional refinements to some facilities. Phase 2 of the project *(Extension to Dulles Airport/Route* 772) will complete construction of the LPA between Wiehle Avenue through Dulles International Airport to Route 772 in Loudoun County, add 6 additional stations, and add a new Service and Inspection Yard.

3 MWAA SAFETY AND SECURITY MANAGEMENT PLAN

A Safety and Security Management Plan (SSMP) was developed and implemented by MWAA. The plan sets forth the safety and security activities for the control of safety hazards and security vulnerabilities for the Project. The plan also assigns responsibility for the implementation and administration of these activities, including those required of DTP. MWAA is responsible for the management of the DTP activities. WMATA provides additional oversight, as specified in the MWAA-WMATA Cooperative Agreement.

A requirement of the MWAA SSMP is the development of a System Safety/Security Certification Management Plan (SSCMP) by DTP. DTP has prepared and implemented a Project SSCMP, with support from MWAA and WMATA. The SSCMP addresses the requirements of the WMATA Safety and Security Program Plan (SSPP), WMATA Safety and Security Certification Program Plan (SSCPP) and the Federal Transit Admi nistration (FTA) Handbook for Transit Safety and Security Certification. MWAA is responsible for approving the safety and security certification reports for each Project segment submitted by DTP for approval.

4 SAFETY AND SECURITY CERTIFICATION WORKING GROUP

Administration and maintenance of the SSCMP is through the Project Safety and Security Certification Working Group (SCWG), including hazard and vulnerability identification, evaluation, and resolution for the Project. It is also responsible for reviewing hazards and vulnerabilities on the existing Metrorail system for applicability to the Project and recommends resolutions.

5 PROJECT INTERFACE

The SSMP designates the SCWG, as the working body that assists the DTP Safety and Security Manager in the performance of safety and security related activities. The SCWG is also the primary interface with WMATA for the safety and security activities. As such, WMATA is an active participant on the SCWG. WMATA representatives to the SCWG include representatives from System Safety and Environmental Management (SAFE), Metro Transit Police (MTPD), and WMATA engineering and construction staffs.

Functional Responsibilities and Lines of Communication

A. The Project SAFE Representative is responsible for:

- Reviewing and monitoring implementation of the Safety and Security Certification Program Plan for the Project;
- Assisting in identifying and defining the certifiable elements, items, and related safety requirements;
- Reviewing compliance checklists to ensure that they address hazardous conditions that may be found in operating the Metrorail system;
- Reviewing verification documentation for each certifiable element to ensure compliance with the identified safety requirements;
- Advising the SCWG of documentation discrepancies or completeness that require resolution;
- Reviewing hazard analyses to determine the completeness of the analyses and of the recommended control measures;
- Reporting progress of the SCWG effort to the Chief Safety Officer;
- Leading audits of the Project safety and security certification process;
- Recommending revisions to the Project Safety and Security Certification Program;
- Reviewing the interim Safety and Security Certification Report prepared by the DTP; and
- Preparing the final Safety and Security Certification Report for the Project.

B. The Project MTPD Representative is responsible for:

- Assisting in identifying and defining the certifiable elements, items, and related security requirements;
- Reviewing compliance checklists to ensure that they address security issues that may be encountered in/ on the Metrorail operating system;
- Reviewing verification documentation for each certifiable element to ensure compliance with the identified security requirements;
- Advising the SCWG of documentation discrepancies or completeness that require resolution;

- Reviewing security assessments to determine completeness of the assessments and adequacy of the recommended control measures;
- Reporting progress of the SCWG effort to the Chief of Police;
- Assisting in audits of the Project safety and security certification process;
- Recommending revisions to the Project Safety and Security Certification Program;
- Reviewing the interim Safety and Security Certification Report prepared by the DTP; and
- Assisting in preparing the final Safety and Security Certification Report for the Project.

C. Project Engineering/Construction Representatives are responsible for:

- Monitoring design and construction issues and activities related to the certification effort;
- Assisting in the identification of safety and security certifiable elements, items and requirements;
- Reviewing compliance checklists to ensure that they address safety and security concerns that may be encountered in operating the Metrorail system;
- Reviewing verification documentation for each certifiable element to ensure compliance with the identified safety and security requirements;
- Advising the SCWG of documentation discrepancies or completeness that require resolution;
- Assisting in the review of safety analyses and security assessments to determine completeness of the analyses/assessments and recommended control measures;
- Reporting progress of the SCWG effort to the Director of Construction;
- Assisting in audits of the Project safety and security certification process;
- Recommending revisions to the Project Safety and Security Certification Program;
- Reviewing the interim Safety and Security Certification Report prepared by Dulles Transit Partners; and
- Assisting in preparing the final Safety and Security Certification Report for the Project.

The WMATA SCWG representatives are responsible for overseeing the DTP and WMATA responsibility projects certification efforts on behalf of the WMATA Safety and Security Certification Review Committee (SCRC). The WMATA project representatives report DTP certification progress and SCWG activities to the respective departmental members of the SCRC. The representatives are also responsible for recommending to the SCRC entry into the Pre-Revenue phase of the Project. The SCWG will remain active during the Pre-Revenue phase and will support the activities of the SCRC.

The SCRC is responsible for reviewing the DTP certification report and all related documentation. Upon acceptance of the report findings, the SCRC will initiate the Pre-Revenue phase activities. Once the project is in the Pre-Revenue phase of the Project, the SCRC is responsible for all certification activities. The SCRC is also responsible for overseeing all certification activities illustrated in Figure 1 in accordance with the WMATA Safety and Security Certification Program Plan. Once the appropriate level of

certification is achieved, the SCRC will forward a recommendation to enter revenue service to the Executive Safety Committee (ESC).

The process for SCRC review and evaluation of the SCWG deliberations is described in the SCRC's Procedures for the Dulles Corridor Metrorail Project. Please refer to Procedure Safety and Security 1 (PSS-1) appended to the end of this document. Also see, Figures 2 to 5 located at the end of this document that illustrates the various reporting lines of communication within the project.

6 PROJECT DESIGN CRITERIA

The primary resource for safety, fire/life safety, and security requirements is the WMATA Manual of Design Criteria and WMATA Standard Specifications. Requirements are also derived from National Fire Protection Association (NFPA) Standards, International Building Code, Virginia Building Code, and other applicable standards and industry practices. The SCWG assures that all applicable safety, fire/life safety, and security requirements, or an acceptable alternative, are met.

7 SAFETY/SECURITY CERTIFIABLE ITEMS LIST AND CONFORMANCE CHECKLISTS

The initial and updated Safety/Security Certifiable Items List (SCIL) and conformance checklists for the project are reviewed by the SCWG. Upon completion of the conformance checklists, appropriate documentation supporting verification of the safety and security requirements are submitted to the SCWG for review.

