

1.1 INTRODUCTION

Each maintenance manager from the Director of Maintenance to the Assistant Foreman is expected to provide quality maintenance and economic utilization of personnel, equipment and materials.

This manual describes those parts of the system involving work reports, activity method and procedures, and work productivity.

1.2 WORK REPORTING

The Foreman reports work completed by his crew on his daily payroll. Production, material usage and payroll data will be recorded in the SAP work order.

This manual includes several procedures that should be thoroughly understood by every Foreman.

1. Work activities are grouped into major programs which include similar maintenance operations or functions. Examples of work programs are roads, shoulders, snow and ice control, etc.
2. It is important that the work your crew performs be charged to the correct work program (Work Activity Method)
3. The majority of maintenance work activities can be planned and can be reasonably measured. When you perform these work activities you are to report the number of units completed (productivity).
4. The Employee Daily Time Report is used for both payroll and production reporting purposes and must be completed daily.

1.3 PLANNING & SCHEDULING

There are limits to the number of personnel and pieces of equipment available to the Maintenance Department. One of the keys to improving utilization of men and equipment is by planning & scheduling. This involves thinking about work in advance, planning and scheduling:

- Decide what needs to be done
- Decide what it will take in terms of personnel, equipment and materials
- Decide when it is to be accomplished

It is generally recognized that a large portion of highway maintenance work can be anticipated, planned and scheduled.

- Planning – Long Term Planning (LTP)
- Specific Needs Identified – Notifications
- Scheduling – Work Orders & Capacity Leveling
- Work Reporting – Daily Payroll & Production Units
- Review – Quality Assurance

1.4 PRODUCTION STANDARDS

Production standards have been developed for the majority of work activities, which you will be performing. A complete set of these standards has been included in this manual. You should carefully review the standards for your assigned work and you should fully understand what is expected from you and your crew.

Production standards are designed to help you do this by answering the following questions:

1. What is an adequate job of maintenance?
2. Under normal circumstances, what size crew can best handle the job?
3. What is usually the most efficient method for performing each job?
4. Under normal circumstances, how much work should be accomplished using the standard method and crew size?

Do only what needs to be done and do it the most efficient way possible.

Deviation from a production standard is expected when situations such as the following exist:

1. Emergency conditions requiring immediate attention exist and personnel are not available to work in accordance with production standards.
2. You have been asked to try a new method and procedure.
3. Conditions surrounding the job are not typical and require a special approach.

However, keep in mind that to deviate from an established production standard without good reason usually results in varying/unacceptable:

- Levels of service

- Staffing costs
- Productivity

When any one of these conditions occur, it indicates that the job is not being done in accordance with PTC standards. Make sure you do your part by using the production standards that have been developed. Ask for help from your District Maintenance Operations Manager or Superintendent if you don't understand a particular standard.

We are striving to improve maintenance operations through the development of new **Methods & Procedures** . We expect that many of the new ideas will come from you. As you discover a better way to do things, let your District Maintenance Operations Manager or Superintendent know so it can be evaluated and considered for systemwide application.

1.5 PAYROLL OVERVIEW

The payroll entry function furnishes information describing the daily production of a work crew. It identifies:

- Projects being performed
- Composition of the crew
- Hours worked and leave taken
- Work accomplished
- Equipment usage (Department & Rental)
- Material usage (Rental Equipment included) – Obtained directly from the Foreman into SAP.

1.6 MPT CONSIDERATIONS

- All static patterns are required to include a speed limit trailer as per the MPT standards.
- All patterns are required to include a HAAS device in the first piece of equipment that traffic approaches in the pattern.
- All patterns are required to include the 55 mph speed display sign on an attenuator truck.
- All patterns are to have a copy of the PTS Booklet and excel sheet as per QA requirements within the pattern.
- ATMS – Supervision is responsible for entering the beginning and ending mileposts at the beginning of the work day.

Work Activity No.	Table of Contents - Work Activities & Descriptions	Page
	RDY-PTCH 1000 - PATCHING	11
1005	PTCH – Bituminous Road Manual Patching	12
1010	PTCH – Bituminous & Concrete Road Spray Patch	15
1015	PTCH – Bituminous Road Spot Milling	17
1020	PTCH – Bituminous Road Base/Subbase Repair, Flexible Base	19
1025	PTCH – Bituminous Road Base/Subbase Repair, Rigid Base, Concrete	22
1030	PTCH – Rigid Pavement Road, Concrete, Spall Repair	25
	RDY-SLNG 1200 - SEALING	28
1205	SLNG – Bituminous Road, Sealing	29
1210	SLNG – Concrete Road, Sealing	31
	RDY-SHLD 1400 - SHOULDER WORK	33
1405	SHLD – Stabilization	34
1410	SHLD – Paved, Manual Patching	36
1415	SHLD – Paved, Surface Treatment, Liquid Bituminous	39
1420	SHLD – Paved, Skin Patch, Liquid Bituminous	42
1425	SHLD – Paved, Base/Subbase Repair	45
1430	SHLD – Paved, Sealing, Bituminous Surface	48

Work Activity No.	Table of Contents - Work Activities & Descriptions	Page
	RDY-DRNG 1600 - DRAINAGE	50
1605	DRNG – Cleaning Inlets	51
1610	DRNG – Cleaning End Walls, Ditches, Channels & Swales	53
1615	DRNG – Cleaning Pipe & Culverts	56
1620	DRNG – Install Rock Lining	59
1625	DRNG – Replacement/Installation, Inlets/End Walls	61
1630	DRNG – Repair Only, Inlets/End Walls	63
1635	DRNG – Replacement/Installation, Pipe/Culverts	65
1640	DRNG – Replacement/Installation, Parallel Pipes	68
1645	DRNG – Replacement/Installation, Pipe Extension Only	70
1650	DRNG – Installation Subsurface Drains (U-Drains)	72
	RDY-PTRL 1800 - PATROL	74
1805	PTRL – Routine Patrols	75
1810	PTRL – Holiday & Special Events Patrol	76
1815	PTRL – Weather/Emergency Related Patrol (Non-Snow)	77
	RDY-RSTR 2000 - RESTORATION	78
2005	RSTR – Sidedozing	79
2010	RSTR – Gabions & Retaining Walls, Install/Repair	81
2015	RSTR – Damage and/or Disaster Restoration - Slides, Flooding, Washouts, Other	83
2020	RSTR – Graffiti Removal	85

Work Activity No.	Table of Contents - Work Activities & Descriptions	Page
	RDY-SNOW 2200 - SNOW	86
2205	SNOW – In-Storm Work	87
2210	SNOW – Non-Storm Work	89
2215	SNOW – Salt Brine Manufacture	90
2220	SNOW – Snow Fence Maintenance	91
	RDY-GRMD 2400 - ATTENUATOR/BARRIER/GUIDERAIL	92
2405	GRMD – Repair/Replace w/Beam	93
2410	GRMD – Concrete Barrier Repair/Replace	95
2415	GRMD – Impact Attenuator Device Repair	96
	RDY-TRFC 2600 - TRAFFIC SERVICES & SAFETY	97
2605	TRFC – MPT/Traffic Control & Safety	98
2610	TRFC – Plan X Detours	99
2615	TRFC – Sweeping	100
2620	TRFC – Incidental Services, Other	101
2625	TRFC – Maintenance Support Operations	102
	RDY-DLNT 2800 - DELINEATION	103
2805	DLNT – Delineation Repair/Replace	104
2810	DLNT – Repair/Replace Reflectorized Pavement Markers (RPM/SRPM)	105

Work Activity No.	Table of Contents - Work Activities & Descriptions	Page
	RDY-SGNS 3000 - SIGNS	106
3005	SGNS – Annual Sign Review	107
3010	SGNS – Replacement/Installation/Repair Permanent Signs	108
	RDY-LNPT 3200 - LINE PAINTING	109
3205	LNPT – Line Painting, Facilities	110
3210	LNPT – Line Painting, Gore Areas	111
3215	LNPT – Line Painting, Interchange Ramps	112
3220	LNPT – Line Painting, Mainline	113
3225	LNPT – Line Painting, Safety	114
3230	LNPT – Paint Line Eradication	115
3235	LNPT – Line Painting Machine Repair	116
3240	LNPT – Line Painting, Other	117
	RDY-VGTN 3400 - VEGETATION	118
3405	VGTN – Mowing, Boom Arm	119
3410	VGTN – Mowing, Facilities	120
3415	VGTN – Mowing, Interchanges	121
3420	VGTN – Mowing, Right of Way	122
3425	VGTN – Mowing, Turnpike Properties (Non-ROW)	124
3430	VGTN – Brushing, Selective Trimming, Tree Removal & Tree Trimming	125
3435	VGTN – Chemical Herbicide Program	128
3440	VGTN – Seeding, Soil Supplements & Mulch	130

Work Activity No.	Table of Contents - Work Activities & Descriptions	Page
	RDY-LTTR 3600 - LITTER REMOVAL	132
3605	LTTR – Daily Litter Pick-up & Debris Removal	133
3610	LTTR – Annual Right of Way Litter Pickup & Debris Removal	134
	RDY-BLDG 3800 - BUILDINGS GROUNDS AND SUPPORT	135
3805	BLDG – Interchange Cleaning Booths & Canopies	136
3810	BLDG – Maintenance of Access Roads	137
3815	BLDG – Maintenance of Buildings	138
3820	BLDG – Maintenance of Grounds	139
3825	BLDG – Maintenance of Gates & Security Fences	140
3830	BLDG – Maintenance of Tower Roads	141
3835	BLDG – Support of FEMO Activities	142
	RDY-TRNG 4000 - TRAINING	143
4005	TRNG – In-House Training	144
4010	TRNG – Outsource Training, No Vendor Cost	145
4015	TRNG – Outsource Training, Vendor Cost	146

Work Activity No.	Table of Contents - Work Activities & Descriptions	Page
	RDY-TNNL 4200 - TUNNEL	147
4205	TNNL – Barrier Repair/Replace	148
4210	TNNL – Drainage, Repair/Replace, Clean	149
4215	TNNL – Ice Removal	151
4220	TNNL – Washing	152
4225	TNNL – Other, Support	153
	RDY-BRDG 4400 - BRIDGE	154
4405	BRDG – Cleaning	155
4410	BRDG – Substructure Maintenance	157
4415	BRDG – Superstructure Maintenance	159
	RDY-MS4 4500 - MS4	161
4505	MS4 – Inspection Deficiency Corrected	162
4510	MS4 – Deficiency Corrected	163
4515	MS4 – Spills	164
4520	MS4 – Good housekeeping Miscellaneous & Other	165
	RDY-SWSM 4600 - STORM WATER SYSTEMS	167
4605	SWSM – Inspections	168
4610	SWSM – Storm Water BMP Maintenance (Best Management Practice)	169

**Work Activity
No**

Table of Contents - Work Activities & Descriptions

Page

RDY-FLTS 4800 - FLEET SUPPORT

171

4805 FLTS – Equipment Detailing & Cleaning 172

4810 FLTS – Equipment Seasonal Prep 173

4815 FLTS – Hauling Equipment (Lowboy) 174

RDY-ROWY 5200 - RIGHT OF WAY

175

5205 ROWY – Fence Repairs 176

RDY-ADMN 5400 - ADMINISTRATION / OTHER

177

5405 ADMN – Administrative Overhead 178

5410 ADMN – Complaints 179

5415 ADMN – Inventory Activity 180

5420 ADMN – Union Business 181

1000 – PATCHING

PTC Foreman Manual

Work Activity No	1005	Effective Date			
Work Activity	PTCH – Bituminous Road Manual Patching				
Work Activity Description Summary	<p>This activity includes all actions related to manual patching operations, such as, preparing (milling is included) and sweeping the hole, tacking, manually placing hot or cold bituminous patching material, and compaction on paved roads.</p> <p>All surface failures must be studied carefully before repair work is started. Determining and correcting causes of failure is the only way to make permanent repair.</p> <p>If hot mix is unavailable, cold patch can be used in the hot box in its place.</p> <p>A training package including video, slide and work booklet has been prepared for this Work Activity. All personnel should review training materials prior to start of work.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference Maintenance Field Guide for Erosion & Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 6.</p>				
Production Standard	To Be Determined (TBD)				
Production Unit	Tons	Production Unit/Hours	TBD Tons per man hour	Planning Units	Tons

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman or Asst. Foreman	1	Dump Truck	6-10	Street Broom	Hot Mix or Cold Patch	
EO T, EO 2, HMW	2	- Trailer	2	Flat Shovel	Tack Coat Oil	
EO 1, HMW	8-11	○ Roller (2 ½ or 6 Ton)	1	Jack Hammer	Joint Sealant	
		○ Bobcat w/milling attach	1	Lute/Blacktop Rake	Detack	
		- Joint Sealer	1	Hand Tamper	*Geotextile Fabric	
		- Asphalt Storage Unit	1	Plate Vibrator		
		- Arrowboard	1-2	Sprayer (Qty-2)		
		- Attenuator	1-3	Chalk Line/Marking Paint		
		- Message Board	0-3	Squeegee		
		- Speed Limit Trailer	1	Small Concrete Saw		
		- Light Plant	0-2			
		Sign Truck	1			
		Crew Cab (1 ton)	1			
		- Air Compressor	1			
		Pickup Truck w/Message Board	0-2			
<p>The number of employees and pieces of equipment can be adjusted based on field conditions. NOTE: The numbers shown above are for a nighttime two-lane closure which would be for the maximum number required.</p>						
Methods & Procedures						
<p>Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.</p>						
<p>The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.</p>						
<p>Marking – The Foreman or Assistant Foreman marks out the perimeter of the area to be patched with paint, keel or chalk line. Marking should be of a rectangular shape or within a minimum of angular corners. This aids in compaction and quality of the patch.</p>						
<p>Cutting – Crew member cuts out the area marked. All cuts should be made to minimize disturbance to area outside of the cut. All outside edges are to be share vertical edges.</p>						
<p>Cleaning – Remove all loose materials from the area by means of compressed air or broom.</p>						

<p>Tacking – Apply tack oil (hot mix only) to vertical edges and bottom of hole per supplier’s recommendations making sure uniform film and 100% coverage is attained. *The use of Geotextile fabrics after the tack coat is applied to deeper patches should be considered.</p>
<p>Filling – Material should be shoveled into hole to proper depth (maximum of 6” lifts), distributed and finished with lute and corners properly filled. As a guide, height of the uncompacted lift above the adjoining pavement should be ½ of the average pothole depth. For example, if the pothole is an average of 4 inches deep then the uncompacted depth of the lift should be 2 inches above the pavement or 6 inches for the total uncompacted depth. A good rule of thumb is 1 ½” uncompacted to 1” compacted.</p>
<p>Compaction – Thoroughly compact each lift with a vibratory plate or a 2 ½ - 6-ton static roller. On large patches pinch edges first. On smaller patches, make sure no material is on adjacent surfaces which may cause bridging.</p>
<p>Sealing – covered under Work Activity for crack sealing.</p>
<p>Clean Up – Properly clean up the area leaving no debris or litter. If necessary, restore pavement markings to existing conditions.</p>
<p>Depressions/Keyway – Establish the limits of the depression by stretching a string line over the area. Make the perimeter for a paving notch (minimum of 2 inches deep x 4 inches wide) around the full perimeter of the depression. Cut paving notch and proceed as above.</p>
<p>Concrete Roadway – When patching rigid pavement with bituminous material, it is not necessary to cut out the concrete. A tack coat is required when using hot mix and is not to be applied when placing cold mix except when cold mix is placed directly on a concrete surface. As a separate function, sealing of patch edges may be scheduled in combination with a joint sealing operation.</p>

PTC Foreman Manual

Work Activity No	1010	Effective Date			
Work Activity	PTCH – Bituminous and Concrete Road Spray Patch				
Work Activity Description Summary	<p>This activity includes all actions related to pothole repair spray patching operations such as removing weakened material, cleaning, and application of liquid bituminous and aggregate on bituminous and concrete roadway.</p> <p>This activity involves the use of a mechanized patching machine that mixes asphalt and aggregate and applies this mixture through a hose and wand.</p> <p>This activity is done by a moving pattern or traffic pace.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 6.</p>				
Production Standard					
Production Standard		To Be Determined (TBD)			
Production Unit					
Production Unit	Tons	Production Unit/Hours	TBD Tons per man hour	Planning Units	Tons

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman or Asst. Foreman	1	Dump Truck	2-6	Flat Shovel	Supplied by Contractor	
EO T, EO 2, HMW, EO 1	4-7	- Attenuator	1-2	Street Broom		
		- Arrowboard	1-2	5-Gallon Bucket		
		- Messageboard	0-3	Pick		
		Mechanized Spray Patcher (Rental w/Operator)	1	Digging Bar		
		Crewcab (1 ton)	1			
		Pickup Truck w/ Message Board	0-2			
The number of employees and pieces of equipment can be adjusted based on field conditions. NOTE: The numbers shown above are for a nighttime two-lane closure which would be for the maximum number required.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						
Cleaning – Remove all loose materials from the area by means of compressed air or broom.						
Filling – Fill hole with spray patch.						
Clean Up – Properly clean up the area leaving no debris or litter.						

