Highway Attachment 18 – Caltrans Chief of Maintenance Memo

HWY18FH011

(17 pages)

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State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

Serious drought.
Help save water!

To: DEPUTY DISTRICT DIRECTORS
REGION MANAGERS
MTCE AREA SUPERINTENDENTS
MAINTENANCE

Date: July 31, 2015

File:

From: TONY TAVARES [redacted]
Chief
Division of Maintenance

Subject: **MAINTENANCE OF SAFETY DEVICES**

The Division of Maintenance needs to improve the maintenance of safety devices, especially guardrail end treatments. This includes tracking and documentation. The improved process will be incorporated into the Maintenance Manual.

The proper installation and/or repair of these devices is critical to the performance during an incident. If the installation is not correct per the manufacturer instructions and the standard plans, there is an increased chance that the device will not function as expected.

The following actions need to be followed for every repair or installation of a safety device. Safety devices include guard rails, guard rail end treatments, median barriers, crash cushions, and run away truck escape ramps.

Integrated Maintenance Management System (IMMS)

All safety device work orders in IMMS must be site/incident specific. IMMS Work Orders that capture work at multiple locations for multiple incidents are not allowed. Caltrans' ability to accurately capture costs for recovery purposes or identify problem locations is reduced when unrelated work over large areas and time frames are included in a single work order.

The Work Order Comments tab must be used to describe the extent of damage and the repairs performed. Comments must fully describe work and identify the type of safety device worked on.

Work on guardrail and guardrail end treatments require separate work orders, even if the work is a result of the same incident. There are different IMMS activities for these two items. The District Safety Devices Coordinator can be consulted if there is a question on the dividing point between guardrail and guardrail end treatments, or identification of device type. Work on non-breakaway guardrail anchors on the trailing end of a guardrail run should be included in the guardrail work order, not a separate end treatment work order.

Each end treatment or attenuator work order can have no more than one device on a repair work order, even if the same incident causes damage on more than one device. The production unit for end treatment or attenuator work is one per device, not by length of device.

Production units on guardrails or median barriers must be counted by the lineal foot. Do not double count on two sided guardrails or barriers. Comments on the work order should indicate if the guardrail or barrier is single or double sided.

Every effort needs to be made to identify the location as accurately as possible with the post mile location. If the device is identified in IMMS as an asset or appurtenance, charge the work order to that asset or appurtenance, not the roadway.

Other Documentation and Notification

Proprietary devices like guardrail end treatments and crash cushions have specific instructions from their respective manufacturers. An installation checklist is part of these instructions. Each individual device must have the manufacturer's checklist signed off by the crew supervisor, and superintendent or District Safety Devices Coordinator after each repair. Each device repaired or installed must have its own checklist.

The District Safety Devices Coordinator must be notified for every repair. This notification should be sent prior to closing the IMMS Work Order. The IMMS Work Order should not be closed until the District Safety Devices Coordinator has reviewed the location, or received a copy of the checklist and approved the work. The coordinator may inspect any repair. This notification must be by email and must include the IMMS Work Order number. Other information that needs to be included is: date/time, type of device, cause of damage, extent of damage, and description of repair and materials used.

A copy of the checklist must be forwarded to the District Safety Devices Coordinator. The checklist must be kept on file until the device is repaired or replaced, or until the records can be properly disposed. These checklists are available in the installation guides for these devices and on the manufacturers' websites. Contact the District Safety Devices Coordinator if these checklists are not readily available.

Quality Assurance/Quality Control

The crew supervisor and area superintendent or District Safety Devices Coordinator must verify each location. Name, title, and signature of each approving person must be on each checklist.

When guardrail repairs are completed, the end treatment(s) and end anchor(s) must be inspected for proper cable tension. This work is minor and can be included in the guardrail work order, unless the inspection shows additional needed repairs. In that case, a guardrail end treatment work order will be completed.

The district must annually inspect 10 percent of each of the safety devices in its inventory. All safety devices, in each district, will be inspected by qualified maintenance staff or traffic personnel to determine devices are compliant with standards in addition to the normal Level of Service (LOS) review. Copies of annual inspections must be forwarded to the District Safety Devices Coordinator. Recommendations for repairs or replacement will begin with the appropriate program. The manufacturer's checklist may be used as a guide for inspection on proprietary devices.

Training

Prior to repairing or installing attenuators and end treatments, the crew(s) will meet to discuss the work to be completed, particularly the specific details on the device to be repaired or installed. It is recommended that the manufacturer's installation manual and checklist be reviewed as part of this pre-job meeting. This pre job meeting must be documented on a tailgate safety meeting form, dated and signed by those in attendance.