8 START-UP AND INTEGRATION

Start-up and testing is the responsibility of DTP. The start-up and test process will be described in detail in the Testing and Commissioning Plan, which requires WMATA acceptance prior to execution. The plan will describe the requirements for:

- Track access permits, temporary use permits for systems, and occupancy permits.
- Preparation, review, and approval of test procedures and acceptance requirements
- Identification, disposition, and closure of test discrepancies, equipment / material modifications (if needed), and re-inspection / testing.

WMATA will witness all safety/security critical tests.

During Pre-revenue operations, WMATA will conduct any additional tests as deemed necessary prior to start of revenue service.

9 CONFORMANCE CHECKLIST REVIEWS AND AUDITS

Each phase of the safety and security certification program (Design, Construction, Start-up and Pre-Revenue Operation) will be periodically reviewed by the WMATA SAFE project representatives through Design Conformance Checklist (DCC), Construction Conformance Checklist (CC) and Startup and Integrated Testing Conformance Certification (SITCC) reviews to assure that the SSCMP is being properly implemented and effective. The WMATA project SAFE representative will lead the review activities. The review findings will be reported to the SCRC. Additionally, details of the reviews will be provided to the

Tri-State Oversight Committee (TOC), as they are completed, and a summary included in the WMATA Annual Internal Safety Audit Report to TOC.

As the Project nears completion, WMATA will conduct walk-through-inspections of facilities, passenger stations, yard, roadway, traction power substations, and signal systems to determine that safety, security, and fire/life safety requirements have been incorporated in the overall project.

Because of the unique, safety critical nature of the automatic train control system (ATC) and its compatibility with the current operating system, the ATC system will undergo a separate safety certification process performed by the design-builder ATC subcontractor. This certification process will be implemented in accordance with the approved Project Technical Specifications. Please refer to Procedure Safety and Security 2 (PSS-2) appended to this document, which explains the review/audit process of WMATA.

10 PRE-REVENUE

The WMATA Dulles Project Office is responsible for all WMATA Pre-Revenue operations for Phase I and II. At the appropriate point in the Project schedule, WMATA will convene a Startup Steering Committee for Phases I and II. Under the direction of the WMATA Dulles Project Director, this executive level committee will provide necessary direction to the Project and to the appropriate WMATA internal departments to ensure that adequate planning and resources are in effect prior to the commencement of DTP Startup activities. The WMATA Startup Steering Committee will meet at least once a month and conduct interim meetings with Managers to ensure that WMATA provides:

- Necessary resources to the Project for startup activities;
- Deliverables noted in Figure 1 as needed;
- Ensure that WMATA is ready to operate the new line when completed.

The WMATA Dulles Project Office is also responsible for constructing and managing a schedule that will indicate critical tasks, and anticipated target dates of completion. This schedule will be provided to the Project and be updated on a timely basis to show progress.

WMATA SAFE will have representation on the WMATA Startup Steering Committee and will be solely responsible for completing the final safety/security certification of the new line for those activities that are the responsibility of WMATA prior to and after the turn-over of the Project at Substantial Completion as describe in the WMATA SSCPP.

The Pre-Revenue phase of the project will be the responsibility of WMATA (This phase will be managed by the WMATA Project Director) with support from both MWAA and DTP. The Pre-Revenue phase will be safety and security certified in accordance with the WMATA Safety and Security Certification Program Plan. Prior to entering the Pre-Revenue phase, MWAA will provide WMATA with a certification report stating that all facilities and systems, for which they are responsible, can be made operationally ready for passenger service. Operational readiness is achieved when all work has been essentially completed, tested, and certification has been received by WMATA. The TOC may also conduct its own independent operational readiness review of the new line segment. WMATA will be responsible for coordinating all ROE activities.

During the Pre-Revenue phase of the Project, operating procedures and plans will be tested for

effectiveness under simulated operating conditions for normal, abnormal, and emergency situations. Emergency drills will also be held at selected sites and coordinated by SAFE, OPER, and MTPD and will involve external emergency response agencies that may respond to an incident on the rail extension. The drills will verify the adequacy of WMATA emergency response plans and procedures and assure that outside emergency response personnel are prepared to adequately respond to emergencies on the new alignment. The drills will be supported by DTP, as requested.

In addition, a final "walk-through inspection" of completed facilities and systems will be performed.

At the conclusion of the Pre-Revenue phase, a Certificate of Compliance for the Pre-Revenue phase will be prepared and submitted to the WMATA Safety and Security Certification Review Committee for approval and recommend that a Certification of System Compliance be issued.

11 CERTIFICATION OF SYSTEM-WIDE SYSTEMS AND SEGMENTS

Dulles Transit Partners

DTP will be developing SCILs to identify specific Project items requiring certification verification during the design, construction, and testing phases of the Project. The certifiable items will be categorized by line segments (in conformance with Integration Testing and Start-up schedules) for Facilities and Systems elements, with additional requirements for Systems Integration and Start-up Testing Requirements, and Operational Readiness Requirements. When a SCIL conformance checklist for a DTP provided facility or system is substantially complete and the certifiable element or sub-element is ready for certification for that phase, DTP will prepare an Interim Safety and Security Certification report for the system/facility. MWM will submit the approved reports to WMATA, in accordance with the MWM Safety and Security Management Plan, for review and acceptance.

WMATA

Issuance of Certificates of Compliance for WMATA provided systems will be in accordance with the WMATA Safety and Security Certification Program Plan.

All original, signed Certificates of Compliance will be maintained in the Certification file for the Project.

12 SAFETY AND SECURITY CERTIFICATION REPORT

Upon completion of the System Performance Demonstration, a Final Safety and Security Certificate and Certification Report for the System will be prepared by DTP. The report will include a statement that the extension is ready for Pre-Revenue Testing. The report will outline the certification process for each of the segments and system-wide elements for the design, construction, and testing phases of the project. The report will also discuss the disposition of hazards and vulnerabilities identified through the certification process, and the issues on the Open Items List. Upon review and approval by MWM, the Final Safety and Security Certificate and Certification Report for the System will be sent to WMATA for review and acceptance.

At the conclusion of the Pre-Revenue phase of the project, WMATA will prepare a Final Safety and Security Certification Report and submit it to the ESC for approval. The approved report will be transmitted to the TOC under the signature of the WMATA General Manager.