PTC Foreman Manual

Work Activity No	1015		Effective Date		
Work Activity	PTCH – Bituminous Road Spot Milling				
Work Activity Description Summary	<p>This activity includes all actions related to spot pavement milling such as blow-up removal, loading material and clean up on paved surfaces.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 6.</p>				
Production Standard					
To Be Determined (TBD)					
Production Unit					
Production Unit	Tons	Production Unit/Hours	TBD Tons per man hour	Planning Units	Tons

PTC Foreman Manual

Work Activity Requirements

Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman or Asst. Foreman	1	Dump Truck	3-5	Street Broom		
EOT, EO 2, HMW	1	- Trailer	1	Flat Shovel		
EO 1, HMW	6	o Bobcat w/Milling attach	1	5-gallon Bucket		
		- Arrowboard	1			
		- Attenuator	1-2			
		- Message Board	0-3			
		- Speed Limit Trailer	1			
		Sign Truck	1			
		Pickup Truck w/ Message Board	0-1			

The number of employees and pieces of equipment can be adjusted based on field conditions. NOTE: The numbers shown above are for a nighttime two-lane closure which would be for the maximum number required.

Methods & Procedures

Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.

The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.

Clean Up – Properly clean up the area leaving no debris or litter. If necessary, restore pavement markings to existing conditions.

PTC Foreman Manual

Work Activity No	1020		Effective Date		
Work Activity	PTCH – Bituminous Road Base/Subbase Repair, Flexible Base				
Work Activity Description Summary	<p>This activity includes all actions related to base repair operations, such as removal of surface and base material, placing drains, bleeders and new material, and compaction on roads.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 6.</p>				
Production Standard	To Be Determined (TBD)				
Production Unit	Tons	Production Unit/Hours	TBD Tons per man hour	Planning Units	Tons

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman or Asst. Foreman	1	Dump Truck	4-13	Street Broom	Approved Bituminous Material	
EO T, EO 2, HMW	2	- Trailer	1 - 2	Flat Shovel	Underdrain pipe	
EO 1, HMW	7-13	o Roller	1	5-gallon Bucket	Geotextile Fabric	
		- Arrowboard	1-2	Hand Tamper	AASHTO #1 Aggregate	
		- Attenuator	1-3	Plate Vibrator	U-drain Outlet Protection	
		- Message Board	0-3	Jack Hammer	Red Flex Post	
		- Speed Limit Trailer	1	Concrete Saw	Tack Coat Oil	
		- Light Plant	0-2	Lute/Blacktop Rake	2A Subbase	
		- Asphalt Storage Unit	1	Tack Coat Sprayer	Line Marking Paint	
		Sign Truck	1	Chalk Line/Marking Paint	Glass Beads	
		Crew Cab (1-ton)	1	Paint Roller		
		- Air Compressor	1			
		Mini Excavator, Gradall, or Backhoe, Bobcat w/Milling attach	1			
		Pickup Truck w/ Message Board	0-2			
The number of employees and pieces of equipment can be adjusted based on field conditions. NOTE: The numbers shown above are for a nighttime two-lane closure which would be for the maximum number required.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

<p>The prime cause of base failures is lack of proper drainage and poor subgrade material. Alligatoring and/or deflection cracking are good indications of base failure.</p>
<p>Base failures usually occur in the spring or during extreme wet weather. Temperatures govern the use of plant mix material, thus during cold weather, a mixer paver can be used to mix a suitable base and surface course material.</p>
<p>Additional information on this activity can be obtained from Engineering – Construction.</p>
<p>Foreman marks areas to be cut. The patch must be square or rectangular with faces cut straight and vertical. The size of the patch extends at least one foot into good pavement outside the cracked area. Crew member, using a jack hammer with a wide chisel or concrete saw to cut out edges of the patch.</p>
<p>Equipment operator excavates all base and subbase material that has failed. Surface, subbase and subgrade material must be removed as deep as necessary to reach firm support. In areas where a water problem exists, some measure of drainage must be provided such as subgrade drains.</p>
<p>Crew replaces excavated material with #2A aggregate. Aggregate is placed in 6" lifts and compacted thoroughly with a wacker or roller. The depth of the new subbase should be equal or deeper than that of the existing base.</p>
<p>Crew places bituminous material in more than 6" lifts into excavated area. Compact material thoroughly. Care must be taken that lifts do not exceed 4" and proper compaction is obtained.</p>
<p>Crew replaces surface course using method described in activity manual patching. If surface area to be replaced is too large to be manually patched a mechanized patch should be placed.</p>
<p>Material should be shoveled into hole to proper depth (maximum of 6" lifts), distributed and finished with lute and corners properly filled. As a guide, height of the uncompacted lift above the adjoining pavement should be ½ of the average pothole depth. For example, if the pothole is an average of 4 inches deep then the uncompacted depth of the lift should be 2 inches above the pavement or 6 inches for the total uncompacted depth. A good rule of thumb is 1 ½" uncompacted to 1" compacted.</p>
<p>Clean Up – Properly clean up the area leaving no debris or litter. If necessary, restore pavement markings to existing conditions.</p>

PTC Foreman Manual

Work Activity No	1025	Effective Date			
Work Activity	PTCH – Bituminous Road Base/Subbase Repair, Rigid Base, Concrete				
Work Activity Description Summary	<p>This activity includes all actions related to base/subbase repair operations, such as removal of surface and base/subbase material, placing drains, bleeders and new material, and compaction on roads.</p> <p>When a temporary repair of a blowup is made with bituminous material on a rigid pavement charge this activity.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 6.</p>				
Production Standard	To Be Determined (TBD)				
Production Unit	Tons	Production Unit/Hours	TBD Tons per man hour	Planning Units	Tons

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman or Asst. Foreman	1	Dump Truck	4-12	Street Broom	Approved Bituminous Material	
EO T, EO 2, HMW	2	- Trailer	1 - 2	Flat Shovel	Underdrain pipe	
EO 1, HMW	8-13	o Roller	1	5-gallon Bucket	Geotextile Fabric	
		- Arrowboard	1-2	Hand Tamper	AASHTO #1 Aggregate	
		- Attenuator	1-3	Plate Vibrator	U-drain Outlet Protection	
		- Message Board	0-3	Jack Hammer	Red Flex Post	
		- Speed Limit Trailer	1	Concrete Saw	Tack Coat Oil	
		- Light Plant	0-2	Lute/Blacktop Rake	2A Subbase	
		- Asphalt Storage Unit	1	Tack Coat Sprayer	Line Marking Paint	
		Sign Truck	1	Chalk Line/Marking Paint	Glass Beads	
		Crew Cab (1-ton)	1	Paint Roller		
		- Air Compressor	1			
		Mini Excavator, Gradall w/ Hydraulic Hammer or Backhoe, Bobcat w/Milling attach,	1			
		Pickup Truck w/ Message Board	0-2			
The number of employees and pieces of equipment can be adjusted based on field conditions. NOTE: The numbers shown above are for a nighttime two-lane closure which would be for the maximum number required.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

<p>The prime cause of base failures is lack of proper drainage and poor subgrade material. Alligatoring and/or deflection cracking are good indications of base failure.</p>
<p>Base failures usually occur in the spring or during extreme wet weather. Temperatures govern the use of plant mix material, thus during cold weather, a mixer paver can be used to mix a suitable base and surface course material.</p>
<p>Additional information on this activity can be obtained from Engineering – Construction.</p>
<p>Foreman marks areas to be cut. The patch must be square or rectangular with faces cut straight and vertical. The size of the patch extends at least one foot into good pavement outside the cracked area. Crew member, using a jack hammer with a wide chisel or concrete saw to cut out edges of the patch.</p>
<p>Equipment operator excavates all base and subbase material that has failed. Surface, subbase and subgrade material must be removed as deep as necessary to reach firm support. In areas where a water problem exists, some measure of drainage must be provided such as subgrade drains.</p>
<p>Crew replaces excavated material with #2A aggregate. Aggregate is placed in 6" lifts and compacted thoroughly with a wacker or roller. The depth of the new subbase should be equal or deeper than that of the existing base.</p>
<p>Crew places bituminous material in more than 6" lifts into excavated area. Compact material thoroughly. Care must be taken that lifts do not exceed 4" and proper compaction is obtained.</p>
<p>Crew replaces surface course using method described in activity manual patching. If surface area to be replaced is too large to be manually patched a mechanized patch should be placed.</p>
<p>Material should be shoveled into hole to proper depth (maximum of 6" lifts), distributed and finished with lute and corners properly filled. As a guide, height of the uncompacted lift above the adjoining pavement should be ½ of the average pothole depth. For example, if the pothole is an average of 4 inches deep then the uncompacted depth of the lift should be 2 inches above the pavement or 6 inches for the total uncompacted depth. A good rule of thumb is 1 ½" uncompacted to 1" compacted.</p>
<p>Clean Up – Properly clean up the area leaving no debris or litter. If necessary, restore pavement markings to existing conditions.</p>

PTC Foreman Manual

Work Activity No	1030	Effective Date	
Work Activity	PTCH – Rigid Pavement Road, Concrete, Spall Repair		
Work Activity Description Summary	<p>This activity includes all actions related to the partial depth (spall repair) with concrete on rigid pavements.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 6.</p>		
Production Standard	To Be Determined (TBD)		
Production Unit	Tons	Production Unit/Hours	TBD Tons per man hour
		Planning Units	Tons

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman or Asst. Foreman	1	Dump Truck	4-9	Street Broom	Approved patching material	
EO T, EO 2, HMW	2	- Trailer	1	Flat Shovel	Water	
EO 1, HMW	8-11	o Concrete Saw	1	Jack Hammer	Bonding Agent	
		- Concrete Mixer	1	Float/Trowel	Burlap/Polyethylene Cover (Blanket)	
		- Arrowboard	1	Chalk Line/Marking Paint	Backer rod	
		- Attenuator	1-2	Small Concrete Saw	Sealant	
		- Message Board	0-3	Skill Saw	Plywood	
		- Speed Limit Trailer	1	Paint Roller	Line paint	
		- Light Plant	0-2		Glass Beads	
		Sign Truck	1			
		Crew Cab (1 ton)	1			
		- Air Compressor	1			
		Pickup Truck w/Message Board	0-2			
<p>The number of employees and pieces of equipment can be adjusted based on field conditions. NOTE: The numbers shown above are for a nighttime two-lane closure which would be for the maximum number required.</p>						
Methods & Procedures						
<p>Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.</p>						
<p>The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.</p>						
<p>Marking – The Foreman or Assistant Foreman marks out the perimeter of the area to be patched with paint, keel or chalk line. Marking should be of a rectangular shape or within a minimum of angular corners. This aids in compaction and quality of the patch. Sound test with hammer to adjacent areas of spalling to determine limits of deterioration. If spall spans the pavement joint, ensure proper protection of joint is achieved prior to placement of concrete.</p>						
<p>Cutting – Crew member cuts out the area marked. All cuts should be made to minimize disturbance to area outside of the cut. All outside edges are to be sharp vertical edges. Depth of cut should only be as deep as necessary to meet sound concrete.</p>						
<p>Cleaning – Remove all loose materials from the area by means of compressed air or broom.</p>						

Filling – Apply appropriate bonding agent for type of material being utilized for a spall. Mix and apply approved filling material and level. NOTE: If spall spans a joint, proper forming of the joint must occur prior to placement of new material. Once new material initially sets, form must be removed so the final backer rod and sealant can be applied.

Curing – Care should be taken to protect the finished concrete while curing, poly sheeting or water-soaked burlap should be placed on finished concrete for assistance in curing.

Clean Up – Properly clean up the area leaving no debris or litter. If necessary, restore pavement markings to existing conditions.

The number of employees and pieces of equipment can be adjusted based on field conditions.