All repairs on proprietary devices like end treatments and attenuators will be overseen by staff that has been trained by that manufacturer on the device. Training can be coordinated by the district Safety Devices Coordinator, the Division of Traffic Operations, or the Division of Maintenance. Some training may be conducted on an informal basis by the device manufacturers, and will not be tracked in the Learning Management System (LMS). If the training is not documented in LMS, the crew supervisor shall keep records that detail the time and date of the training, who received the training, who gave the training, and what devices were reviewed during the training. A copy of these records shall also be given to the area superintendent.

The Division of Maintenance is developing a training course that will be required for all maintenance personnel that supervise work on safety devices, including superintendents and managers. This will be a formal training course tracked in LMS.

Material on Hand

Every maintenance region is required to have a minimum of two of every type (or variation) of end treatment and crash cushion that is installed within its boundaries. The Region Manager should make the determination to have more on hand if the frequency of repair for that type of device is high.

The Division of Maintenance will work with the Division of Procurement and Contracts to ensure that all devices can be acquired when needed. The Division of Maintenance will work with the Division of Traffic Operations to consolidate the list of approved items.

Response

Timely repairs are critical for the acceptable performance of safety devices. Managers, superintendents, and supervisors should note the changes in the Maintenance Manual, Volume 2 for the priority codes for guardrail, guardrail end treatments, and median barrier repairs (see attachment 1).

The local maintenance crew or district (or region) guardrail crew must respond immediately to all accident or vehicle collisions that involve any safety device. The California Highway Patrol (CHP), local law enforcement, or local emergency response agency are not qualified to assess damage to safety devices.

For those items that have a response time of one week (priority code 1 1W), the crew supervisor must notify the area superintendent within two business days if the crew is not able to initiate permanent repairs within the one-week time frame. For those items that have a response time of one month (priority code 2 1M), the crew supervisor must notify the area superintendent within one week if the crew is not able to initiate permanent repairs within the one-month time frame. This will allow time to arrange for an on-call contract to initiate repairs within the appropriate time frames.

The CHP, local law enforcement, or local emergency response agency must notify Caltrans of any accident involving a guardrail, median barrier, or crash cushion, no matter how trivial the damage appears to them. What seems like minor damage may actually affect the performance of the device during the next incident.

Timely response to safety device repairs may require changes to lane closure practices. The Division of Maintenance will work with the Division of Traffic Operations to revise lane closure policies to allow for appropriate response times for safety device repairs. The use of emergency lane closure procedures need to be considered in order to initiate repairs in a timely manner.

On-Call Contract

All districts must have an on-call contract(s) in place to be able to repair guardrails, guardrail end treatments, median barriers, and crash cushions. These contracts will augment Caltrans forces so that necessary repairs are initiated and completed within the prescribed times in the Maintenance Manual. The Division of Maintenance will have templates for these contracts. The contracts must be comprehensive and include all necessary labor, parts, and traffic control. Existing contracts should be amended to include all devices.

Documentation for service contract work is identical to the documentation for work performed by state forces. A check list for each end treatment repaired/replaced must be completed at the time of work by the contractor and the superintendent or contract manager. A copy of each check list must be forwarded to the district Safety Devices Coordinator. All sites must be inspected after work is complete. Inspections on service contract work must be charged in IMMS on the

appropriate repair activity. Work orders for inspections must be site and incident specific, with separate work orders for end treatments and the rest of the guardrail run.
If there are any questions, or if you need clarification or additional information regarding safety devices, please contact Rick Aaron, Office of Roadway Maintenance, at 916-651-9302 or by email at rick.aaron@dot.ca.gov.

Attachment
Maintenance Manual Volume II, M Family, M60010 – Repair/Replace Guardrails

c: Tom Hallenbeck, Division Chief, Division of Traffic Operations
Duper Tong, Chief, Office of Traffic Engineering, Division of Traffic Operations
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M60010 – REPAIR/REPLACE GUARDRAILS

Purpose

Charge to this Activity for work performed on guardrail for the purpose of restoring the guardrail to full service. This Activity is for all types of guardrail, metal beam, concrete, or other.

Work includes, but is not limited to: initial visit to determine nature of work, removal and installation of rail posts, raising guardrail to conform to pavement grade, checking/tightening guard rail bolts/hardware, setting of forms for concrete guardrail repair
Call USA prior to using power tools to install rail posts

Includes necessary traffic control
Traffic control hours should be charged on the Additional Tab of the Work Order under Production Units and Support Activities when charging to this Activity.

Do not use this Activity when working for others.
Do not use this Activity for the repair of end treatments or transitions (see M61010).
Do not use this Activity for the Installation of new runs of guardrail or upgrade end treatments as a result of a Day Labor work request.
Refer to Y Family, work for others.