Figure 2

WMATA OVERSIGHT OF THE D/B CONTRACTOR SAFETY AND SECURITY CERTIFICATION PROCESS
(Design Thru Testing)

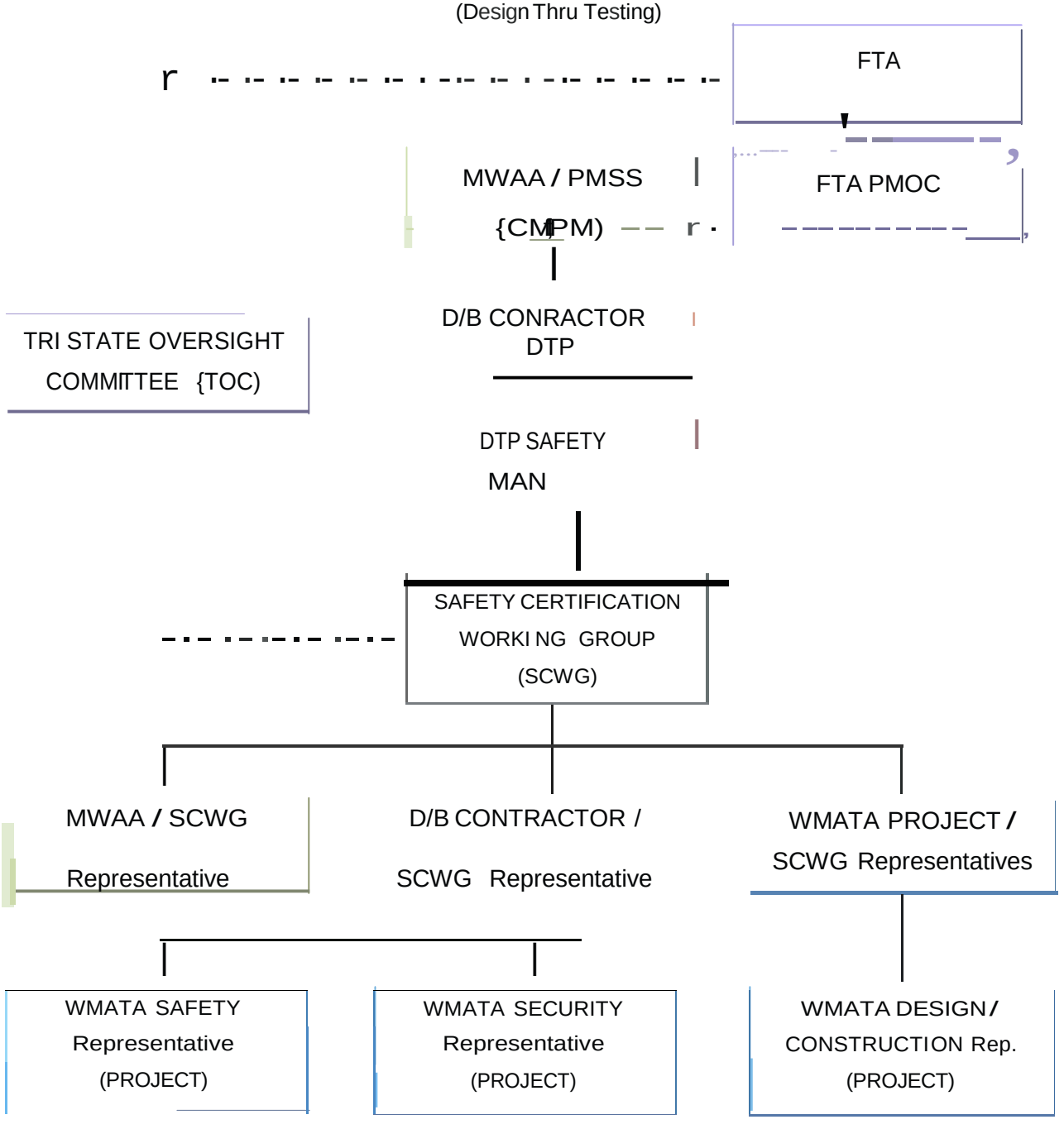


Figure 3

WMATA SAFETY AND SECURITY PROCESS FOR THE SCOPE DEPICTED IN FIGURE 1