1200 – SEALING

PTC Foreman Manual

Work Activity No	1205	Effective Date	
Work Activity	SLNG – Bituminous Road, Sealing		
Work Activity Description Summary	<p>This activity includes all actions related to crack sealing bituminous surfaces with pre-packaged material.</p> <p>This activity also includes cleaning of cracks, applying material, and squeegeeing on rigid or flexible base roads. The objective of this operation is to prevent more serious pavement distress such as base failures or potholes.</p> <p>Crack sealing should be performed when the pavement temperature is above 40 degrees. Ensure roadway around joint sealing area is dry and clean for proper adhesion.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference to PTC Maintenance Manual, Chapter 6.</p>		
Production Standard	4.0 Lane Miles		
Production Unit	Lane Miles	Production Unit/Hours	0.5 Lane miles per hour
		Planning Units	Lane Miles

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman or Asst. Foreman	1	Dump Truck	3-12	Squeegee	Joint Sealant	
EO T, EO 2, EO 1,	9-13	- Joint Sealer	1	Sprayer	Detack	
		- Arrowboard	1-2		Cleaning Solvents	
		- Attenuator	1-3			
		- Message Board	0-3			
		- Speed Limit Trailer	1			
		- Light Plant	0-2			
		Sign Truck	1			
		Crew Cab (1-ton)	0-2			
		Air Compressor	1			
		- Air Compressor	1			
		Pickup Truck w/ Message Board	0-2			
The number of employees and pieces of equipment can be adjusted based on field conditions. NOTE: The numbers shown above are for a nighttime two-lane closure which would be for the maximum number required.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	1210	Effective Date	
Work Activity	SLNG – Concrete Road, Sealing		
Work Activity Description Summary	<p>This activity includes all actions related to crack sealing of concrete surfaces with pre-packaged material. Sealing is not to be performed on concrete construction joints by Maintenance forces. The only exception is sealing the joint between a concrete roadway and a bituminous shoulder.</p> <p>This activity also includes cleaning of cracks, applying material, and squeegeeing on rigid base roads. The objective of this operation is to prevent more serious pavement distress such as base failures or potholes.</p> <p>Crack sealing should be performed when the pavement temperature is above 40 degrees. Ensure roadway around joint sealing area is dry and clean for proper adhesion.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 6.</p>		
Production Standard	4.0 Lane Miles		
Production Unit	Lane Miles	Production Unit/Hours	0.5 Lane miles per hour
		Planning Units	Lane Miles

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman or Asst. Foreman	1	Dump Truck	3-11	Squeegee	Joint Sealant	
EO T, EO 2, HMW, EO 1	9-13	- Joint Sealer	1	Sprayer	Detack	
		- Arrowboard	1-2		Cleaning Solvents	
		- Attenuator	1-3			
		- Message Board	0-3			
		- Speed Limit Trailer	1			
		- Light Plant	0-2			
		Sign Truck	1			
		Crew Cab (1-ton)	0-2			
		- Air Compressor	1			
		Pickup Truck w/ Message Board	0-2			
<p>The number of employees and pieces of equipment can be adjusted based on field conditions. NOTE: The numbers shown above are for a nighttime two-lane closure which would be for the maximum number required.</p>						
Methods & Procedures						
<p>Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.</p>						
<p>The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.</p>						

1400 – SHOULDER WORK

PTC Foreman Manual

Work Activity No	1405			Effective Date	
Work Activity	SHLD – Stabilization				
Work Activity Description Summary	<p>This activity includes all actions related to the application, shaping and compaction of stabilizing material over short sections behind shoulders, due to washouts or pavement edge drop offs at the inside of the curves or other locations.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 4.</p>				
Production Standard	To Be Determined (TBD)				
Production Unit	Tons	Production Unit/Hours	TBD Tons per man hour	Planning Units	Tons

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Classification	Qty.	Type
Foreman or Asst. Foreman	1	Dump Truck	4-9	Hand Tamper	Varies According to Job Requirements	
EO T, EO 2, HMW	1 - 2	- Arrowboard	1	Flat Shovel	Geotextile Fabric	
EO 1, HMW	6-8	- Attenuator	1-2	Rake		
		- Message Board	0-3	Whacker/Tamper	AASHTO #1	
		- Trailer	2	Plate Vibrator		
		○ Bobcat or Mini Excavator or Gradall or Backhoe	1			
		○ Roller	1			
		Sign Truck	1			
		Pickup Truck w/ Message Board	0-1			
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
Must ensure all digging equipment have a copy of the field guide for erosion and sediment control.						
Before performing any digging or hole drilling operations, you must request the area be check for utilities by submitting a request in the Utility Management Application.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						
All areas to be repaired are to be thoroughly inspected to determine the causes of the problem prior to the placement of material. When poor drainage is contributing to the loss of material, reestablish the shoulder grade line or install Geotextile.						
To repair the drop off or washout, end dump the required amount of material directly in low spot, using the tailgate chute where possible. Manually spread and shape as necessary. Use a steel wheel roller to thoroughly compact.						

PTC Foreman Manual

Work Activity No	1410	Effective Date			
Work Activity	SHLD – Paved, Manual Patching				
Work Activity Description Summary	<p>This activity includes all actions related to manual patching operations, such as, preparing (milling is included) and sweeping the hole, tacking, manually placing hot or cold bituminous patching material, and compaction on paved shoulders. All surface failures must be studied carefully before repair work is started. Determining and correcting causes of failure is the only way to make permanent repair.</p> <p>If hot mix is unavailable, cold patch can be used in the hot box in its place.</p> <p>A training package including video, slide and work booklet has been prepared for this Work Activity. All personnel should review training materials prior to start of work.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 4.</p>				
Production Standard	To Be Determined (TBD)				
Production Unit	Tons	Production Unit/Hours	TBD Tons per man hour	Planning Units	Tons

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Classification	Qty.	Type
Foreman or Asst. Foreman	1	Dump Truck	5-10	Street Broom	Hot Mix or Cold Patch	
EO T, EO 2, HMW	2	- Trailer	2	Flat Shovel	Tack Coat Oil	
EO 1, HMW	8-11	o Roller (2 ½ or 6 Ton)	1	Jack Hammer	Geotextile Fabric	
		o Bobcat w/milling attach	1	Lute/Blacktop Rake		
		- Asphalt Storage Unit	1	Hand Tamper		
		- Arrowboard	1	Plate Vibrator		
		- Attenuator	1-2	Tack Coat Sprayer		
		- Message Board	0-3	Chalk Line/Marking Paint		
		- Speed Limit Trailer	1	Small Concrete Saw		
		- Light Plant	0-2			
		Sign Truck	1			
		Crew Cab (1 ton)	1			
		- Air Compressor	1			
		Pickup Truck w/ Message Board	0-1			

The number of employees and pieces of equipment can be adjusted based on field conditions.

Methods & Procedures

Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.

The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.

Marking – The Foreman or Assistant Foreman marks out the perimeter of the area to be patched with paint, keel or chalk line. Marking should be of a rectangular shape or within a minimum of angular corners. This aids in compaction and quality of the patch.

Cutting – Crew member cuts out the area marked. All cuts should be made to minimize disturbance to area outside of the cut. All outside edges are to be share vertical edges.

Cleaning – Remove all loose materials from the area by means of compressed air or broom.

Tacking – Apply tack oil (hot mix only) to vertical edges and bottom of hole per suppliers’ recommendations making sure uniform film and 100 % coverage is attained. *The use of Geotextile fabrics after the tack coat is applied to deeper patches should be considered.

Filling – Material should be shoveled into hole to proper depth (maximum of 6" lifts), distributed and finished with lute and corners properly filled. As a guide, height of the uncompacted lift above the adjoining pavement should be ½ of the average pothole depth. For example, if the pothole is an average of 4 inches deep then the uncompacted depth of the lift should be 2 inches above the pavement or 6 inches for the total uncompacted depth. A good rule of thumb is 1 ½" uncompacted to 1" compacted.

Compaction – Thoroughly compact each lift with a vibratory plate or a 2 ½ - 6-ton static roller. On large patches pinch edges first. On smaller patches, make sure no material is on adjacent surfaces which may cause bridging.

Sealing – covered under **Work Activity No. 1430, Shld – Paved, Sealing, Bituminous Surface.**

Clean Up – Properly clean up the area leaving no debris or litter. If necessary, restore pavement markings to existing conditions.

Depressions/Keyway – Establish the limits of the depression by stretching a string line over the area. Make the perimeter for a paving notch (minimum of 2 inches deep x 4 inches wide) around the full perimeter of the depression. Cut paving notch and proceed as above.

Concrete Roadway – When patching rigid pavement with bituminous material, it is not necessary to cut out the concrete. A tack coat is required when using hot mix and is not to be applied when placing cold mix except when cold mix is placed directly on a concrete surface. As a separate function, sealing of patch edges may be scheduled in combination with a joint sealing operation.

PTC Foreman Manual

Work Activity No	1415	Effective Date	
Work Activity	SHLD – Paved, Surface Treatment, Liquid Bituminous		
Work Activity Description Summary	<p>This activity includes all actions related to liquid bituminous surface treatment operations such as sweeping, application of liquid bituminous material and cover aggregate, and compaction on paved shoulders and side approaches. The sweeping and cleaning of the shoulder prior to the surface treatment, as well as any incidental work after the treatment, such as cleaning up aggregate, reapplication of aggregate made necessary by bleeding, etc., should also be charged to this code.</p> <p>Surface treatment is the application of oil and coarse aggregate and rolling potentially followed by a second application of oil, fine aggregate and rolling. Seal coat is the single application of oil and fine aggregate. This standard applies to both Surface Treatment and Seal Coat.</p> <p>This standard is based on the bituminous tanker being located within two (2) miles of the work site, preferably near the midpoint of the daily work area and the aggregate stockpiled close by. This distance dictates the number of trucks that are required for hauling. If aggregate is hauled directly from quarry, it may influence number of trucks required.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 4.</p>		
Production Standard	To Be Determined (TBD)		
Production Unit	Gallons	Production Unit/Hours	TBD Gallons per man hour
			Planning Units
			Gallons

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Classification	Qty.	Type
Foreman or Asst. Foreman	1	Dump Truck	6-12	Street Broom	Liquid Bituminous	
EO T, EO 2, HMW	6-7	- Trailer	2-3	Flat Shovel	AASHTO #1B or #2 Aggregate	
EO 1, HMW	11-13	o Rubber Tired Roller (10-ton)	2	Chalk Line/Marking Paint	Line Marking Paint	
		o Steel Wheel Roller	0-1		Glass Beads	
		- Arrowboard	1			
		- Attenuator	1-2			
		- Message Board	0-3			
		- Speed Limit Trailer	1			
		- Light Plant	0-2			
		Sign Truck	1			
		Crew Cab (1 ton)	1			
		Oil Distributor Truck	1			
		Chip spreader	1			
		Self-Propelled Sweeper	1			
		Loader	1			
		Pickup Truck w/ Message Board	0-1			

The number of employees and pieces of equipment can be adjusted based on field conditions.

Methods & Procedures

Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.

The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.

The distributor operator transfers a load of bituminous material from the tanker. He then moves to the starting point for the day's work, sets height, width and nozzles or spray bar for the correct application width, adjusts pump pressure, if necessary, and sets tachometer for correct speed.

The chip spreader must also be set to correct width and rate of feed.

The roadway pavement must be free of all litter, debris, leaves, dried mud and soil, etc.

PTC Foreman Manual

The distributor puts down an application of hot bituminous material according to the Foreman's directions. Routinely, application rates vary from 0.30 to 0.40 gallons per square yards.

The chip spreader immediately follows the distributor and applies a layer of aggregate at a rate varying between 15-25 pounds per square yard.

The operation of hauling aggregate must now cycle trucks to keep the chip spreader working until the distributor is empty. An equipment operator and two crew members operate the spreader.

Immediately follow with appropriate roller to set aggregate into the bitumen. Steel wheel rollers are permissible on coarse aggregate application of surface treatment operations. Pneumatic tire rollers should be used on fine aggregate applications.

Work shall continue until the tankers are empty or the project(s) for the day are completed. It may be necessary to carry over some bituminous material in the distributor in order to empty the tanker. Such carry over material must be heated to application temperature before using the next day.

PTC Foreman Manual

Work Activity No	1420	Effective Date	
Work Activity	SHLD – Paved, Skin Patch, Liquid Bituminous		
Work Activity Description Summary	<p>This activity includes all actions related to mechanized liquid bituminous skin patching operations such as sweeping, application of liquid bituminous material using a distributor, spreading cover aggregate with a chipper and compaction on paved shoulders.</p> <p>This activity is done when the areas to be repaired are too extensive for manual skin patching, yet the condition of the shoulder does not warrant a complete liquid bituminous surface treatment. This restricts application of emulsions to air temperatures 60° F and above. Skin Patching during colder periods should be confined to manual skin patching only.</p> <p>Surface treatment is the application of oil and coarse aggregate and rolling potentially followed by a second application of oil, fine aggregate and rolling. Seal coat is the single application of oil and fine aggregate. This standard applies to both surface treatment and seal coat.</p> <p>This standard is based on the bituminous tanker being located within two (2) miles of the work site, preferably near the midpoint of the daily work area and the aggregate stockpiled close by. This distance dictates the number of trucks that are required for hauling. If aggregate is hauled directly from quarry, it may influence the number of trucks required.</p> <p>This Work Activity is typically a short-term stationary operation.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915. Reference PTC Maintenance Manual, Chapter 4.</p>		
Production Standard	To Be Determined (TBD)		
Production Unit	Gallons	Production Unit/Hours	TBD Gallons per man hour
		Planning Units	Gallons

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Classification	Qty.	Type
Foreman or Asst. Foreman	1	Dump Truck	5-10	Street Broom	Liquid Bituminous	
EO T, EO 2, HMW	4	- Trailer	1	Flat Shovel	AASHTO #1B or #2 Aggregate	
EO 1, HMW	9-12	o Rubber Tired Roller (10-ton)	1	Chalk Line/Marking Paint	Line Marking Paint	
		- Attenuator	1-2		Glass Beads	
		- Message Board	0-3			
		- Speed Limit Trailer	1			
		- Arrow board	1			
		- Light Plant	0-2			
		Sign Truck	1			
		Crew Cab (1 ton)	1			
		Oil Distributor Truck	1			
		Chip spreader	1			
		Self-Propelled Sweeper	1			
		Loader	1			
		Pickup Truck w/ Message Board	0-1			

The number of employees and pieces of equipment can be adjusted based on field conditions

Methods & Procedures

Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.

The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.

The distributor operator transfers a load of bituminous material from the tanker. He then moves to the starting point for the day's work, sets height, width and nozzles or spray bar for the correct application width, adjusts pump pressure, if necessary, and sets tachometer for correct speed.

The chip spreader must also be set to correct width and rate of feed.

The roadway pavement must be free of all litter, debris, leaves, dried mud and soil, etc.

The distributor puts down an application of hot bituminous material according to the Foreman's directions. Routinely, application rates vary from 0.30 to 0.40 gallons per square yards.

The chip spreader immediately follows the distributor and applies a layer of aggregate at a rate varying between 15-25 pounds per square yard.

The operation of hauling aggregate must now cycle trucks to keep the chip spreader working until the distributor is empty. An equipment operator and two crew members operate the spreader.

Immediately follow with appropriate roller to set aggregate into the bitumen. Steel Wheel Rollers are permissible on coarse aggregate application of Surface Treatment operations. Pneumatic tire rollers should be used on fine aggregate applications.

Work shall continue until the tankers are empty or the project(s) for the day are completed. It may be necessary to carry over some bituminous material in the distributor in order to empty the tanker. Such carry over material must be heated to application temperature before using the next day.