Special Requirements

Note: Circumstances may require a field supervisor or manager to select a Maintenance Type or Priority Code other than shown below. Refer to Appendix 1 for a complete listing and description of available Maintenance Types and Priority Codes.

Report all guardrail maintenance activity in the job to one work order.
All work orders must be site/incident specific. Close the work order when repairs for that location/incident are completed.

Work Order Comments ~~should~~ must include:

Extent of damage
Repairs performed
-USA ticket numbers by date called.

Maintenance Type:
SAFE – "SAFETY"

Priority Code:
0 IM "IMMEDIATE"
5 FS "PER MASTER SCHEDULE"

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M60010 – Continued

TASK DESCRIPTION	MAINTENANCE TYPE	PRIORITY CODE
Temporary repairs of damaged guardrails to reduce or eliminate obvious hazards	SAFE – "SAFETY"	0 IM "IMMEDIATE"
Permanent repairs to guardrails	SAFE – "SAFETY"	2 1M "WITHIN ONE MONTH"

E-FIS Project: 0000000267
E-FIS Sub Object: 036
E-FIS Reporting Code: N/A

Production Unit: FT
Production Unit Calculation: Linear Feet
Charge one production unit per ft of guardrail repaired or replaced, may have more than one production unit per Work Order.
Removal and replacement count as one. Do not count number of rails. Do not count number of rail posts. Do not count number of calls to USA.

M61010 – REPAIR/REPLACE GUARDRAIL END TREATMENTS

Purpose

Charge to this Activity for work performed on end treatments for the purpose of restoring the guardrail end treatments to full service. This Activity is for end treatments for all guardrail installations including metal beam, concrete, and other types. Repairs on transitions from guardrail to fixed objects are also included in this Activity.

Work includes, but is not limited to: initial visit to determine nature of work, removal and installation of rail posts, raising end treatment to conform to pavement grade, checking/tightening bolts/hardware.
Call USA prior to using power tools to install posts.

Includes necessary traffic control
Traffic control hours should be charged on the Additional Tab of the Work Order under Production Units and Support Activities when charging to this Activity.

Do not use this Activity when working for others.
Do not use this Activity to install new end treatments, or upgrade end treatments as a result of a Day Labor work request.
Refer to Y Family, work for others.

Special Requirements

Note: Circumstances may require a field supervisor or manager to select a Maintenance Type or Priority Code other than shown below. Refer to Appendix 1 for a complete listing and description of available Maintenance Types and Priority Codes.

Report all guardrail end treatment maintenance activity in the job to one Work Order.
All work orders must be site/incident specific. Close the work order when repairs for that location/incident are completed.

Work Order Comments must include:
Extent of damage
Repairs performed
Type of device (manufacturer model or device family)
USA ticket numbers by date called.
~~Note in Work Order Comments USA ticket numbers by date called.~~

Maintenance Type:
SAFE – "SAFETY"

Priority Code:
0 IM "IMMEDIATE"
2 1M "WITHIN ONE MONTH"

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TASK DESCRIPTION	MAINTENANCE TYPE	PRIORITY CODE
Temporary repairs of damaged end terminals to reduce or eliminate obvious hazards	SAFE – "SAFETY"	0 IM "IMMEDIATE"
Permanent repairs to end terminals	SAFE – "SAFETY"	1 1W "WITHIN ONE WEEK"~~2 1M "WITHIN~~

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M61010 – Continued

E-FIS Project: 0000000267
E-FIS Sub Object: 036
E-FIS Reporting Code: N/A

Production Unit: EA
Production Unit Calculation: Each
Charge one production unit per end treatment repaired or replaced, may not have more than one production unit per Work Order. Multiple end treatment repairs for the same incident require separate work orders. Removal and replacement count as one. Do not count number of rails. Do not count number of rail posts. Do not count number of calls to USA.

M70010 - REPAIR/REPLACE BARRIERS

Purpose

Charge to this Activity for work performed on barriers for the purpose of restoring the barrier to full service. This Activity is for all types of barriers including: metal beam, concrete, thrie beam, and other types.

Work includes but is not limited to: initial visit to determine nature of work, setup temporary signs if needed, removal and installation of posts, raising barrier to conform to pavement grade, checking/tightening hardware, setting of forms for concrete repair.
Call USA prior to using power tools to install posts

Includes necessary traffic control
Traffic control hours should be charged on the Additional Tab of the Work Order under Production Units and Support Activities when charging to this Activity.

Do not use this Activity when working for others.
Refer to Y Family, work for others.