AND THE PRE-REVENUE SERVICE PHASE

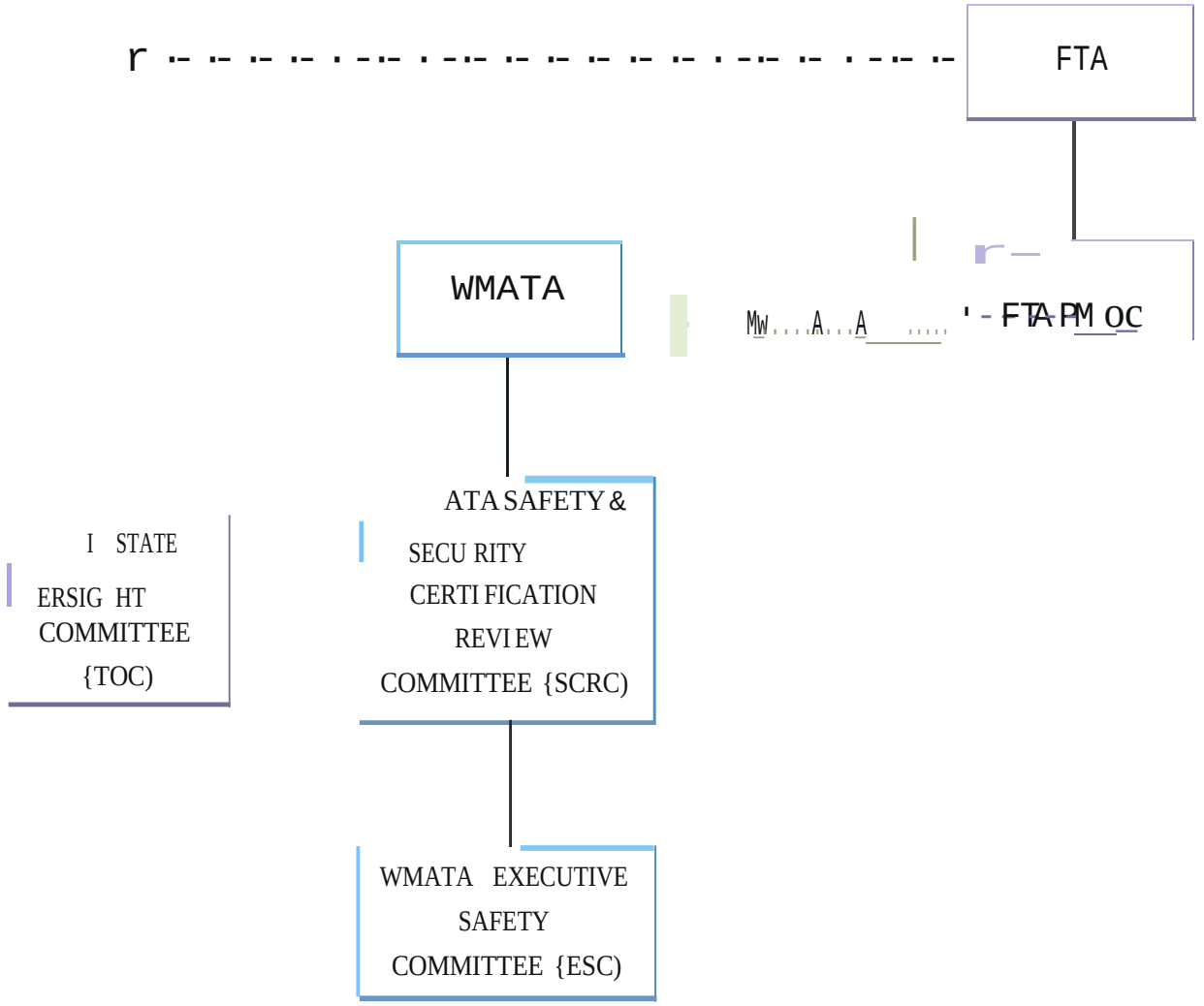


Figure 4

FUNCTIONAL AND COMMUNICATION LINES BETWEEN THE DULLES CORRIDOR METRORAIL PROJECT AND WMATA

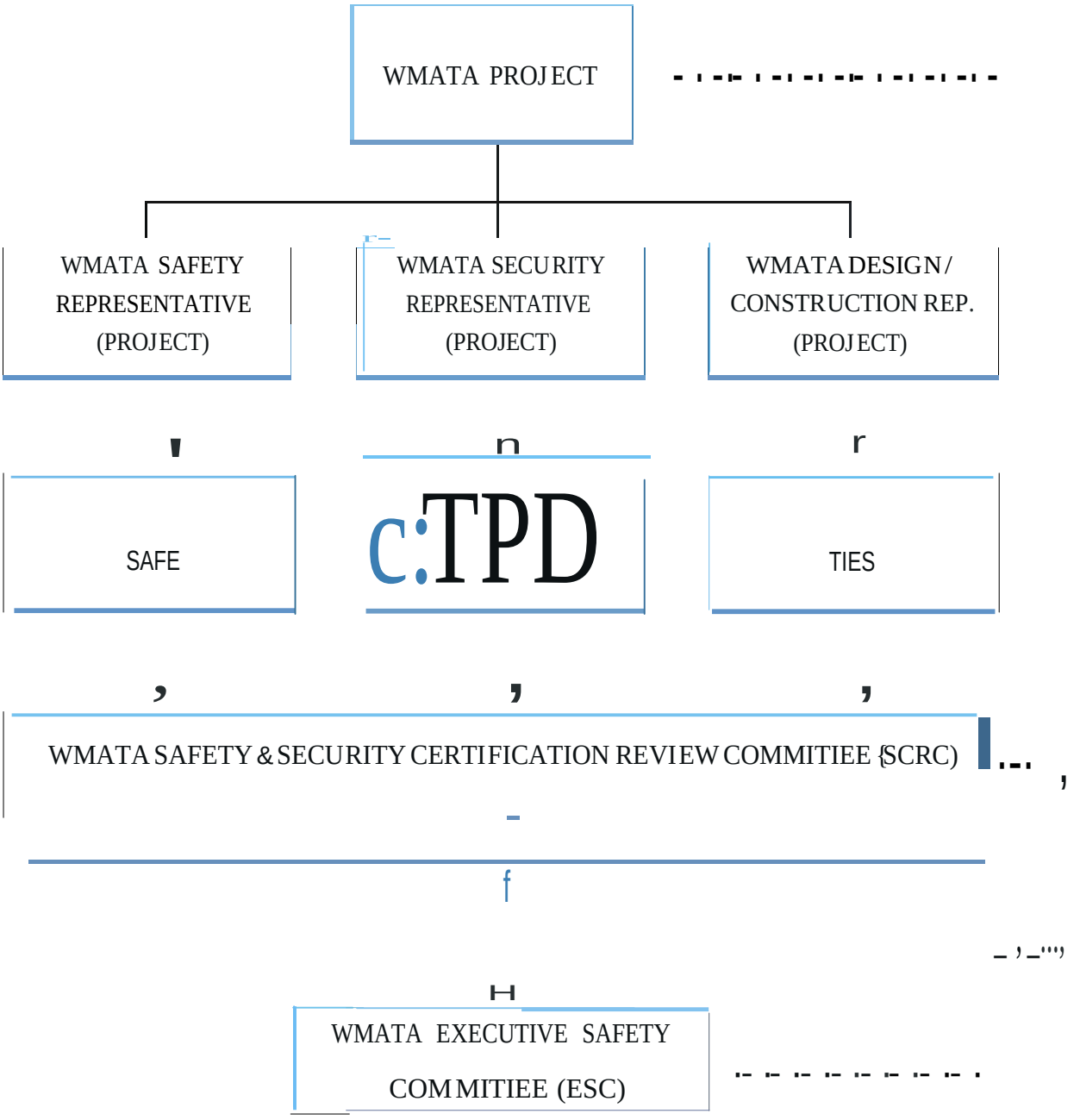
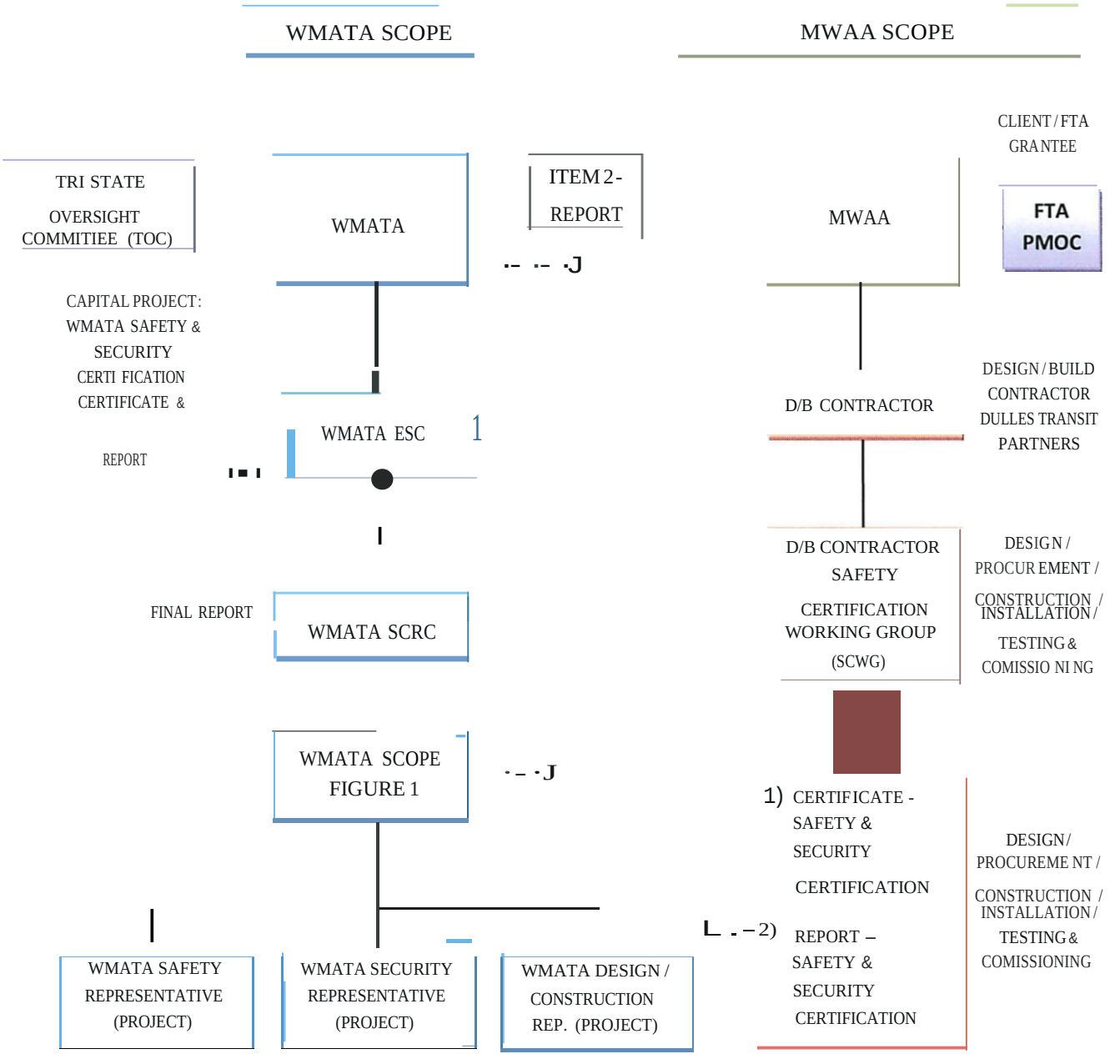