PTC Foreman Manual

Work Activity No	1425	Effective Date			
Work Activity	SHLD – Paved, Base/Subbase Repair				
Work Activity Description Summary	<p>This activity includes all actions related to base repair operations, such as removal of surface and base material, placing drains, bleeders and new material, and compaction on shoulders.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 4.</p>				
Production Standard					
	To Be Determined (TBD)				
Production Unit					
	Tons	Production Unit/Hours	TBD Tons per man hour	Planning Units	Tons

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Classification	Qty.	Type
Foreman or Asst. Foreman	1	Dump Truck	4-10	Street Broom	Approved Bituminous Material	
EO T, EO 2, HMW	2	- Trailer	1 - 2	Flat Shovel	Underdrain pipe	
EO 1, HMW	8-12	o Roller	1	5-gallon Bucket	Geotextile Fabric	
		- Arrowboard	1	Hand Tamper	AASHTO #1 Aggregate	
		- Attenuator	1-2	Plate Vibrator	U-drain Outlet Protection	
		- Message Board	0-3	Jack Hammer	Red Flex Post	
		- Speed Limit Trailer	1	Concrete Saw	Tack Coat Oil	
		- Asphalt Storage Unit	1	Lute/Blacktop Rake	2A Subbase Aggregate	
		- Light Plant	0-2	Tack Coat Sprayer	Line Marking Paint	
		Sign Truck	1	Chalk Line/Marking Paint	Glass Beads	
		Crew Cab (1-ton)	1			
		- Air Compressor	1			
		Mini Excavator, Gradall, or Backhoe, Bobcat w/Milling attach	1			
		Pickup Truck w/ Message Board	0-1			
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

<p>The prime cause of base failures is lack of proper drainage and poor subgrade material. Alligatoring and/or deflection cracking are good indications of base failure.</p>
<p>Base failures usually occur in the spring or during extreme wet weather. Temperatures govern the use of plant mix material, thus during cold weather, a mixer paver can be used to mix a suitable base and surface course material.</p>
<p>Additional information on this activity can be obtained from Engineering – Construction.</p>
<p>Foreman marks areas to be cut. The patch must be square or rectangular with faces cut straight and vertical. The size of the patch extends at least one foot into good pavement outside the cracked area. Crew member, using a jack hammer with a wide chisel or concrete saw to cut out edges of the patch.</p>
<p>Equipment operator excavates all base and subbase material that has failed. Surface, subbase and subgrade material must be removed as deep as necessary to reach firm support. In areas where a water problem exists, some measure of drainage must be provided such as subgrade drains.</p>
<p>Crew replaces excavated material with #2A aggregate. Aggregate is placed in 6" lifts and compacted thoroughly with a wacker or roller. The depth of the new subbase should be equal or deeper than that of the existing base.</p>
<p>Crew places bituminous material in no more than 6" lifts into excavated area. Compact material thoroughly. Care must be taken that lifts do not exceed 4" and proper compaction is obtained.</p>
<p>Crew replaces surface course using method described in activity manual patching. If surface area to be replaced is too large to be manually patched a mechanized patch should be placed.</p>
<p>Material should be shoveled into hole to proper depth (maximum of 6" lifts), distributed and finished with lute and corners properly filled. As a guide, height of the uncompacted lift above the adjoining pavement should be ½ of the average pothole depth. For example, if the pothole is an average of 4 inches deep then the uncompacted depth of the lift should be 2 inches above the pavement or 6 inches for the total uncompacted depth. A good rule of thumb is 1 ½" uncompacted to 1" compacted.</p>
<p>Clean Up – Properly clean up the area leaving no debris or litter. If necessary, restore pavement markings to existing conditions.</p>

PTC Foreman Manual

Work Activity No	1430	Effective Date	
Work Activity	SHLD – Paved, Sealing, Bituminous Surface		
Work Activity Description Summary	<p>This activity includes all actions related to crack sealing bituminous surfaces with pre-packaged material.</p> <p>This activity also includes cleaning of cracks, applying material, and squeegeeing on rigid or flexible base roads. The objective of this operation is to prevent more serious pavement distress such as base failures or potholes.</p> <p>Crack sealing should be performed when the roadway temperature is above 40 degrees.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 4.</p>		
Production Standard	2.5 Miles		
Production Unit	Miles	Production Unit/Hours	0.31 Miles per man hour
		Planning Units	Miles

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman or Asst. Foreman	1	Dump Truck	3-8	Squeegee	Joint Sealant	
EO T, EO 2, HMW, EO 1	9-11	- Joint Sealer	1	Sprayer	Detack	
		- Arrow Board	1		Cleaning Solvents	
		- Attenuator	1-2			
		- Message Board	0-3			
		- Speed Limit Trailer	1			
		- Light Plant	0-2			
		Sign Truck	1			
		Crew Cab (1-ton)	0-2			
		Air Compressor	1			
		- Air Compressor	1			
		Pickup Truck w/ Message Board	0-1			
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

1600 - DRAINAGE

PTC Foreman Manual

Work Activity No	1605	Effective Date	
Work Activity	DRNG – Cleaning Inlets		
Work Activity Description Summary	<p>This activity includes all actions related to cleaning concrete inlet boxes and related items. This would include items such as inspection, removal, and disposal of material. This activity could occur in the median, shoulder, and right-of-way areas utilizing a vactor truck/catch basin cleaner.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>If this activity is proposed within the counties of Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek Watershed), or York, then this activity must avoid adverse impacts to the bog turtle. The bog turtle is a federally threatened, and state endangered species protected by applicable laws. Potential habitat for the species is typically characterized by wetlands with deep mucky soils and groundwater springs. If wetlands and watercourses are present within the disturbance area for this activity, then special provisions and/or time of year restrictions may be necessary.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 7.</p>		
Production Standard	9 Drains		
Production Unit	Drains	Production Unit/Hours	0.11 Drains per man hour
		Planning Units	Drains

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman or Asst. Foreman	1	Dump Truck	2-8	Shovels		
EO T, EO 2, HMW	2-3	- Trailer	0-1	Digging Bar		
EO 1, HMW	6-10	- Arrow board	1	Chain		
		- Attenuator	1-2	Pick		
		- Message Board	0-3			
		- Speed Limit Trailer	1			
		- Light Plant	0-2			
		Sign Truck	1	Impact Wrench		
		Crew Cab (1-ton)	1			
		- Air Compressor	0-1			
		Water Tank	1			
		Catch Basin Cleaner/Vactor	1			
		Loader/Skid Steer	1			
		Pickup Truck w/ Message Board	0-1			

The number of employees and pieces of equipment can be adjusted based on field conditions.

Methods & Procedures

Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.

The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.

PTC Foreman Manual

Work Activity No	1610	Effective Date	
Work Activity	DRNG – Cleaning End Walls, Ditches, Channels & Swales		
Work Activity Description Summary	<p>This activity includes all actions related to cleaning end walls, cleaning/shaping of ditches, channels and swales, such as removal and disposal of material. The cleaning/shaping of ditches, channels and swales on unpaved roads is also charged to this activity.</p> <p>This activity also includes cleaning a distance of one shovel length into the pipe if necessary. If a longer length of the pipe requires cleaning, it shall be charged to Work Activity No. 1615, DRNG - Cleaning Pipe & Culverts.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>If this activity is proposed within the counties of Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek Watershed), or York, then this activity must avoid adverse impacts to the bog turtle. The bog turtle is a federally threatened, and state endangered species protected by applicable laws. Potential habitat for the species is typically characterized by wetlands with deep mucky soils and groundwater springs. If wetlands and watercourses are present within the disturbance area for this activity, then special provisions and/or time of year restrictions may be necessary.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 7.</p>		
Production Standard	To Be Determined (TBD)		
Production Unit	Feet	Production Unit/Hours	TBD Feet per man hour
			Planning Units
			Feet

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman or Asst. Foreman	1	Dump Truck	2-8	Shovels	Geotextile Fabric	
EO T, EO 2, HMW	2	- Trailer	0-1	Digging Bar	Rock Lining	
EO 1, HMW	9-12	- Arrow Board	1	Chain	Jute Matting	
		- Attenuator	1-2	Pick	Seed Material As Needed	
		- Message Board	0-3	Brush Axe	Mulch	
		- Speed Limit Trailer	1		Erosion Control Materials	
		- Light Plant	0-2	Chainsaw		
		Sign Truck	1			
		Crew Cab (1-ton)	1			
		Gradall/Excavator	1			
		Loader/Skid Steer	1			
		Pickup Truck w/ Message Board	0-1			

The number of employees and pieces of equipment can be adjusted based on field conditions.

Methods & Procedures

Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.

The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.

Must ensure all digging equipment have a copy of the field guide for erosion and sediment control

Before performing any digging or hole drilling operations, you must request the area be check for utilities by submitting a request in the Utility Management Application.

Clean ditch or drainage channel with excavator taking care to cut ditch/channel to original contour by removing only debris or deposited material. Temporary erosion control measures are required if the disturbed area is within 50 feet from stream.

Erosion controls such as straw bales, silt fence or rock filters are required at the point of discharge until the ditch line re-vegetates and the area becomes stabilized. Rock filters may be installed as a more permanent control measure at outlet ditches.

The excavation of embankment slopes in conjunction with ditch cleaning will require that at a minimum the vertical face of embankment be seeded and mulched.

Excavated material is to be properly disposed in a non-wetland area and it not to be broadcast onto the slopes of ditches or drainage channels.

PTC Foreman Manual

Work Activity No	1615	Effective Date	
Work Activity	DRNG – Cleaning Pipe & Culverts		
Work Activity Description Summary	<p>This activity includes all actions related to mechanized cleaning of pipes and culverts and the removal and disposal of material. The flushing of pipes and culverts is accomplished by using a high velocity sewer cleaner, sewer rod or cable unit.</p> <p>Inlet and outlet ditches must be cleaned before the pipe cleaner arrives at the work site and charged to Work Activity No. 1610, DRNG – Cleaning Ditches, Channels & Swales.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>If this activity is proposed within the counties of Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek Watershed), or York, then this activity must avoid adverse impacts to the bog turtle. The bog turtle is a federally threatened, and state endangered species protected by applicable laws. Potential habitat for the species is typically characterized by wetlands with deep mucky soils and groundwater springs. If wetlands and watercourses are present within the disturbance area for this activity, then special provisions and/or time of year restrictions may be necessary.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 7.</p>		
Production Standard			
Production Standard		To Be Determined (TBD)	
Production Unit			
Production Unit	Feet	Production Unit/Hours	TBD Feet per man hour
			Planning Units
			Feet

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman or Asst. Foreman	1	Dump Truck	2-8	Shovels	Straw Bales	
EO T, EO 2, HMW	1-3	- Trailer	0-1	Digging Bar	Silt Fence	
EO 1, HMW	8-11	- Arrow Board	1	Chain	Silt Sock	
		- Attenuator	1-2	Pick	Filter Bag	
		- Message Board	0-3			
		- Speed Limit Trailer	1			
		- Light Plant	0-2			
		Sign Truck	1			
		Crew Cab (1-ton)	1			
		High Velocity Sewer Cleaner	1			
		Water Tank	1			
		Catch Basin Cleaner	0-1			
		Loader/Skid Steer/Gradall/Excavator	0-1			
		Pickup Truck w/ Message Board	0-1			
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
Must ensure all digging equipment have a copy of the field guide for erosion and sediment control						
Before performing any digging or hole drilling operations, you must request the area be check for utilities by submitting a request in the Utility Management Application.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

Temporary erosion control measures to filter flushed material must be incorporated into the project if the tail ditch enters into a perennial stream (flowing material) within fifty (50) feet of the pipe outlet straw bales or silt fence are to be installed in the tail ditch during flushing.

Waste material flushed from the pipe or culvert is to be removed mechanically or by hand and properly disposed. Clean ditch or drainage channel with excavator taking care to cut ditch/channel to original contour by removing only debris or deposited material. Erosion controls such as straw bales, silt fence or rock filters are required at the point of discharge until the ditch line re-vegetates and the area becomes stabilized. Rock filters may be installed as a more permanent control measure at outlet ditches. The excavation of embankment slopes in conjunction with ditch cleaning will require that at a minimum the vertical face of embankment be seeded and mulched.

Hydraulic Unit – Flush out pipe with the hydraulic pipe cleaner and remove material at end of pipe as required.

Sewer Rodder – Position and prepare sewer rodder at outlet end of pipe. Attach smallest auger to sewer rodder and begin working auger several feet into the blockage, pull auger out with material. Continue operation in 8-to-10-foot lengths then increase auger size and repeat operation. Increase auger size until entire blockage is removed. Flush out remaining material with water supplied by the water truck.

PTC Foreman Manual

Work Activity No	1620	Effective Date			
Work Activity	DRNG – Install Rock Lining				
Work Activity Description Summary	<p>This activity includes all actions related to the installation of rock lining in drainage ditches.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>If this activity is proposed within the counties of Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek Watershed), or York, then this activity must avoid adverse impacts to the bog turtle. The bog turtle is a federally threatened, and state endangered species protected by applicable laws. Potential habitat for the species is typically characterized by wetlands with deep mucky soils and groundwater springs. If wetlands and watercourses are present within the disturbance area for this activity, then special provisions and/or time of year restrictions may be necessary.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 7.</p>				
Production Standard	To Be Determined (TBD)				
Production Unit	Feet	Production Unit/Hours	TBD Feet per man hour	Planning Units	Feet

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
Must ensure all digging equipment have a copy of the field guide for erosion and sediment control						
Before performing any digging or hole drilling operations, you must request the area be check for utilities by submitting a request in the Utility Management Application.						
The excavation of embankment slopes in conjunction with rock lining will require that at a minimum the vertical face of embankment be seeded and mulched.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	1625	Effective Date			
Work Activity	DRNG – Replacement/Installation, Inlets/ End Walls				
Work Activity Description Summary	<p>This activity includes all actions related to the replacement of inlets and end walls such as placing precast units or removing old material, excavating area, construction of forms, pouring concrete or appropriate material.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>If this activity is proposed within the counties of Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek Watershed), or York, then this activity must avoid adverse impacts to the bog turtle. The bog turtle is a federally threatened, and state endangered species protected by applicable laws. Potential habitat for the species is typically characterized by wetlands with deep mucky soils and groundwater springs. If wetlands and watercourses are present within the disturbance area for this activity, then special provisions and/or time of year restrictions may be necessary.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 7.</p>				
Production Standard	To Be Determined (TBD)				
Production Unit	Inlets/ End walls	Production Unit/Hours	TBD Inlets/End walls per man hour	Planning Units	Inlets/ End walls

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
Must ensure all digging equipment have a copy of the field guide for erosion and sediment control						
Before performing any digging or hole drilling operations, you must request the area be check for utilities by submitting a request in the Utility Management Application.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	1630	Effective Date	
Work Activity	DRNG – Repair Only, Inlets/End Walls		
Work Activity Description Summary	<p>This activity includes all actions related to the repair only of inlets and end walls.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>If this activity is proposed within the counties of Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek Watershed), or York, then this activity must avoid adverse impacts to the bog turtle. The bog turtle is a federally threatened, and state endangered species protected by applicable laws. Potential habitat for the species is typically characterized by wetlands with deep mucky soils and groundwater springs. If wetlands and watercourses are present within the disturbance area for this activity, then special provisions and/or time of year restrictions may be necessary.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 7.</p>		
Production Standard	To Be Determined (TBD)		
Production Unit	Inlets/End walls	Production Unit/Hours	TBD Inlets/End walls per man hour
		Planning Units	Inlets/End walls