Special Requirements

Note: Circumstances may require a field supervisor or manager to select a Maintenance Type or Priority Code other than shown below. Refer to Appendix 1 for a complete listing and description of available Maintenance Types and Priority Codes.

All work orders must be site/incident specific. Close the work order when repairs for that location/incident are completed.

Work Order Comments must include:
Extent of damage
Repairs performed
USA ticket numbers by date called.

Maintenance Type:
SAFE – "SAFETY"
SERV – "SERVICE"

Priority Code:
0 IM "IMMEDIATE"
1 1W "WITHIN ONE WEEK"
2 1M "WITHIN ONE MONTH"
5 FS "PER MASTER SCHEDULE"

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M70010 – CONTINUED

TASK DESCRIPTION	MAINTENANCE TYPE	PRIORITY CODE
Temporary repairs of damaged barrier to reduce or eliminate obvious hazards	SAFE – "SAFETY"	0 IM "IMMEDIATE"
Erect toppled precast concrete barrier Temporary repairs to damaged cable barrier (Next day if feasible)	SAFE – "SAFETY"	1 1W "WITHIN ONE WEEK"
Repair broken concrete barrier which has suffered major or significant damage (Within 2 weeks if feasible) Re-align rail sections (Pre-cast concrete barrier)	SAFE – "SAFETY"	2 1M "WITHIN ONE MONTH"
Permanent repairs to thrie beam barriers	SAFE – "SAFETY"	2 1M "WITHIN ONE MONTH"
Patch minor spalls and nicks (Concrete barrier)	SERV – "SERVICE"	5 FS "PER MASTER SCHEDULE"

E-FIS Project: 0000000270
E-FIS Sub Object: 036
E-FIS Reporting Code: N/A

Production Unit: FT
Production Unit Calculation: Linear feet
Charge one production unit per ft of barrier repaired or replaced, may have more than one production unit per Work Order. Removal and replacement count as one.
Do not count number of calls to USA.

These IMMS Project Codes should be used to define the types of barrier being worked on or installed in IMMS. The definition of each code is as follows:

METAL B	For use with any Metal "W" Beam Barrier related work except Thrie Beam.
THRIE B	For use with any Thrie Beam Barrier related work.
K-RAIL	For use with any K-Rail Barrier related work.
CONCRETE	For use with any Concrete Barrier related work.
CABLE B	For use with any Cable Barrier related work.

Report all barrier maintenance activity in the job to one Work Order.
Work Order Comments should include
USA ticket numbers by date called.

M80010 – REPAIR/REPLACE ATTENUATOR

Purpose
Charge to this Activity for work performed on attenuators, for the purpose of restoring to full service.

Work includes, but is not limited to: initial visit to determine nature of work, removal and replacement of complete attenuator systems, removal and replacement of sacrificial components of attenuator systems, checking/tightening bolts/hardware.
Call USA prior to installation if sub-surface groundwork is involved.
Includes necessary traffic control
Traffic control hours should be charged on the Additional Tab of the Work Order under Production Units and Support Activities when charging to this Activity.

Do not use this Activity when working for others.
Do not use this Activity to install new attenuators, or upgrade attenuators as a result of a Day Labor work request.
Refer to Y Family, work for others.

Special Requirements
Note: Circumstances may require a field supervisor or manager to select a Maintenance Type or Priority Code other than shown below. Refer to Appendix 1 for a complete listing and description of available Maintenance Types and Priority Codes.

Report all attenuator maintenance activity in the job to one Work Order.
All work orders must be site/incident specific. Close the work order when repairs for that location/incident are completed.

Work Order Comments must include:
Extent of damage
Repairs performed
Type of device (manufacturer model or device family)
USA ticket numbers by date called.
~~Work Order Comments should include~~
~~USA ticket numbers by date called.~~

Maintenance Type:
SAFE – "SAFETY"

Priority Code:
0 IM "IMMEDIATE"
1 1W "WITHIN ONE WEEK"

TASK DESCRIPTION	MAINTENANCE TYPE	PRIORITY CODE
Remove damaged crash cushions, spilled sand and other debris	SAFE – "SAFETY"	0 IM "IMMEDIATE"
Repair or replace damaged attenuators	SAFE – "SAFETY"	1 1W "WITHIN ONE WEEK"

M80010 – CONTINUED

E-FIS Project: 0000000273
E-FIS Sub Object: 036
E-FIS Reporting Code: N/A

Production Unit: EA
Production Unit Calculation: Each
Charge one production unit per attenuator repaired or replaced, may not have more than one production unit per Work Order. Multiple attenuator repairs for the same incident require separate work orders. Removal and replacement count as one. Do not count number of calls to USA.