Figure 5

DULLES CORRIDOR METRORAIL PROJECT
PROCESS LEADING TO THE ISSUE OF A FINAL PROJECT SAFETY & SECURITY CERTIFICATION
CERTIFICATE AND REPORT



NOTE: FINAL REPORT CONTAINS:

- FIGURE 1CERTIFICATIONS
  PRE-REVENUE CERTIFICATION

PSS-1 & PSS-2
APPENDED

Washington Metropolitan Area Transit Authority
Dulles Corridor Metrorail Project
Project Procedure

TITLE:	PROCEDURE NUMBER:
Procedure for Process Leading to Acceptance of MWMSCIL	PSS-01
	REVISION:O DATE: April 7, 2010
PREPARED BY: SCRC	APPROVED BY:

1 PURPOSE

The Metropolitan Washington Airports Authority (MWAA), the sponsor and FTA grantee for the Dulles Corridor Metrorail Project (Project), has contracted with Dulles Transit Partners (DTP) to design and construct all facilities and systems for the Project with the exception of those systems, equipment, and revenue vehicles listed in Section 2.0 of this procedure. As part of the contract between MWAA and DTP, DTP is required to develop and implement a Safety and Security Certification Program for the Project based on the MWAA Safety and Security Management Plan (SSMP) and the WMATA Safety & Security Certification Program Plan, dated October 2007.

WMATA is not a party to the Design-Build Contract, but will be the eventual owner and operator of the extension. WMATA however, has a formal cooperative agreement with MWAA that outlines specific activities to be completed prior to WMATA's acceptance of the extension for operational readiness testing. Among those requirements is MWAA's satisfactory execution of a Safety and Security Program for the Project.

The purpose of this procedure is to describe the process for reviewing, evaluating, and accepting the safety and security certification program deliverables reviewed and approved by MWAA and transmitted to WMATA for acceptance.

2 SCOPE

This procedure applies to all Safety and Security Certifiable Items Lists, Conformance Checklists, Certification Reports, Hazard Analyses, Security Assessments, and test reports for all facilities and systems designed, constructed, and tested by DTP under the direction and oversight by MWAA for the Project.

This procedure is not applicable to those facilities and systems for which WMATA is solely responsible:

- Rail Passenger Vehicles
- Communication Backbone

- Rail Operations Center Upgrades
- Automatic Train Control
- Automatic Fare Collection
- Systems Graphics
- Art in Transit

These facilities and systems will be subject to the certification process as described in the WMATA Safety and Security Certification Program Plan, October 2007 and Appendix-1 of the Plan.

3 DEFINITIONS & ACRONYMS

DTP: Dulles Transit Partners - the design/build contractor for the Dulles Corridor Metrorail Project

MWAA: Metropolitan Washington Airport Authority – the sponsor and FTA grantee for the Dulles Corridor Metrorail Project

Project: The Dulles Corridor Metrorail Project

SCWG: Dulles Corridor Metrorail Project Safety and Security Certification Working Group – The MWAA committee responsible for the administration of the safety and security certification program for the Project.

System Performance Demonstration: A series of tests to demonstrate the integration of the Project with WMATA's Adopted Regional System (ARS)

4 RESPONSIBILITIES

4.1 MWAA

MWAA has developed and issued a Safety and Security Management Plan for the Project which requires the development and implementation of a safety and security certification program for the Project. MWAA is responsible for approving the deliverables of the DTP Safety and Security Program, including the Safety Certifiable Items List {SCIL), the conformance checklists for the design, construction, testing, and integrated test phases of the Project, and the program certification reports. MWAA is also responsible for assuring that all documentation that demonstrates conformance with the safety and security requirements for the Project is available.

4.2 DTP

DTP, as the Design / Build Contractor to MWAA, is responsible for the development and implementation of a Safety and Security Certification Management Plan (SSCMP) for the Project. The SSCMP has been approved by MWAA. The SSCMP requires that a Safety / Security Working Group (SCWG) be convened.

4.3 SCWG

MWAA, with DTP as the lead, has established the Dulles Corridor Metrorail Project Safety and Security Certification Working Group (SCWG). The SCWG is composed of representatives from MWAA, DTP, WMATA and a fire/life safety representative from the Commonwealth of Virginia. The SCWG is

responsible for developing and administering the SSCMP, including resolving hazard and vulnerability 'issues. The SCWG is the primary interface with WMATA for Project safety/security-related issues.

4.4 WMATA Representatives to SCWG

WMATA representatives to the SCWG include staff from System Safety and Environmental Management (SAFE), Metro Transit Police (MTPD), and Engineering Services Design and Construction (ESVC). The WMATA SCWG representatives are responsible for overseeing the MWAA certification effort on behalf of the WMATA Safety Certification Review Committee (SCRC). The WMATA project representatives will report MWAA certification progress and SCWG activities to their respective departments and to the SCRC. The representatives are also responsible for notifying the SCRC of any problems or concerns, recommending approval of certification program products, and remedial actions (if any) to resolve certification program issues that arise. The representatives are also responsible for recommending entry into the Pre-Revenue phase of the Project, when formally notified by MWAA that the Project is ready to enter this phase.

4.5 WMATA Safety/Security Certification Review Committee (SCRC)

The SCRC is responsible for managing the review, evaluation,and determination of the acceptability of those MWAA approved certification products transmitted to WMATA.