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
Must ensure all digging equipment have a copy of the field guide for erosion and sediment control						
Before performing any digging or hole drilling operations, you must request the area be check for utilities by submitting a request in the Utility Management Application.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	1635	Effective Date	
Work Activity	DRNG – Replacement/Installation, Pipe/Culverts		
Work Activity Description Summary	<p>This activity includes all actions related to the replacement/installation of pipes and culverts such as cutting/sawing pavement, excavation of trench, installing pipe, backfilling and compaction.</p> <p>Replacement of the bituminous surface, installation of delineators, construction of inlets or end walls, extra ditch cleaning beyond that which is incidental to the pipe installation (cleaning beyond fifteen feet from the pipe), construction of rock lining, etc., are to be charged to the appropriate Work Activity.</p> <p>A training package including video, slides and work booklet has been prepared for this Work Activity. All personnel should review training materials prior to start of work.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>If this activity is proposed within the counties of Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek Watershed), or York, then this activity must avoid adverse impacts to the bog turtle. The bog turtle is a federally threatened, and state endangered species protected by applicable laws. Potential habitat for the species is typically characterized by wetlands with deep mucky soils and groundwater springs. If wetlands and watercourses are present within the disturbance area for this activity, then special provisions and/or time of year restrictions may be necessary.</p> <p>Request for a drainage study must be completed by Engineering and all applicable permits obtained. Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915. Reference PTC Maintenance Manual, Chapter 7.</p>		
Production Standard	To Be Determined (TBD)		
Production Unit	Pipe/Culverts	Production Unit/Hours	TBD Pipe/Culverts per man hour
		Planning Units	Pipe/Culverts

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman or Asst. Foreman	1	Dump Truck	2-9	Concrete Saw	Pipe, Proper size and Length	
EO T, EO 2, HMW	2-3	- Trailer	0-2	Shovels	Proper Backfill	
EO 1, HMW	6-11	o Roller, Tamper or Vibratory Plate	1	Pick Axe		
		- Arrow Board	1	Digging Bar		
		- Attenuator	1-2	Jack Hammer		
		- Message Board	0-3	Chain/Lifting Strap		
		- Speed Limit Trailer	1			
		- Light Plant	0-2	String Line		
		Backhoe/Excavator/Gradall	1	Level and Rod		
				Chalk Line/Marking Paint		
		Loader/Skid Steer	0-1			
		Crew Cab (1 ton)	1			
		- Air Compressor	1			
		Sign Truck	1			
		Pickup Truck w/ Message Board	0-1			
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
Must ensure all digging equipment have a copy of the field guide for erosion and sediment control						
Before performing any digging or hole drilling operations, you must request the area be check for utilities by submitting a request in the Utility Management Application.						

PTC Foreman Manual

<p>The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.</p>
<p>Maintenance will request that Design Engineering, Roadway Unit reviews the site prior to the start of work to determine type, size, length and location of the replacement pipe required; type and quantity of backfill; type of end treatments required; traffic control requirements; and evaluate if Maintenance or a Contractor will perform the work.</p>
<p>Utility companies and FEMO should be notified at least three days in advance with a follow up prior to the start of work to ensure utility lines are marked.</p>
<p>For Maintenance forces, please follow these guidelines – PUB 72, PUB 408, Section 620.</p>
<p>The pavement should be cut in advance of the pipe installation operation. Full depth and width saw cut is recommended. Pneumatic hammer or cutter are acceptable, assuming the pavement is cut to its full depth. Scoring pavement with excavator bucket is not acceptable. The trench width shall be a minimum of two (2) feet wider than the outside diameter of the pipe for pipes less than forty (48) inches in diameter. Additional width may be required due to safety concerns. Sides of trenches in unstable or soft material, five (5) feet or more in depth, shall be shored or laid back to a stable slope. Trenches less than five (5) feet shall also be effectively protected when examination of the ground indicates hazardous ground movement may be expected. Excavate trench to required depth and as close to the desired slope as possible. The minimum slope is one quarter (1/4) inch per foot. Remove any unacceptable material to an extra one (1) foot depth below grade line. Place bedding material (2-A aggregate) to a minimum loose depth of six (6) inches.</p>
<p>Note that when placing concrete pipe, the required bedding material will be a combination of AASHTO #8 and 2A...AASHTO #8 to be placed to a minimum <u>loose</u> depth of 6" with 2A placed under the <u>outlet end section only</u>, to a <u>compacted</u> depth of 6".</p>
<p>Construction of a cradle will be required for squash or elliptical pipe only. Cradle construction will consist of the introduction of additional loosely placed bedding material shaped via cradle boards to the same contour as the exterior of the pipe such that when complete, the invert of the pipe will rest on the bed which is to remain a minimum of 6" in. depth.</p>
<p>The depth of the required cradle for squash pipe is to be fifteen percent of the vertical rise of the pipe approximately three (3) inches for a 24x18 pipe.</p>
<p>Place pipe in center of prepared bed/cradle; properly align and join succeeding sections.</p>
<p>Backfill by placing 2A aggregate in uniform, compacted lifts of four (4) inches if using an upright tamper; or eight (8) inches if using a vibratory roller. The first lift may be slightly thicker to avoid pipe displacement during compaction. Backfill in uniform lifts until compacted backfill is even with road pavement or appropriate grade is obtained for the placement of the bituminous surface. Stone end walls should be constructed simultaneously in lifts with the construction of the backfilling operation to ensure proper compaction and to avoid erosion around the ends of the pipe. Allow space for the placement of end walls or inlet if they are to be constructed after the pipe is completely installed. Temporary erosion control measures are required if the pipe outlet is within fifty (50) feet of a perennial stream (flowing water). Straw bales, silt fence or rock filters are to be installed in the ditch line between the pipe outlet and the stream.</p>
<p>All areas disturbed in connection with this operation are to be stabilized.</p>

PTC Foreman Manual

Work Activity No	1640			Effective Date	
Work Activity	DRNG – Replacement/Installation, Parallel Pipes				
Work Activity Description Summary	<p>This activity includes all actions related to the replacement/installation of parallel pipes such as saw cutting shoulder, excavation of trench, installation of pipe, backfilling and compacting.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>If this activity is proposed within the counties of Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek Watershed), or York, then this activity must avoid adverse impacts to the bog turtle. The bog turtle is a federally threatened, and state endangered species protected by applicable laws. Potential habitat for the species is typically characterized by wetlands with deep mucky soils and groundwater springs. If wetlands and watercourses are present within the disturbance area for this activity, then special provisions and/or time of year restrictions may be necessary.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 7.</p>				
Production Standard	To Be Determined (TBD)				
Production Unit	Feet	Production Unit/Hours	TBD Feet per man hour	Planning Units	Feet

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
Must ensure all digging equipment have a copy of the field guide for erosion and sediment control						
Before performing any digging or hole drilling operations, you must request the area be check for utilities by submitting a request in the Utility Management Application.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	1645	Effective Date	
Work Activity	DRNG – Replacement/Installation, Pipe Extension Only		
Work Activity Description Summary	<p>This activity includes all actions related to extending of existing pipe installation.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>If this activity is proposed within the counties of Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek Watershed), or York, then this activity must avoid adverse impacts to the bog turtle. The bog turtle is a federally threatened, and state endangered species protected by applicable laws. Potential habitat for the species is typically characterized by wetlands with deep mucky soils and groundwater springs. If wetlands and watercourses are present within the disturbance area for this activity, then special provisions and/or time of year restrictions may be necessary.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 7.</p>		
Production Standard	To Be Determined (TBD)		
Production Unit	Pipe Extensions	Production Unit/Hours	TBD Pipe Extensions per man hour
			Planning Units
			Pipe Extensions

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
Must ensure all digging equipment have a copy of the field guide for erosion and sediment control						
Before performing any digging or hole drilling operations, you must request the area be check for utilities by submitting a request in the Utility Management Application.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	1650		Effective Date		
Work Activity	DRNG – Installation Subsurface Drains (U - Drains)				
Work Activity Description Summary	<p>This activity includes all actions related to the installation of subsurface drains (U-drains).</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>If this activity is proposed within the counties of Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek Watershed), or York, then this activity must avoid adverse impacts to the bog turtle. The bog turtle is a federally threatened, and state endangered species protected by applicable laws. Potential habitat for the species is typically characterized by wetlands with deep mucky soils and groundwater springs. If wetlands and watercourses are present within the disturbance area for this activity, then special provisions and/or time of year restrictions may be necessary.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 7.</p>				
Production Standard	To Be Determined (TBD)				
Production Unit	Feet	Production Unit/Hours	TBD Feet per man hour	Planning Units	Feet

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
Must ensure all digging equipment have a copy of the field guide for erosion and sediment control						
Before performing any digging or hole drilling operations, you must request the area be check for utilities by submitting a request in the Utility Management Application.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

1800 - PATROL

PTC Foreman Manual

Work Activity No	1805	Effective Date	
Work Activity	PTRL – Routine Patrol		
Work Activity Description Summary	This activity includes any and all work associated with MUW patrols or any operator performing a patrol. Specific patrols not included in this activity are under Work Activity No. 1810, PTRL – Holiday & Special Events Patrol and Work Activity No. 1815, PTRL – Weather/Emergency Related Patrol (Non-Snow) Reference current directive(s) regarding Patrols and Transporting Customers.		
Production Standard	3 Trips per Shift		
Production Unit	Trips	Production Unit/Hours	0.375 Trips per man hour
		Planning Units	Trips

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No		1810		Effective Date		
Work Activity		PTRL – Holiday & Special Events Patrol				
Work Activity Description Summary		This activity includes all action related to the patrolling of highways during any holiday and special events. Reference current directive(s) regarding Patrols and Transporting Customers.				
Production Standard		3 Trips per Shift				
Production Unit	Trips	Production Unit/Hours	0.25 Trips per man hour	Planning Units	Trips	

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No		1815		Effective Date		
Work Activity		PTRL – Weather/Emergency Related Patrol (Non-Snow)				
Work Activity Description Summary		<p>This activity includes all action related to the patrolling of highways during and immediately after storms to check function of drainage and erosion control facilities or evaluate hazard potential for motorists, etc. Includes cleaning minor surface debris from drains and roadway, removing fallen trees and branches from travel way and any other actions required because of the storm. Any drain cleaning which requires the removal and disposal of material other than minor surface debris shall be charged to Work Activity No. 1615, DRNG – Cleaning Pipe & Culverts.</p> <p>This activity is not to be utilized during winter storm event, reference snow activities for appropriate charges.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p>				
Production Standard		To Be Determined (TBD)				
Production Unit	Miles	Production Unit/Hours	TBD Miles per man hour	Planning Units	Miles	

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

2000 - RESTORATION

PTC Foreman Manual

Work Activity No	2005		Effective Date		
Work Activity	RSTR - Sidedozing				
Work Activity Description Summary	<p>This activity includes all actions related to the removal of accumulated material from beneath guiderail such as: side dozing or vegetation and soil buildup and manually shoveling embankment if stroke of side dozer is insufficient; or manually filling of small washouts along the job course.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>If this activity is proposed within the counties of Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek Watershed), or York, then this activity must avoid adverse impacts to the bog turtle. The bog turtle is a federally threatened, and state endangered species protected by applicable laws. Potential habitat for the species is typically characterized by wetlands with deep mucky soils and groundwater springs. If wetlands and watercourses are present within the disturbance area for this activity, then special provisions and/or time of year restrictions may be necessary.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p>				
Production Standard	3 Miles				
Production Unit	Miles	Production Unit/Hours	0.047 Miles per man hour	Planning Units	Miles

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman or Asst. Foreman	1	Dump Truck	3-7	Shovels	Mulch	
EO T, EO 2, HMW	1-2	- Trailer	1		Silt fence	
EO 1, HMW	7-9	o Bobcat w/Broom	1		Straw	
		- Arrow Board	1		Seed	
		- Attenuator	1-2			
		- Message Board	0-2			
		- Light Plant	0-2			
		Grader	1			
		Sign Truck	1			
		Crew Cab (1 ton)	1			
		Pickup Truck w/ Message Board	0-1			
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						
Operator will position the grader and start side dozing and crew member will follow outside guide fence, finishing the operation with a shovel.						
Erosion control measures are required when side dozing next to a perennial stream (flowing water) that parallels the roadway and there is an insufficient vegetative strip between the disturbed area and stream to naturally filter runoff.						
Any of the following operations may be selected: <ul style="list-style-type: none"> • Place straw bales or silt fence between disturbed area and stream • Seed and mulch disturbed area • Load out excess material and properly dispose • Cut bleeders at thirty (30) foot intervals 						

PTC Foreman Manual

Work Activity No	2010	Effective Date			
Work Activity	RSTR - Gabions & Retaining Walls, Install/Repair				
Work Activity Description Summary	<p>This activity includes all actions related to the installation or repair of gabions and retaining walls, such as removal of material, shoring the area, building supports, etc.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>If this activity is proposed within the counties of Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek Watershed), or York, then this activity must avoid adverse impacts to the bog turtle. The bog turtle is a federally threatened, and state endangered species protected by applicable laws. Potential habitat for the species is typically characterized by wetlands with deep mucky soils and groundwater springs. If wetlands and watercourses are present within the disturbance area for this activity, then special provisions and/or time of year restrictions may be necessary.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p>				
Production Standard	To Be Determined (TBD)				
Production Unit	Feet	Production Unit/Hours	TBD Feet per man hour	Planning Units	Feet

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	2015	Effective Date	
Work Activity	RSTR - Damage and/or Disaster Restoration – Slides, Flooding, Washouts, Other		
Work Activity Description Summary	<p>This activity includes all actions related to the restoration operations caused by storms or natural disasters regardless of the degree of damage. Activities include disaster cleanup, removal and disposal of debris from slides, clean up, repair and/or replacement operations caused by flooding, repair of cuts and fills, dressing slopes and washouts, bench cleaning, repair of sink holes, etc. Minor work performed while on storm patrol should be charged to Work Activity No. 1815, PTRL – Weather/Emergency Related Patrol (Non-Snow).</p> <p>Where frequent washouts are a problem, consideration should be given to using Gabion Baskets to control erosion. Gabion baskets must conform to Form 408 and Drawing FC-43, PUB #72.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>If this activity is proposed within the counties of Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek Watershed), or York, then this activity must avoid adverse impacts to the bog turtle. The bog turtle is a federally threatened, and state endangered species protected by applicable laws. Potential habitat for the species is typically characterized by wetlands with deep mucky soils and groundwater springs. If wetlands and watercourses are present within the disturbance area for this activity, then special provisions and/or time of year restrictions may be necessary.</p> <p>This includes the clean-up of rock fall areas and areas of accumulated material from beneath a guiderail such as side dozing of vegetation and manually shoveling embankment.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 11.</p>		
Production Standard	To Be Determined (TBD)		

PTC Foreman Manual

Production Unit	Location	Production Unit/Hours	TBD Location per man hour	Planning Units	Location	
Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No		2020		Effective Date		
Work Activity		RSTR - Graffiti Removal				
Work Activity Description Summary		This activity includes all actions related to the removal of graffiti along Commission roadway or any facilities. Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.				
Production Standard		None				
Production Unit	Man Hours	Production Unit/Hours	Man Hours	Planning Units	Man Hours	

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

2200 – SNOW

PTC Foreman Manual

Work Activity No	2205	Effective Date	
Work Activity	SNOW – In-Storm Work		
Work Activity Description Summary	<p>This activity includes plowing and removing snow, spreading chemicals and anti-skid, refueling, cleanup, attaching/detaching the plow, widening, etc. Other activities charged to this activity include loader operator’s time, and other miscellaneous assemblies at the stockpile during or immediately after a storm ceases. The conclusion of the storm is determined when precipitation ceases, the roadway is cleared, shoulders are cleared, wide areas are pushed back, access roads are opened, and interchanges are cleared.</p> <p>Unloading of trucks and replacement of material at the conclusion of the storm is included in this activity.</p> <p>It is imperative the liquid treatment material (Salt Brine, Calcium Chloride, etc.) be reported in SAP with the salt and or anti-skid to track winter maintenance usage and cost.</p> <p>Plowing and/or spreading techniques vary according to the type of plow used, the width of the highway, and the severity of the storm. When manpower and equipment are available, it can be advantageous to tandem plow (plow trains). This will prevent traffic from scattering unplowed snow back on to the roadway before a second pass can be made. Because of their slower speeds, graders can be used only if truck plowing cannot keep up with the storm or if special conditions (thick ice) require controlled pressure on the blade.</p> <p>Operators must have had prior instruction on proper operation of equipment while plowing and/or spreading under varying conditions.</p> <p>Reference PTC Maintenance Manual, Chapter 3.</p>		
Production Standard	None		
Production Unit	Man Hours	Production Unit/Hours	Man Hours
		Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						
PLOWING:						
After plow is mounted, yard preparation consists of usual daily service checks with special attention to flasher lights and hydraulic systems.						
Operator plows snow in the direction of traffic maintaining a speed great enough to move the snow well into the shoulder, but it should not be so high that the snow damages adjoining private property or highway signs.						
After operation is completed, wash off equipment to ensure salt is removed from all areas of the equipment (frame rails, conveyors, etc.).						
SPREADING and PLOWING/SPREADING SIMUTANEOUSLY:						
Foreman gives operator rate of application.						
Tailgate Spreader: See Operator Snow Academy.						