The SCRC is the management policymaking body formed to assure that major bus and rail capital projects are operationally safe for revenue service. The SCRC activities include:

- Facilitating the identification and review of safety and security requirements for major capital projects;
- Ensuring that the identified safety and security requirements for a project have been incorporated into Safety and Security Certifiable Items Lists {SCILs);
- Tracking, evaluating, and resolving hazard and security vulnerabilities issues and concerns identified during the safety and security certification process;
- Resolving issues of verification documentation discrepancies and incompleteness (evidence of compliance with safety and security requirements);
- Issuing Certifications of Compliance for certifiable elements (facilities, systems, and operational elements)
- Reviewing and approving safety and security certification reports
- Providing recommendations to the ESC regarding the certification of projects

For the Dulles Rail Projects the SCRC consists of the following departments:

- Chief Safety Officer (Designee)
- SCWG SAFE Representative
- SCWG MTPD Representative
- SCWG EVSC Representative

- Chief Engineer (Designee)
- Director, Major Capital Projects
- Deputy Chief Metro Transit Police
- Managing Director, Rail Transportation
- General Superintendent -Track Structures & Systems
- General Superintendent - Car Maintenance
- Director, Plant Maintenance
- Director, Elevator and Escalator
- Chief, Network & Communication

The SCRC is led by the Chief Safety Officer (CSO). The CSO is responsible for establishing SCRC agendas, preparing SCRC minutes, and tracking safety and security issues and concerns to closure.

5 PROCEDURE

5.1 MWAA

After approval by MWAA, the DTP Project Safety and Security Certification Program deliverables will be formally submitted to WMATA for review, evaluation, and acceptance.

5.2 SCRC Review and Acceptance

5.2.1 Safety/Security Certifiable Items List

The initial SCIL developed by MWAA's D/B Contractor (DTP), will be reviewed for completeness, ensuring all safety and security critical items have been included. As the project progresses, the SCIL will be reviewed at least quarterly to assure it remains current. Newly identified certifiable items will be submitted for consideration to MWAA through the SCWG as applicable.

5.2.2 Conformance Checklists

MWAA's D/B Contractor (DTP) is responsible for the development and completion of the conformance checklists, from the design phase through the integrated test phase, for each of the line segments. The WMATA Manual of Design Criteria – Release 6 is being used as the basis for the safety and security requirements.

The Conformance Checklists for each of the line segments will be reviewed for completeness and for continuity as the Project progresses from the design phase, to the construction/installation phase, to the integrated test phase. The SCRC will assure that:

- Relevant safety and security requirements have been incorporated into the checklists
- Verification documentation has been clearly identified
- Certifiable items with the status "open" are tracked to closure

Additional requirements may need to be imposed as new hazards or security vulnerabilities are

identified. In addition, the SCRC will recommend to MWAA additional safety/security requirements, as needed, to adequately control the newly identified hazards/vulnerabilities.

At each SCRC meeting, the WMATA SCWG representatives will provide the SCRC with a status update of each certifiable item on the conformance checklists, including problems or concerns. The SCRC may recommend remedial actions to MWAA, as appropriate.

5.2.3 Segment Safety and Security Certification Report

Upon completion of the conformance checklist for a segment, MWAA will forward an approved Safety and Security Certification Report for the segment.

The report will outline the certification process that was implemented throughout the design, construction, testing, and integrated test phases, including:

- Design Conformance
- Construction/Installation Testing and Inspection
- Systems Testing & Integration Testing
- Hazard and Vulnerability Identification and Resolution Verification

The SCRC will consider the evidence provided in the report and information provided by the WMATA SCWG representatives in reviewing the report. The SCRC will not formally accept these interim reports, but will forward comments, as appropriate. Additionally, the SCRC may recommend appropriate work-around or other temporary measures for those certifiable items that have not been closed or completely resolved.

5.2.4 Final Safety and Security Certification Report

After all line segments have been completed, MWAA will submit an approved Final Safety and Security Certification Report for review and approval. The report will be a compilation of the segment reports and will include a final Close-out and Follow-up of Safety/Security Certifiable Items List. Acceptance of the final report will be based on the information provided in the report and audits of the MWAA certification program that were conducted throughout the course of the Project.

5.2.5 Dispute Resolution

In the event agreement cannot be reached between MWAA and WMATA, the matter will be resolved using the dispute resolution process outlined in the Cooperative Agreement.

6 RECORDS

6.1 SCRC Minutes

SCRC meeting minutes as they pertain to the Dulles Corridor Metrorail Project will be kept as part of the permanent Project record.

6.2 MWAA Safety and Security Certification Report

A Final Project Safety and Security Certification Report, detailing the entire certification effort and safety/security issues for the Project, will be generated by WMATA. The MWAA approved Safety and

Security Certification Report will be included in the Project Final Safety and Security Certification Report.

7 REFERENCES

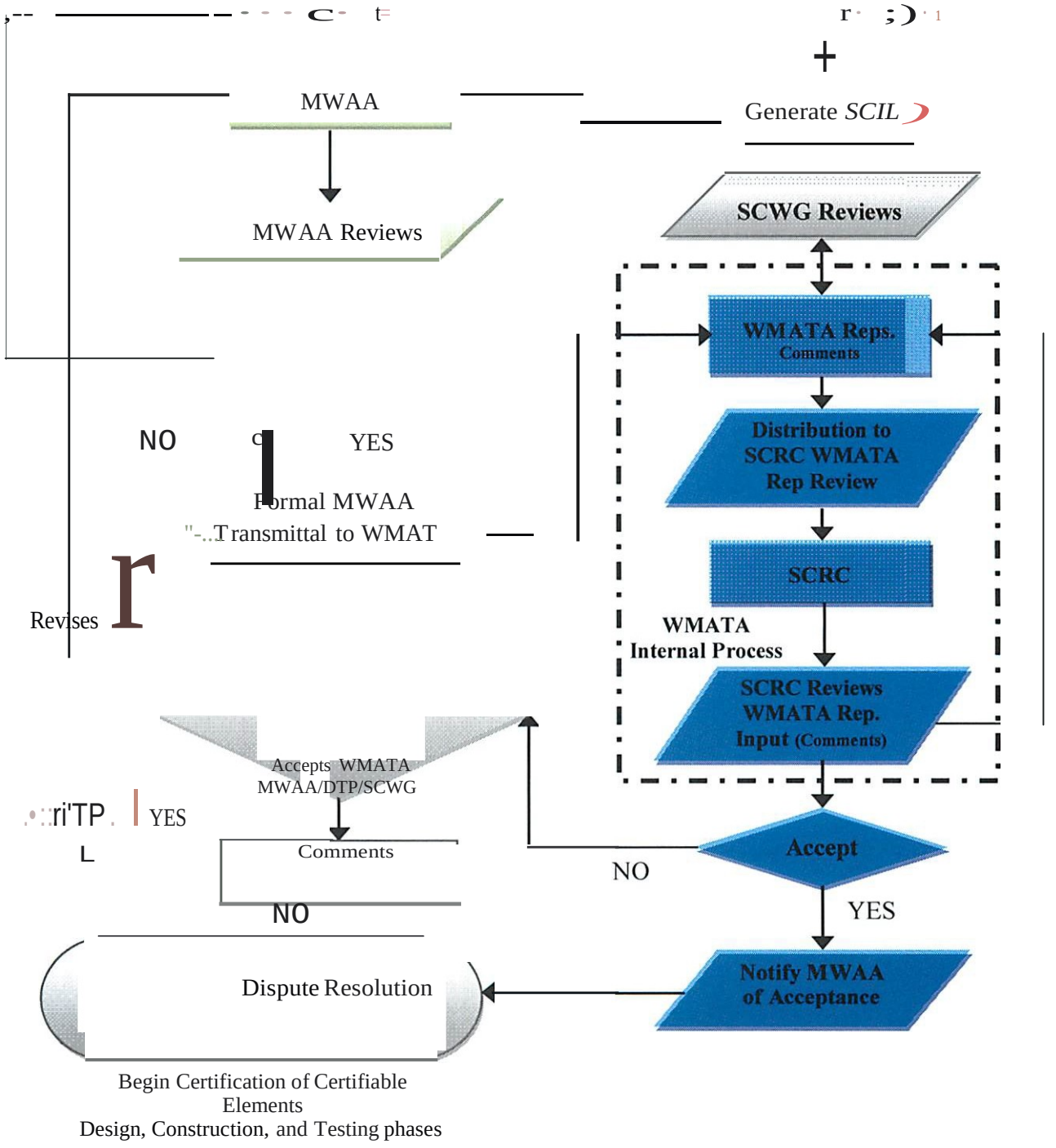
Appendix 1-Dulles Corridor Metrorail Project, WMATA Safety and Security Certification Program Plan

8 ATTACHMENT

8.1 Figure 1- SCIL - Review and Acceptance Process

PROCESS LEADING TO APPROVAL AND ACCEPTANCE OF SCIL
SAFETY CERTIFICATE AND SAFETY & SECURITY REPORT

Figure 1
SCIL REVIEW AND ACCEPTANCE PROCESS



Note: Review and acceptance of the developed SCIL is for each phase of the Project-Design, Construction, Testing

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
DULLES CORRIDOR METRORAIL PROJECT
PROJECT PROCEDURE

TITLE:	PROCEDURE NUMBER:
Procedure for Judgment Sam12ling (During the Process of Acceptance of Dulles Corridor Project SCILs)	PSS-02
	REVISION: 0 DATE: April 7, 2010
PREPARED BY: SCRC	APPROVED BY:

1 PURPOSE

The Metropolitan Washington Airports Authority (MWAA), the sponsor and FTA grantee for the Dulles Corridor Metrorail Project (Project), has contracted with Dulles Transit Partners (DTP) to design and construct all facilities and systems for the Project with the exception of those systems, equipment and revenue vehicles listed in Section 2.0 of this procedure. As part of the contract between MWAA and DTP, DTP is required to develop and implement a Safety and Security Certification Program for the Project based on the MWAA Safety and Security Management Plan (SSMP) and the WMATA Safety & Security Certification Program Plan, dated October 2007.

WMATA is not a party to the Design-Build Contract, but will be the eventual owner and operator of the extension. WMATA however, has a formal cooperative agreemen with MWAA that outlines specific activities to be completed prior to WMATA's acceptance of the extension for operational readiness testing. Among those requirements is MWAA's satisfactory execution of a Safety and Security Program for the Project.

The purpose of this procedure is to establish a judgmental sampling process; this procedure is not to replace the current practices, but rather to work in conjunction with and complement MWAA's random sampling process. By utilizing a judgmental sampling process, WMATA can be assured that all SCIL items deemed by the SCRC as "safety critical" have been properly verified.

2 SCOPE

This procedure applies to all Safety and Security Certifiable Items Lists (SCIL), their Conformance Checklists, and all facilities and systems designed, constructed, and tested by DTP under the direction and oversight of MWAA for the Project.

It is the intention of this procedure to create a selective and judgmental method of sampling on the DTP SCIL's completed items. The goal is to ensure that these selections are based upon the encompassing technical, safety and operational experience of WMATA and our industries best practices. It is important that the sampling method selected must be in compliance with the certification configuration process (See section 6.0).

This procedure is not applicable to those facilities and systems for which WMATA is solely responsible:

- Rail Passenger Vehicles
- Communication Backbone
- Rail Operations Center Upgrades
- Automatic Train Control
- Automatic Fare Collection
- Systems Graphics
- Art in Transit

These facilities and systems will be subject to the certification process as described in the WMATA Safety and Security Certification Program Plan October 2007, Dulles Appendix – 1 of the Plan and the Cooperative Agreement between WMATA / MWAA September 14, 2007.

3 DEFINITIONS & ACRONYMS

Safety-critical: a system (device, equipment, procedure) whose failure or malfunction may result in:

- Death or serious injury to people, or
- Loss or severe damage to equipment or
- Environmental harm.
- Risks of this sort are usually managed and mitigated by methods and tools of System Safety Engineering.

System Performance Demonstration: A series of tests to demonstrate the integration of the Project with WMATA's Adopted Regional System (ARS)

DTP: Dulles Transit Partners - the design-build contractor for the Dulles Corridor Metrorail Project

MWAA: Metropolitan Washington Airport Authority – the sponsor and FTA grantee for the Dulles Corridor Metrorail Project

Project: The Dulles Corridor Metrorail Project

SAFE: System Safety and Environmental Management

SCIL: Safety Certifiable Items list.

SCRC: Safety and Security Certification Review Committee; The WMATA committee responsible for overseeing the implementation of the WMATA Safety and Security Certification Program Plan.

SCWG: Dulles Corridor Metrorail Project Safety and Security Certification Working Group – The MWM committee responsible for the administration of the safety and security certification program for the Project.

ESC: Executive Safety Committee

4 RESPONSIBILITIES

4.1 MWAA

MWM has developed and issued a Safety and Security Management Plan for the Project, which requires the development and implementation of a safety and security certification program for the Project. MWM is responsible for approving the deliverables of the DTP Safety and Security Program, including the Safety Certifiable Items List (SCIL), the conformance checklists for the design, construction, testing, and integrated test phases of the Project, and the program certification reports. MWM is also responsible for assuring that all documentation that demonstrates conformance with the safety and security requirements for the Project is available. To facilitate the verification of the SCIL Items, MWM has established a random sampling process. MWM will approve or decline the SCIL's verified samples. If approved, the approved batch of verified items will be submitted to WMATA for review and determination of acceptability. If WMATA decides after the review of the submitted MWAA sample, that it does not include safety items that are deemed important to WMATA safety/staff, then by using this random sampling procedure WMATA will select additional proposed items of that batch to be verified separately or incorporate them into MWM's existing verification process.