PTC Foreman Manual

Work Activity No	2210	Effective Date	
Work Activity	SNOW - Non-Storm Work		
Work Activity Description Summary	This activity includes all action related to the snow season work that is not included in Work Activity No. 2205, SNOW – In-Storm Work , such as snow prep work, mixing winter materials, transferring materials, maintenance of storage facilities, towing, dry runs, stand by, calling out crews, removing or calibrating the spreader, etc. Any activity related to salt brine including transfer of material from manufacturing site to holding tank site is to be charged to Work Activity No. 2215, SNOW – Salt Brine Manufacture . Reference PTC Maintenance Manual Chapter 3.		
Production Standard	None		
Production Unit	Man Hours	Production Unit/Hours	Man Hours
		Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No	2215	Effective Date	
Work Activity	SNOW - Salt Brine Manufacture		
Work Activity Description Summary	This activity includes all actions related to the manufacture of salt brine and the procedures needed to transfer this product to brine holding tanks. Reference PTC Maintenance Manual, Chapter 3.		
Production Standard	None		
Production Unit	Man Hours	Production Unit/Hours	Man Hours
Planning Units	Man Hours		

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No	2220	Effective Date	
Work Activity	SNOW – Snow Fence Maintenance		
Work Activity Description Summary	<p>This activity includes all actions related to the installation, repair and removal of snow fence.</p> <p>Snow fence shall be erected in fall and removed in the spring.</p> <p>Reference PTC Maintenance Manual, Chapter 3.</p>		
Production Standard	To Be Determined (TBD)		
Production Unit	Feet	Production Unit/Hours	TBD Feet per man hour
			Planning Units
			Feet

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

2400 – ATTENUATOR, BARRIER, GUIDERAIL

PTC Foreman Manual

Work Activity No	2405		Effective Date		
Work Activity	GRMD - Repair/Replace w/Beam				
Work Activity Description Summary	<p>This activity includes all actions related to the repair and/or replacement of damaged or worn W beam panels, posts, fittings, etc.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 8.</p>				
Production Standard	25 Feet				
Production Unit	Feet	Production Unit/Hours	0.39 Feet per man hour	Planning Units	Feet

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman or Asst. Foreman	1	Dump Truck	2-8	Impact Wrench	Guiderail Elements	
EO T, EO 2, HMW	1	- Message Board	0-3	Hand Tools	Offset Bracket	
EO 1, HMW	8-11	- Arrow Board	1	Generator	Steel Post	
		- Attenuator	1-2	Digging Bar	Hardware	
		- Trailer	0-1	String Line		
		- Light Plant	0-2			
		Post Driver/Puller	1	Grade Stakes		
		Crew Cab (1 ton)	1	Sledgehammer		
		- Air Compressor	0-1	K – Saw/Target Saw		
		Sign Truck	1	Torch		
		Supply Truck	0-1			
		Pickup Truck w/ Message Board	0-1			

The number of employees and pieces of equipment can be adjusted based on field conditions.

Methods & Procedures

Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.

The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.

Verify via Utility Management Asset System (UMA) for any underground utilities in the area.

The regular crew will dismantle all fences in the damaged area. They will sort all good material for immediate reuse and the remainder for salvage or scrap.

Straighten and twist reusable posts using the post driver plus the twisting bar.

Mount offset brackets on posts. Turn nuts to hand tight.

Assemble replacement (new/salvage) W-beams to brackets. Overlap the beams so the end of beam is not visible from the direction of travel. Hand tighten all bolts and nuts until all of the section is replaced and then do final tightening with tools.

Cleanup area. Load all unused material on supply trailer, crew cab or truck.

PTC Foreman Manual

Work Activity No	2410	Effective Date	
Work Activity	GRMD - Concrete Barrier Repair/Replace		
Work Activity Description Summary	<p>This activity includes all actions related to the repair of any concrete barrier, located along the medial, shoulder or interchange.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Manual, Chapter 8.</p>		
Production Standard	24 Feet		
Production Unit	Feet	Production Unit/Hours	0.375 Feet per man hour
		Planning Units	Feet

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	2415	Effective Date	
Work Activity	GRMD - Impact Attenuator Device Repair		
Work Activity Description Summary	<p>This activity includes all actions related to the repair of any impact attenuating device located along the system or at an interchange.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 8.</p>		
Production Standard	To Be Determined (TBD)		
Production Unit	Location	Production Unit/Hours	TBD Location per man hour
			Planning Units Location

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

2600 – TRAFFIC SERVICES & SAFETY

PTC Foreman Manual

Work Activity No		2605		Effective Date		
Work Activity		TRFC - MPT/Traffic Control & Safety				
Work Activity Description Summary		This activity includes all actions related to any MPT or Safety provided that is not part of a maintenance operation or contract support that is charged to the maintenance operating budget. Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.				
Production Standard		To Be Determined (TBD)				
Production Unit	Miles	Production Unit/Hours	TBD Miles per man hour	Planning Units	Miles	

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of any incident along the system.						

PTC Foreman Manual

Work Activity No	2610		Effective Date		
Work Activity	TRFC - Plan X Detours				
Work Activity Description Summary	<p>This activity includes all actions related to Plan X Detours and includes all actions related to the diversion of traffic (i.e., incident management signs and traffic control).</p> <p>All contract construction projects include construction, detour and other temporary signing as part of the contract and as such all costs for signing should be included with the contract.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 12.</p>				
Production Standard	None				
Production Unit	Man Hours	Production Unit/Hours	Man Hours	Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost for the Plan X detour. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No		2615		Effective Date		
Work Activity		TRFC- Sweeping				
Work Activity Description Summary		<p>This activity includes all actions related to the sweeping of Interchanges, Service Plazas, Access Gate Roads, Shoulder and Medial and Parking Areas.</p> <p>This cost function should be used only when the sweeping is not part of the performance standard for a specific activity. Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 12.</p>				
Production Standard		3 Miles				
Production Unit	Miles	Production Unit/Hours	0.034 Miles per man hour	Planning Units	Miles	

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No		2620		Effective Date		
Work Activity		TRFC - Incidental Services, Other				
Work Activity Description Summary		<p>This activity includes all actions related to any miscellaneous incidental service activities, such as dead animal removals.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 12.</p>				
Production Standard		To Be Determined (TBD)				
Production Unit	Miles	Production Unit/Hours	TBD Miles per man hour	Planning Units	Miles	
Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified when removing any materials from travel lanes.						

PTC Foreman Manual

Work Activity No	2625		Effective Date		
Work Activity	TRFC - Maintenance Support of Operations				
Work Activity Description Summary	<p>This activity includes all traffic services in support of non-maintenance work, such as construction projects, core boring, surveying, etc.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915. (Must be applicable to the activity being performed).</p>				
Production Standard	To Be Determined (TBD)				
Production Unit	Miles	Production Unit/Hours	TBD Miles per man hour	Planning Units	Miles

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

2800 – DELINEATION

PTC Foreman Manual

Work Activity No	2805	Effective Date	
Work Activity	DLNT – Delineation Repair/Replace		
Work Activity Description Summary	<p>This activity includes all actions related to the repair, replacement, cleaning, or re-sheeting to all damaged delineation throughout the section.</p> <p>This activity also includes all actions related to drainage markers, A.O.V. markers and flex post mile markers.</p> <p>Reference the Maintenance Delineation – Field Handbook dated May 2012 – Guideline for Delineation Spacing & Application.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p>		
Production Standard	3 Miles		
Production Unit	Miles	Production Unit/Hours	0.047 Miles per man hour
		Planning Units	Miles

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	Varies According to Job Requirements
The number of employees and pieces of equipment can be adjusted based on field conditions						
Methods and Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	2810 – DO WE STILL HAVE RPMs		Effective Date		
Work Activity	DLNT - Repair/Replace Reflectorized Pavement Markers (RPM/SRPM)				
Work Activity Description Summary	This activity includes all actions related to the repair/replacement of reflectorized pavement markers such as removing and replacing damaged reflectors (could be raised, flush or recessed). Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.				
Production Standard	3 Miles				
Production Unit	Miles	Production Unit/Hours	0.047 Miles per man hour	Planning Units	Miles

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

3000 – SIGNS

PTC Foreman Manual

Work Activity No	3005		Effective Date		
Work Activity	SGNS - Annual Sign Review				
Work Activity Description Summary	This activity includes all actions related to the annual review of signs in the field for purposes of determining maintenance needs and the associated actions to document these needs and generate a work schedule. Reference PTC Maintenance Manual, Chapter 12.				
Production Standard	None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion.						

PTC Foreman Manual

Work Activity No	3010	Effective Date			
Work Activity	SGNS – Replacement/Installation/Repair Permanent Signs				
Work Activity Description Summary	<p>This activity includes all actions related to the erection, maintenance and removal of permanent signs not provided for in any other activities. Includes costs such as erection supports, mounting signs, and when necessary, removing damaged material. This activity includes all overhead signs.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 12.</p>				
Production Standard	To Be Determined (TBD)				
Production Unit	Signs	Production Unit/Hours	TBD Signs per man hour	Planning Units	Signs

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

3200 – PAINTING

PTC Foreman Manual

Work Activity No	3205	Effective Date	
Work Activity	LNPT – Line Painting, Facilities		
Work Activity Description Summary	<p>All facilities parking lots, including handicap spaces are to be painted annually, after spring operations and prior to Labor Day weekend. Facilities for this program are defined as Maintenance Facilities, Interchanges, and Central & Regional Office Buildings.</p> <p>Work is performed in the Summer & Fall Operations Periods (June, July, August & September).</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 9.</p>		
Production Standard	To Be Determined (TBD)		
Production Unit	Facilities	Production Unit/Hours	TBD Facilities per man hour
			Planning Units
			Facilities

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions						
Methods and Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	3210	Effective Date	
Work Activity	LNPT – Line Painting, Gore Areas		
Work Activity Description Summary	<p>All gore lines are to be painted annually after Spring Operations and prior to Labor Day Weekend.</p> <p>All maintenance support for safety and traffic control is to be charged to Work Activity No. 3225, LNPT – Line Painting, Safety.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 9.</p>		
Production Standard	To Be Determined (TBD)		
Production Unit	Gore Areas	Production Unit/Hours	TBD Gore Areas per man hour
Planning Units	Gore Areas		

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods and Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	3215	Effective Date	
Work Activity	LNPT – Line Painting, Interchange Ramps		
Work Activity Description Summary	<p>Paint all traffic lines on the mainline twice annually; once immediately following Winter Operation; the second time after Labor Day Weekend and prior to Winter Operations.</p> <p>The Paint Foreman will be responsible for line painting status reporting. Production of Line Paint Miles shall include a total of the yellow edge line, White edge line, and Skip line painted.</p> <p>All maintenance support for safety and traffic control is to be charged to Work Activity No. 3225, LNPT – Line Painting, Safety.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 9.</p>		
Production Standard	To Be Determined (TBD)		
Production Unit	Location	Production Unit/Hours	TBD Location per man hour
			Planning Units Location

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman	1	Line Striping Machine	1		Line Paint	As Needed
EO2	4	Supply Truck	1		Glass Beads	As Needed
		Pickup Truck w/ Message Board	2			
		Attenuators	1-2			
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods and Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	3220	Effective Date	
Work Activity	LNPT – Line Painting, Mainline		
Work Activity Description Summary	<p>Paint all traffic lines on the mainline twice annually; once immediately following Winter Operation; the second time after Labor Day Weekend and prior to Winter Operations.</p> <p>The Paint Foreman will be responsible for line painting status reporting. Production of Line Paint Miles shall include a total of the yellow edge line, white edge line, and skip line painted.</p> <p>All maintenance support for safety and traffic control is to be charged to Work Activity No. 3225, LNPT – Line Painting, Safety.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 9.</p>		
Production Standard	50 Line Miles		
Production Unit	Line Miles	Production Unit/Hours	1.56 Line Miles per man hour
		Planning Units	Line Miles

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman	1	Line Striping Machine	1		Line Paint	As Needed
EO2	4	Supply Truck	1		Glass Beads	As Needed
		Pickup Truck w/ Message Board	2			
		Attenuators	1-2			
The number of employees and pieces of equipment can be adjusted based on field conditions,						
Methods and Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No		3230		Effective Date		
Work Activity		LNPT – Paint Line Eradication				
Work Activity Description Summary		<p>This activity includes all actions related to the removal of traffic markings using an eradicating machine.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 9.</p>				
Production Standard		To Be Determined (TBD)				
Production Unit	Miles	Production Unit/Hours	TBD Miles per man hour	Planning Units	Miles	