4.2 WMATA Safety/Security Certification Review Committee (SCRC)

The SCRC is a management and policy making body, it assures that the major bus and rail capital projects are operationally safe for revenue service. The SCRC is responsible for managing the review, evaluation, and determination of the acceptabi lity of those MWAA approved certification products transmitted to WMATA. The SCRC other activities include:

- Facilitating the identification and review of safety and security requirements for major capital projects;
- Ensuring that the identified safety and security requirements for a project have been incorporated into Safety and Security Certifiable Items Lists (SCIL);
- Tracking, evaluating, and resolving hazard and security vulnerability issues and concerns identified during the safety and security certification process
- Resolving issues of verification documentation discrepancies and incompleteness (evidence of compliance with safety and security requirements);

- Issuing Certificates of Compliance for certifiable elements (facilities, systems, and operational elements)
- Reviewing and approving safety and security certification reports
- Providing recommendations to the ESC regarding the certification of projects

For the Dulles Corridor Metrorail Projects the SCRC consists of the following representatives:

- Chief Safety Officer or designee
- SCWG SAFE Representative
- SCWG MTPD Representative
- SCWG ESVC Representative
- Chief Engineer ESVC
- Director, Major Capital Projects
- Deputy Chief Metro Transit Police
- Managing Director, Rail Transportation
- Managing Director, ESVC
- General Superintendent -Track Structures & Systems
- General Superintendent - Car Maintenance
- Director, Plant Maintenance
- Director, Elevator and Escalator
- Chief, Network & Communication

The SCRC is chaired by the Chief Safety Officer (CSO). The CSO is responsible for establishing SCRC agendas, preparing SCRC minutes, and tracking safety and security issues and concerns to closure.

The SCRC will review and evaluate submitted verified SCIL items from MWM. This includes their randomly selected completed items and items that have not been selected by MWM for verification (unselected items). SCIL unselected items will be evaluated to determine level of safety criticality. If the safety critical level of the completed items in the submitted batch has been determined to be significant, the WMATA selected items will be returned to MWM to be properly verified.

5 PROCEDURE

5.1 MWAA

MWAA receives verified SCIL items in batches from DTP. MWAA samples a batch of verified items in accordance with their random sampling procedure. All SCIL verified items will then be formally submitted to WMATA for review, evaluation, and acceptance. (Refer to figure 1on page 10 Of this document)

5.2 SCRC Review and Acceptance

5.2.1 Safety/Security Certifiable Items List

The initial SCIL developed by DTP is reviewed for completeness, ensuring all safety and security critical items have been included. As the project progresses, the SCIL is reviewed at least quarterly to assure it remains current. Additional WMATA- identified items for sampling will be submitted to MWAA for consideration as applicable.

5.2.2 Items Sampled

The SCRC will review and evaluate both MWAA's randomly selected and unselected SCIL Items (batch). Unselected items will be evaluated by the SCRC to determine their level of safety importance/criticality. WMATA will use a Judgment Sampling method,in which the selection of items is based on the auditor's (WMATA Safety Officer or SAFE designee) sound and seasoned judgment. The following steps are the three (3) basic criteria to determine which items are selected:

1. Value of items - A sufficient number of safety and security Items should be included to provide adequate audit coverage.
2. Relative risk - Items prone to error due to their nature or WMATA's operating experience, should be given special attention.
3. Representativeness - Besides value and risk considerations, the auditor should be satisfied that the sample provides breadth and coverage over all types of items in the population. If the safety critical level of any item reviewed has been determined to be significant, the SCRC members will submit the item to WMATA's assigned Safety Officer in charge of certification. From there, item/items will be returned to MWAA to be properly verified. WMATA has the option of further verification if deemed necessary by the SCRC.

6 Certification Configuration

The final completion date for Phase 1of the Dulles Corridor Extension Project contract is on or about 07/31/2013. WMATA will request that the last submittal of items for safety and security certification be timed to allow WMATA to provide notification of acceptance of the Safety Certifiable Items List (SCIL) on or about 07/31/13.

The Final Dulles Safety and Security Certification will take the form of a book made up of the following chapters:

1. SCIL approved and accepted by WMATA for work designed and constructed by DTP. This chapter will include records of WMATA's SCIL samples, SCWG/SCRC meeting minutes and all related correspondence to the SCIL;
2. DTP's Safety/Security Certificate and Final Safety/Security Certification Report
3. MWAA'S acceptance of the DTP Certificate and Report and completed SCIL
4. Safety and Security Certification Review Committee (SCRC) approved SCIL for rail cars and non-revenue vehicles;
5. SCRC approved SCIL for the Communication Backbone;
6. SCRC approved SCIL for the Rail Operations Center (ROCS) Upgrade;
7. SCRC approved SCIL for Automatic Fare Collection (AFC); and
8. SCRC approved SCIL for start-up planning and preparation during the 90 days prior to expected start of revenue operations.

Items 4 thru 7 are for contracts under WMATA control. Item 8 includes, but is not limited to, start-up training, emergency responder training and operational testing.

6.1 WMATA's Process:

1. Submittals of Safety and Security Certification packages will be distributed by Major Capital Projects (MCAP) personnel to the following WMATA offices (including non-members of the Safety Certification Review Committee (SCRC):
   - Safety (SAFE)
   - Major Capital Projects (MCAP)
   - Metro Transit Police Department (MTPD)
   - Elevator/Escalator (ELES)
   - Plant Maintenance (PLNT)
   - Rail Operations Delivery (RAIL)
   - Transit Infrastructure and Engineering Services (TIES)
   - Track Structures Systems Maintenance (TSSM)
   - Information Technology (IT)
   - Engineering Services (ESVC)
2. Members of the SCRC and WMATA designated offices that received System Safety Certification packages for review and comment, will submit their comments to Safety Officer in charge of certification prior to the next SCRC meeting. The Safety Officer in charge of certification will collect and consolidate comments from all internal departments and offices.

3. At a monthly SCRC meeting, comments generated on the submittal will be discussed and any differences will attempt to be reconciled.
4. If consensus cannot be reached, the disputed item(s) are referred to the Executive Safety Committee (ESC) for resolution.
5. After consensus is attained on the comments for any submittal, MCAP will transmit the comments to MWAA as a single consolidated list of WMATA comments (i.e. a unified front).

7 REFERENCES

Procedure for Process Leading to Acceptance of MWAA SCIL PSS-01

Appendix 1 – Dulles Corridor Metrorail Project, WMATA Safety and Security Certification Program Plan

WMATA / MWAA Cooperative Agreement

September 14, 2007

8 ATTACHMENT

8.1 Figure 1-SCIL-WMATA Judgment Sampling Review Process

Figure 1. SCIL-WMATA Judgment Sampling Review Process