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	3235		Effective Date		
Work Activity	LNPT - Line Painting, Machine Repair				
Work Activity Description Summary	<p>This activity includes all actions related to the repair of paint machine performed by the Paint Crew Only and includes the winterization at the end of the paint season.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference PTC Maintenance Manual, Chapter 9.</p>				
Production Standard	None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No		3240		Effective Date		
Work Activity		LNPT – Line Painting, Other				
Work Activity Description Summary		This activity includes all actions related to the paint program that are not included in any of the other previous activities. Lane drops, aerial lines, wide areas				
Production Standard		To Be Determined (TBD)				
Production Unit	Location	Production Unit/Hours	TBD Location per man hour	Planning Units	Location	

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

3400 – VEGETATION

PTC Foreman Manual

Work Activity No		3405		Effective Date		
Work Activity		VGTN – Mowing, Boom Arm				
Work Activity Description Summary		<p>This activity includes all actions related to the mowing of embankments, behind guiderail, non-accessible areas with standard flail mowers.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 16.</p>				
Production Standard		3 Miles				
Production Unit	Miles	Production Unit/Hours	0.084 Miles per man hour	Planning Units	Miles	

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
EO T, EO 2, HMW	1	Dump Truck	1-2			
EO 1, HMW	1-2	- Attenuator	1			
		- Message Board	0-1			
		Boom Arm Mower	1			
		Pickup Truck w/ Message Board	0-1			
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	3410	Effective Date	
Work Activity	VGTN – Mowing, Facilities		
Work Activity Description Summary	<p>This activity includes all actions related to the mowing of the grounds around each facility as needed during the growing season (April through October), mowing facilities are defined as Maintenance buildings and if applicable Central & Regional Offices.</p> <p>Work is performed in the Spring, Summer & Fall Operations Periods (April, May, June, July, August, September & October).</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 16.</p>		
Production Standard	1 Facility		
Production Unit	Facilities	Production Unit/Hours	0.063 Facilities per man hour
		Planning Units	Facilities

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
EO T, EO 2, HMW, EO 1	1-4	Tractor Mower	1	Push Mower	Fuel	
		Zero Turn Mower	1	Weed Wacker	Weed Wacker String	
				Gas Can	2 cycle oil mix	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	3415	Effective Date	
Work Activity	VGTN – Mowing, Interchanges		
Work Activity Description Summary	<p>This activity includes all actions related to mowing each interchange as needed during the growing season (April through October).</p> <p>Work is performed in the Spring, Summer & Fall Operations Periods (April, May, June, July, August, September & October).</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 16.</p>		
Production Standard	.5 Interchanges		
Production Unit	Interchanges	Production Unit/Hours	0.031 Interchanges per man hour
		Planning Units	Interchanges

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
EO T, EO 2, HMW, EO 1	1-4	Tractor Mower	1	Push Mower	Fuel	
		Flail Mower	1	Weed Wacker	Weed Wacker String	
		Zereturn/Riding Mower	0-1	Gas Can	2 cycle oil mix	
				Leaf Blower		
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No	3420			Effective Date	
Work Activity	VGTN – Mowing, Right of Way				
Work Activity Description Summary	<p>This activity includes all actions related to the mowing of the right-of-way in three cycles:</p> <ol style="list-style-type: none"> 1. The first to be completed May/June, 2. The second to be completed July/August, 3. The third to be completed after Labor Day. <p>Each cut is intended to be completed in 20 crew days.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 16.</p>				
Production Standard	2.5 ROW Miles				
Production Unit	ROW Miles	Production Unit/Hours	0.078 ROW Miles per man hour	Planning Units	ROW Miles

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
EO T, EO 2, HMW, EO 1	1-4	Tractor Mower	1-4	Hand grease gun		
		Flail Mower	1-4			
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No	3425		Effective Date		
Work Activity	VGTN - Mowing, Turnpike Properties (Non-ROW)				
Work Activity Description Summary	This activity includes any mowing of any Turnpike Properties not on the right-of-way, such as properties purchased for expansions, etc.				
Production Standard	None				
Production Unit	Man Hours	Production Unit/Hours	Man Hours	Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment		Material
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No	3430	Effective Date	
Work Activity	VGTN - Brushing, Selective Thinning, Tree Removal & Tree Trimming		
Work Activity Description Summary	<p>This activity includes all actions related to tree trimming; brushing; selective thinning and tree removal using the appropriate power and hand tools; and the removal of stumps where required.</p> <p>This activity includes securing “Authorization to Enter” (PTC RW 397) for any off right of way work; the disposal of resulting brush and the placing of all usable wood products onto adjacent private property, unless objected to by the owner.</p> <p>This activity is performed anytime of the year with an increased emphasis in late fall and thru the winter season.</p> <p>Trees within the right of away which pose a hazard to adjacent properties, utilities, and traffic or department personnel during removal of operations must be scheduled for prompt removal by professional contract tree experts.</p> <p>If this activity is proposed within the counties of Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek Watershed), or York, then this activity must avoid adverse impacts to the bog turtle. The bog turtle is a federally threatened, and state endangered species protected by applicable laws. Potential habitat for the species is typically characterized by wetlands with deep mucky soils and groundwater springs. If wetlands and watercourses are present within the disturbance area for this activity, then special provisions and/or time of year restrictions may be necessary.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 16 and should be reviewed before undertaking this activity for legal and operational policy guidance.</p>		
Production Standard	To Be Determined (TBD)		
Production Unit	Miles	Production Unit/Hours	Miles per man hour
			Planning Units
			Miles

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman, Asst. Foreman	1	Dump Truck	4-10	Chainsaw		
EO T, EO 2, HMW	1-3	- Trailer	0-1	Pole Saw		
EO 1, HMW	8-11	- Skid Steer	0-1	Chain/Strap		
		o Stump Grinder	0-1	Wedges		
		- Attenuator	1-2	Shovel		
		- Arrowboard	1	Broom		
		- Message Board	0-2	Axe		
		- Wood Chipper	1	Sledgehammer		
		- Light Plant	0-2			
		Sign Truck	1	Rope/Wire Rope		
		Front End Loader	0-1	Rake		
		Pickup Truck w/ Message Board	0-1			

The number of employees and pieces of equipment can be adjusted based on field conditions.

Methods & Procedures

Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.

The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.

Yard Preparation includes servicing equipment and sharpening saws as required.

Load tools, adequate supply of gas-oil mixture for chain saw(s) and daily support of pre-mixed oil-herbicide for stump treatment as per manufacturer's recommendation.

Brushing, trimming and tree removal operations are to be performed as per the annual work plan. This programming must be coordinated with the

+herbicide application to permit the maximum efficiency from the herbicide treatment.

Trimming should be done in accordance with good arboricultural and silvicultural practices, with undesirable tree modifications, avoided wherever possible. When conditions dictate this type of trimming, complete removal is recommended where property owners do not object. Except where grubbing or stump

removal is planned, apply an oil-herbicide mixture to the cut surface of all live stumps, including root collar and exposed roots, immediately after cuts have been made. When applying herbicides, always follow precautions for personal safety outlined on manufacturer's label.

Operators of power cutting tools shall be trained in their usage and must be properly dressed to prevent garments from becoming entangled in the equipment.

Reference Safety Manual for appropriate PPE Requirements.

Cuttings tools such as axes, saws, etc., must be used with extreme care when working near fellow workers particularly during wet, snowy or inclement weather conditions.

PTC Foreman Manual

Work Activity No	3435	Effective Date	
Work Activity	VGTN - Chemical Herbicide Program		
Work Activity Description Summary	<p>This activity includes all actions related to herbicide spraying of right of way, guiderail, delineation, pre-emergent spraying of landscape beds and median.</p> <p>Requirements are identified by the district.</p> <p>Work is performed in the Spring, Summer & Fall Operations Periods (March, April, May, June, July, August, September & October).</p> <p>If this activity is proposed within the counties of Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek Watershed), or York, then this activity must avoid adverse impacts to the bog turtle. The bog turtle is a federally threatened, and state endangered species protected by applicable laws. Potential habitat for the species is typically characterized by wetlands with deep mucky soils and groundwater springs. If wetlands and watercourses are present within the disturbance area for this activity, then special provisions and/or time of year restrictions may be necessary.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 16.</p>		
Production Standard	To Be Determined (TBD)		
Production Unit	Miles	Production Unit/Hours	TBD Miles per man hour
		Planning Units	Miles

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
EO T, EO 2, HMW, EO 1	3-4	Dump Truck	1-2		Varies depending on vegetation	Varies
		- Attenuator	0-21			
		- Message Board	0-2			
		- Arrow Board	0-1			
		Spray Truck	1			
		- Skid Mounted Herbicide Sprayer	1			
		Pickup Truck w/ Message Board	0-2			

The number of employees and pieces of equipment can be adjusted based on field conditions.

Methods & Procedures

Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.

The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.

PTC Foreman Manual

Work Activity No	3440	Effective Date			
Work Activity	VGTN - Seeding, Soil Supplements & Mulch				
Work Activity Description Summary	<p>This activity includes all actions related to the furnishing and placing of seed, soil supplements and mulch to roadside locations for the purpose of stabilizing roadway embankments and compliance with current erosion and sedimentation requirements.</p> <p>This work shall be programmed in accordance with the Roadway Site Design Coordinator who will determine the seed formula and material application rates for each project.</p> <p>Mulching shall be done as a separate operation and shall not be applied with the seed and soil supplements other than special conditions; mulch materials shall be applied after the seeding operation.</p> <p>If this activity is proposed within the counties of Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek Watershed), or York, then this activity must avoid adverse impacts to the bog turtle. The bog turtle is a federally threatened, and state endangered species protected by applicable laws. Potential habitat for the species is typically characterized by wetlands with deep mucky soils and groundwater springs. If wetlands and watercourses are present within the disturbance area for this activity, then special provisions and/or time of year restrictions may be necessary.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 16.</p>				
Production Standard					
	None				
Production Unit					
	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

3600 – LITTER REMOVAL

PTC Foreman Manual

Work Activity No	3605	Effective Date	
Work Activity	LTTR - Daily Litter Pick-Up & Debris Removal		
Work Activity Description Summary	<p>This activity includes all actions related to daily litter pickup and debris removal (including animal carcasses). This litter and debris are generated by customers, normal weather and wind conditions.</p> <p>Additional assistance may be needed for any debris too large or heavy to be removed by the individual(s) on site.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 16.</p>		
Production Standard	1 Trip		
Production Unit	Trip	Production Unit/Hours	0.042 Trips per man hour
		Planning Units	Trip

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	3610	Effective Date	
Work Activity	LTTR - Annual Right of Way Litter Pick-Up & Debris Removal		
Work Activity Description Summary	<p>This activity includes all actions related to litter pickup and debris removal (within established highway right of way limits) as this litter and debris is generated by the motoring public and normal weather and wind conditions.</p> <p>This includes all access roads, tower roads, interchanges, and ramps.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 16.</p>		
Production Standard	5 Miles		
Production Unit	Miles	Production Unit/Hours	0.052 Miles per man hour
		Planning Units	Miles

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

3800 – BUILDINGS, GROUNDS & SUPPORT

PTC Foreman Manual

Work Activity No	3805		Effective Date		
Work Activity	BLDG - Interchange Cleaning Booths & Canopies				
Work Activity Description Summary	This activity includes all work associated with cleaning the interchange booths, canopies, and administration buildings. Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915. This activity is preferred to be performed during spring, summer, and fall months.				
Production Standard	None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Interchange personnel are notified of the plan to clean each interchange as scheduled. Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	3810	Effective Date	
Work Activity	BLDG - Maintenance of Access Roads		
Work Activity Description Summary	<p>This activity includes all actions related to the maintenance and repair of access roads. Snow removal activities are charged to Work Activity No. 2205, In-Storm Work or Work Activity 2210, Non-Storm Work, whichever applies.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 6.</p>		
Production Standard	None		
Production Unit	Man Hours	Production Unit/Hours	Man hours
Planning Units	Man Hours		

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No	3815		Effective Date		
Work Activity	BLDG - Maintenance of Buildings				
Work Activity Description Summary	This activity includes all actions related to the maintenance of Commission owned or leased buildings which includes district offices, section sheds and PSP offices, such as janitorial work (sweeping and washing floors, washing windows, disposing of trash, cleaning buildings). Reference PTC Maintenance Manual, Chapter 13.				
Production Standard	None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No		3820		Effective Date		
Work Activity		BLDG - Maintenance of Grounds				
Work Activity Description Summary		This activity includes all actions related to the maintenance of Commission owned or leased grounds, such as disposing of litter, fertilizing, watering of the grounds, etc. Reference PTC Maintenance Manual, Chapter 13.				
Production Standard		None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours	

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No	3825		Effective Date		
Work Activity	BLDG - Maintenance of Gates & Security Fences				
Work Activity Description Summary	This activity includes all actions related to the maintenance and repair of Commission owned access gates and facility perimeter fence. Reference PTC Maintenance Manual, Chapter 13.				
Production Standard	None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the access gate location for emergency response concerns.						

PTC Foreman Manual

Work Activity No	3835	Effective Date	
Work Activity	BLDG - Support of FEMO Activities		
Work Activity Description Summary	<p>This activity includes all actions related to the support of any FEMO activities such as highway lighting, tunnel re-lamping, trenching, building repairs, etc.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915. (Must be applicable to the activity being performed).</p> <p>Reference PTC Maintenance Manual, Chapter 13.</p>		
Production Standard	None		
Production Unit	Man Hours	Production Unit/Hours	Man hours
		Planning Units	Man Hours
Methods & Procedures			
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.			
Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.			

4000 – TRAINING

PTC Foreman Manual

Work Activity No	4005		Effective Date		
Work Activity	TRNG – In-House Training				
Work Activity Description Summary	<p>This activity includes all costs relative to specialized internal training courses undertaken by the Commission for those employees in Maintenance District and Section locations. This activity also includes all costs relative to those individuals training or administering tests for training purposes.</p> <p>Specialized training courses may include, but not limited to: Defensive Driving, all equipment training, and management seminars.</p>				
Production Standard	None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No	4010		Effective Date		
Work Activity	TRNG - Outsource Training, No Vendor Cost				
Work Activity Description Summary	This activity includes all actions related to external training courses undertaken by the Commission for those employees in Maintenance Districts and Sections that there is no cost to the Commission. Specialized training courses may include, but not limited to: Outside seminars, training by other Commonwealth Agencies.				
Production Standard	None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No	4015		Effective Date		
Work Activity	TRNG - Outsource Training, Vendor Cost				
Work Activity Description Summary	This activity includes all actions related to external training courses undertaken by the Commission for those employees in Maintenance Districts and Sections that there is a cost to the Commission. Specialized training courses may include, but not limited to: Outside seminars, training by other Commonwealth Agencies.				
Production Standard	None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

4200 – TUNNEL

PTC Foreman Manual

Work Activity No		4205		Effective Date		
Work Activity		TNNL – Barrier Repair/Replace				
Work Activity Description Summary		<p>This activity includes all actions related to the miscellaneous repair/replacement of median and shoulder barrier, guiderail, impact attenuation devices and end treatments associated with tunnels.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 15.</p>				
Production Standard		None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours	

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	4210	Effective Date			
Work Activity	TNNL - Drainage, Repair/Replace, Clean				
Work Activity Description Summary	<p>This activity includes all actions related to cleaning inlets and end walls such as removal and disposal of material.</p> <p>All cleaning operations performed in the ditch within 15 feet of the pipe opening and one shovel length into the pipe will be charged to this code.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 15.</p>				
Production Standard	None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						
Manual Cleaning – Crew member remove dirt and debris from inlets and end walls with shovels. Debris removed should be loaded onto trucks and disposed of at a predetermined environmentally safe site.						
Mechanized Cleaning – Remove grating from inlet and clean with vactor. End walls are cleaned with excavator. Debris removed should be loaded onto trucks and disposed of at a predetermined environmentally safe site.						

PTC Foreman Manual

Work Activity No		4215		Effective Date		
Work Activity		TNNL – Ice Removal				
Work Activity Description Summary		<p>This activity includes all actions related to the removal of ice or ice build-up within the tunnel</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 15.</p>				
Production Standard		None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours	

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies according to job requirements		Varies according to job requirements		Varies according to job requirements	Varies according to job requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No		4225		Effective Date		
Work Activity		TNNL – Other, Support				
Work Activity Description Summary		<p>This activity includes all actions related to supporting others working in or around the tunnels. This may include but is not limited to contractor inspections, FEMO work (re-lamping, electrical, etc.), etc.</p> <p>This activity is done by temporarily closing the tunnel or a traffic pace.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p>				
Production Standard		None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours	

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

4400 – BRIDGE

PTC Foreman Manual

Work Activity No	4405	Effective Date			
Work Activity	BRDG – Cleaning				
Work Activity Description Summary	<p>This activity includes all actions related to sweeping, flushing, cleaning, lubricating and inspecting all bridges annually.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 17.</p>				
Production Standard	To Be Determined (TBA)				
Production Unit	Bridges	Production Unit/Hours	TBD Bridges per man hours	Planning Units	Bridges

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman or Asst. Foreman	1	Dump Truck	4-8	Shovels	Water	
EO T, EO 2, HMW	2	- Message Board	0-3	Broom	Grease	
EO 1, HMW	8-10	- Arrow Board	1	Wheelbarrow		
		- Attenuator	1-2	Leaf Blower		
		- Trailer	1	Pry Bar		
		o High Lift	1	Miscellaneous Hand tools		
		- Light Plant	0-2	Scupper Plugs		
		Sign Truck	1			
		Crew Cab (1-ton)	1			
		- Air Compressor	1			
		Sweeper	1			
		Vactor	1			
		Pickup Truck w/ Message Board	0-2			
		Water Tank	1			
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	4410			Effective Date	
Work Activity	BRDG - Substructure Maintenance				
Work Activity Description Summary	<p>This activity includes all actions related to spall repair to abutments, piers, footings, piles, columns, walls, pedestals, caps, bridge seats, slope wall and bearing systems.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 17.</p>				
Production Standard	None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman or Asst. Foreman	1	Dump Truck	6-12	Shovels	Water	
EO T, EO 2, HMW	0-2	- Message Board	0-3	Broom	Rebar Ties	
EO 1, HMW	7-13	- Arrow Board	2	Wheelbarrow	Concrete	
		- Attenuator	2-3	Leaf Blower	Sand	
		- Trailer	1	Pry Bar/Digging Bar	Aggregate	
		o High Lift	1	Miscellaneous Hand tools	Rebar (Varies)	
		- Cement Mixer	1	30 lb jack hammer	Epoxy	
		- Light Plant	0-2			
		Bridge Crane	0-1	Concrete Saw	Grease	
		Sign Truck	1	Hammer Drill	Rock (Type to be determined)	
		Crew Cab (1-ton)	0-1	Chalk Line		
		- Air Compressor	0-1	Float		
		Gradall	0-1	Masonry Tools		
		Pickup Truck w/ Message Board	0-2	Buckets, 5 Gallon		
				Concrete Hoe		
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

PTC Foreman Manual

Work Activity No	4415		Effective Date		
Work Activity	BRDG - Superstructure Maintenance				
Work Activity Description Summary	<p>This activity includes all action related to spall repair, type 1, type 2 and type 3 deck repairs, expansion joints, beams, beam ends, and parapet walls.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference PTC Maintenance Manual, Chapter 17.</p>				
Production Standard	None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours

PTC Foreman Manual

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Foreman or Asst. Foreman	1	Dump Truck	4-12	Shovels	Water	
EO T, EO 2, HMW, EO 1	6-13	- Message Board	0-3	Broom	Rebar Ties	
		- Arrow Board	1-2	Wheelbarrow	Concrete	
		- Attenuator	1-3	Leaf Blower	Sand	
		- Trailer	1	Pry Bar/Digging Bar	Aggregate	
		o High Lift	1	Miscellaneous Hand tools	Rebar (Varies)	
		- Cement Mixer	1	30 lb jack hammer	Epoxy	
		- Light Plant	0-2			
		Sign Truck	1	Concrete Saw		
		Crew Cab (1-ton)	0-1	Hammer Drill		
		- Air Compressor	0-1	Chalk Line		
		Pickup Truck w/ Message Board	0-2	Float		
				Masonry Tools		
				Buckets, 5 Gallon		
				Concrete Hoe		

The number of employees and pieces of equipment can be adjusted based on field conditions.

Methods & Procedures

Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.

The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.

4500 – MS4

PTC Foreman Manual

Work Activity No	4505	Effective Date	
Work Activity	MS4 – MS41 - 3rd Party Deficiency Corrected		
Work Activity Description Summary	<p>This activity includes all actions related to addressing deficiencies identified by an inspection performed by non-Maintenance personnel (3rd party inspections).</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference the PTC Maintenance Manual, Chapter 13.</p>		
Production Standard	Weekly/Minimum 4 potential sources of pollutants per SOP. Such as Fuel Island, Basins, Dumpsters, Salt Storage, tire and Battery Storage etc.		
Production Unit	Weekly	Production Unit/Hours	None
		Planning Units	Weekly

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The equipment required will be determined based on the type of storm water system.						
Methods & Procedures						
Strict adherence to the type of equipment utilized while performing these functions is mandatory. Improper use of equipment or method could jeopardize the integrity of the storm water system.						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No	4510	Effective Date	
Work Activity	MS4 – MS42 – PTC Deficiency Corrected		
Work Activity Description Summary	This activity includes all actions related to addressing deficiencies identified Maintenance personnel. Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915. Reference the PTC Maintenance Manual, Chapter 13.		
Production Standard	Weekly/Minimum 4 potential sources of pollutants per SOP. Such as Fuel Island, Basins, Dumpsters, Salt Storage, tire and Battery Storage etc.		
Production Unit	Weekly	Production Unit/Hours	None
		Planning Units	Weekly

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The equipment required will be determined based on the type of storm water system.						
Methods & Procedures						
Strict adherence to the type of equipment utilized while performing these functions is mandatory. Improper use of equipment or method could jeopardize the integrity of the storm water system.						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No	4515	Effective Date	
Work Activity	MS4 – MS43 Spills		
Work Activity Description Summary	<p>This activity includes all actions related to cleaning up spills. 50 minutes/\$50 threshold.</p> <p>Activity Code 4515 is for spills at the Maintenance Facility only that fall within 50 minutes/\$50 threshold.</p> <p>DO NOT USE for roadway spills or WBS related roadway incidents.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference the PTC Maintenance Manual, Chapter 13.</p>		
Production Standard	Weekly/Minimum 4 potential sources of pollutants per SOP. Such as Fuel Island, Basins, Dumpsters, Salt Storage, tire and Battery Storage etc.		
Production Unit	Weekly	Production Unit/Hours	None
		Planning Units	Weekly

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The equipment required will be determined based on the type of storm water system.						
Methods & Procedures						
Strict adherence to the type of equipment utilized while performing these functions is mandatory. Improper use of equipment or method could jeopardize the integrity of the storm water system.						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No	4520	Effective Date	
Work Activity	MS4 – MS44 Good Housekeeping/Misc./Other		
Work Activity Description Summary	<p>This activity includes all actions related to monthly housekeeping tasks or any other miscellaneous task.</p> <p>The Maintenance facility is divided up into 18 locations that are potential sources of pollutants. Cleanliness of operations and facilities should be observed, reported, or restored routinely. Good Housekeeping SOPs will be officially performed and documented for each location one time per month.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference the PTC Maintenance Manual, Chapter 13.</p>		
Production Standard	Weekly/Minimum 4 potential sources of pollutants per SOP. Such as Fuel Island, Basins, Dumpsters, Salt Storage, tire and Battery Storage etc.		
Production Unit	Weekly	Production Unit/Hours	None
		Planning Units	Weekly

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The equipment required will be determined based on the type of storm water system.						
Methods & Procedures						
Strict adherence to the type of equipment utilized while performing these functions is mandatory. Improper use of equipment or method could jeopardize the integrity of the storm water system.						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
Each week, the Foreman removes the appropriate SOP sheets from the tablet and provides a sheet to the assigned Operator to complete.						
The assigned Operator goes to the designated SOP Activity area; completes the activities described on the sheet; assesses the conditions using the prompting questions; corrects problems, if possible; and writes comments for unresolved issues.						
The Operator then provides the completed SOP sheet to the Foreman and discusses any unresolved issues with the Foreman.						
The Foreman files the SOP sheet as documentation of the inspection and completed good housekeeping effort. If there are outstanding deficiencies, the foreman verifies deficiencies, creates a work order, and assigns operators to fix the problem, or notifies the correct PTC unit to make repairs.						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

4600 – STORM WATER SYSTEMS

PTC Foreman Manual

Work Activity No	4605	Effective Date	
Work Activity	SWSM - Inspections		
Work Activity Description Summary	This activity includes all actions related to storm water inspections to determine the work activities required for the storm water management program. Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915. Reference the PTC Maintenance Manual, Chapter 16.		
Production Standard	None		
Production Unit	Man Hours	Production Unit/Hours	Man hours
		Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The equipment required will be determined based on the type of storm water system.						
Methods & Procedures						
Strict adherence to the type of equipment utilized while performing these functions is mandatory. Improper use of equipment or method could jeopardize the integrity of the storm water system.						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No	4610	Effective Date	
Work Activity	SWSM - Storm Water BMP Maintenance (Best Management Practice)		
Work Activity Description Summary	<p>This activity includes all actions related to the maintenance activities required for the various types of storm water BMP management systems.</p> <p>Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized.</p> <p>If this activity is proposed within the counties of Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek Watershed), or York, then this activity must avoid adverse impacts to the bog turtle. The bog turtle is a federally threatened, and state endangered species protected by applicable laws. Potential habitat for the species is typically characterized by wetlands with deep mucky soils and groundwater springs. If wetlands and watercourses are present within the disturbance area for this activity, then special provisions and/or time of year restrictions may be necessary.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference Index of Standards for Maintenance and Protection of Traffic, PTS-915.</p> <p>Reference the PTC Maintenance Manual, Chapter 16.</p>		
Production Standard	None		
Production Unit	Man Hours	Production Unit/Hours	Man hours
			Planning Units
			Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The equipment required will be determined on the type of storm water system.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

4800 – FLEET SUPPORT

PTC Foreman Manual

Work Activity No	4805		Effective Date		
Work Activity	FLTS - Equipment Detailing & Cleaning				
Work Activity Description Summary	This activity includes all actions related to equipment PM (wash, vacuum & detailing) and must be performed on a regular basis. Reference the Fleet Equipment Maintenance Manual.				
Production Standard	None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No	4810	Effective Date	
Work Activity	FLTS - Equipment Seasonal Prep		
Work Activity Description Summary	<p>This activity includes all actions related to the preparation of seasonal equipment.</p> <p>Equipment utilized during the winter operations shall be reconditioned and readied for the next season prior to October each year.</p> <p>Equipment utilized during the spring summer & fall operation period shall be reconditioned and readied prior that operational period each year.</p> <p>Reference Fleet Equipment Maintenance Manual.</p>		
Production Standard	None		
Production Unit	Man Hours	Production Unit/Hours	Man hours
Planning Units	Man Hours		

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

PTC Foreman Manual

Work Activity No	4815		Effective Date		
Work Activity	FLTS - Hauling Equipment (Lowboy)				
Work Activity Description Summary	This activity includes all actions related the hauling equipment.				
Production Standard	None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						

5200 – RIGHT-OF-WAY

PTC Foreman Manual

Work Activity No	5205	Effective Date	
Work Activity	ROWY - Fence Repairs		
Work Activity Description Summary	<p>This activity includes all actions related to right of way fence repairs / replacement identified as a result of inspections by Operations Managers, Foremen and maintenance personnel.</p> <p>Environmental concerns such as wetlands, erosion control, and waterway pollution are to be considered in the disposal of excavated and waste materials. Waste materials shall not be placed in wetlands or waterways. Waste materials must be stabilized. Rolling is acceptable stabilization. Reference PTC Maintenance Field Guide for Erosion and Sediment Controls Manual.</p> <p>Reference PTC Maintenance Manual, Chapter 16.</p>		
Production Standard	330 Feet (1 Roll)		
Production Unit	Feet	Production Unit/Hours	6.875 Feet per man hour
		Planning Units	Feet

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
The number of employees and pieces of equipment can be adjusted based on field conditions.						
Methods & Procedures						
Prior to the beginning of work, the Foreman will give the required safety talk and provide general instructions to the work crew on the daily activities.						
The Operations Center should be notified of the direction and milepost of the work zone prior to beginning of work and upon completion. ATMS should be updated by supervision in addition to the Operations Center notification.						

5400 –
ADMINISTRATION,
OTHER

PTC Foreman Manual

Work Activity No	5405		Effective Date		
Work Activity	ADMN - Administrative Overhead				
Work Activity Description Summary	This activity includes all actions related to the costs not assignable to another Work Activity. Example includes: Travel to and from interviews, Meetings, Special Assignments, Committees, Vendor Meetings, etc.				
Production Standard	None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
Methods & Procedures						

PTC Foreman Manual

Work Activity No	5410		Effective Date		
Work Activity	ADMN - Complaints				
Work Activity Description Summary	This activity includes all actions related to corrective actions related to complaints after verification and approval of the Maintenance Department.				
Production Standard	None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
Methods & Procedures						

PTC Foreman Manual

Work Activity No		5415		Effective Date		
Work Activity		ADMN - Inventory Activity				
Work Activity Description Summary		This activity includes all actions related to maintaining inventory control; monthly cycle counts; facilitate inventory, material and equipment pickup, transfers, and relays on normal workdays.				
Production Standard		None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours	

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
Methods & Procedures						

PTC Foreman Manual

Work Activity No	5420	Effective Date			
Work Activity	ADMN - Union Business				
Work Activity Description Summary	This activity includes all actions related to costs related to union business.				
Production Standard	None				
Production Unit	Man Hours	Production Unit/Hours	Man hours	Planning Units	Man Hours

Work Activity Requirements						
Personnel		Equipment		Small Equipment	Material	
Classification	Qty.	Type	Qty.	Type	Description	Qty.
Varies According to Job Requirements		Varies According to Job Requirements		Varies According to Job Requirements	Varies According to Job Requirements	
Methods & Procedures						