



TENNESSEE DEPARTMENT OF TRANSPORTATION

Unit Cost Analysis

January 5, 2023



Introduction

As part of the Applied Pavement Technology, Inc. (APTech) team, CHA Consulting, Inc. is providing unit cost information for various pavement repairs in support of the Airport Pavement Management System (APMS) Update for the Tennessee Department of Transportation – Aeronautics Division (TAD). This report provides descriptions and associated unit costs of eleven (11) repairs for bituminous pavements and seven (7) repairs for Portland cement concrete pavements. The unit cost information will be used by AP Tech and TAD to estimate pavement maintenance and repair needs for airports in Tennessee.

The cost estimates are based on the 2020-2022 construction bid tabulations across the state. The costs are meant to be a reasonable expectation of the costs associated with each repair. However, the costs cannot capture all possible work required for a complete project at a specific airport. Project development costs for individual projects should be completed when the overall project is defined in the planning and programming process.

Pavement Repairs Table

Bituminous Pavement	Portland Cement Concrete Pavement
Crack Sealing (1/8" to 1")	Joint Cleaning and Sealing
Crack Repair (1" to 1-1/2")	Crack Sealing
Crack Repair (1-1/2" to 3-1/2")	Crack Repair (Epoxy Injection)
Milling (2" Depth)	Spall Repair
Bituminous Overlay (2" Depth)	Partial Slab Replacement (4"-8", 8"-12", 12"-16")
Asphalt Patching	Full Slab Replacement (4"-8", 8"-12", 12"-16")
Surface Treatments (P-608, P-608R, P-623, P-629, & P-632)	Full Depth Reconstruction (12,500 lbs., 30,000 lbs., 60,000 lbs., and 90,000 lbs.)
Paint Removal	
Painting	
Full Depth Reconstruction (12,500 lbs., 30,000 lbs., 60,000 lbs., and 90,000 lbs.)	
Full Depth Reclamation (12,500 lbs., 30,000 lbs., 60,000 lbs., and 90,000 lbs.)	

Crack Sealing (1/8" to 1") – Bituminous Pavement

Crack sealing is a "surface treatment" and a flexible pavement repair for longitudinal or transverse cracks measured by the length, linear foot, or area, square feet. Crack repairs are marked (linearly) or outlined (area). The cracks are then cleaned with an air compressor or a power washer to remove dirt and loose impediments. Filling the cracks reduces and minimizes the infiltration of water into the pavement. The reduction of water slows the erosion of the mix and the deterioration of the cracks and underlying materials, thus extending and preserving the life of the pavement. The unit costs are per linear foot for the length of the cracks cleaned and sealed.

Unit Cost Includes:

- Crack Cleaning
- Crack Filling




BITUMINOUS PAVEMENT CRACK CLEANING AND SEALING DETAIL CRACK WIDTH 1/8 TO 1 INCHES

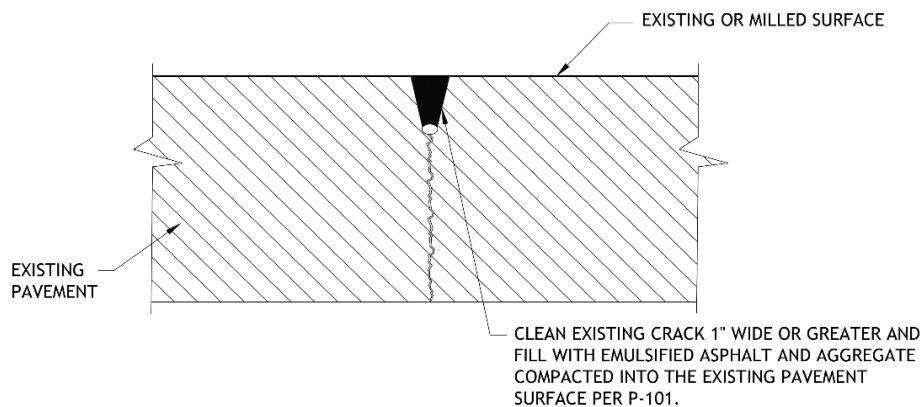
NOT TO SCALE

Crack Repair (1" to 1-1/2") – Bituminous Pavement

Crack repair is also a surface treatment and a flexible pavement repair for longitudinal or transverse cracks measured by the length, linear foot, or area, square feet. Crack repairs are marked (linearly) or outlined (area). The cracks are then cleaned with an air compressor or a power washer to remove dirt and loose impediments. In some instances, the cracks are sawed or routed to meet a specific width and depth determined by the sealant manufacturer. Once the cracks are clean and dry, uniformly apply the sealant from the bottom to the top of the crack. If a backer rod is needed to meet a specific width to depth ratio, insert a compatible backer rod to the depth outlined in the detail and apply the sealant uniformly. The unit costs are per linear foot for the length of the cracks cleaned, the installation of backer rod, and the filling of the cracks.

Unit Cost Includes:

- Crack Cleaning
- Backer Rod 
- Crack Filling




BITUMINOUS PAVEMENT CRACK REPAIR DETAIL CRACK WIDTH 1 INCH OR LARGER

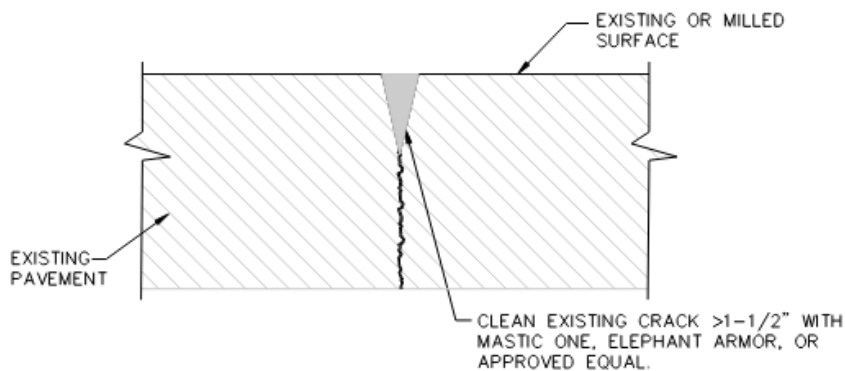
NOT TO SCALE

Crack Repair (1-1/2" to 3-1/2") – Bituminous Pavement

Crack repair is also a surface treatment and a flexible pavement repair for longitudinal or transverse cracks measured by the length, linear foot, or area, square feet. Crack repairs are marked (linearly) or outlined (area). The cracks are then cleaned with an air compressor or a power washer to remove dirt and loose impediments. In some instances, the cracks are sawed or routed to meet a specific width and depth determined by the sealant manufacturer. Once the cracks are clean and dry, uniformly apply the sealant from the bottom to the top of the crack. If a backer rod is needed to meet a specific width to depth ratio, insert a compatible backer rod to the depth outlined in the detail and apply the sealant uniformly. The unit costs are per linear foot for the length of the cracks cleaned, the installation of backer rod, and the filling of the cracks.

Unit Cost Includes:

- Crack Cleaning
- Backer Rod
- Crack Filling 



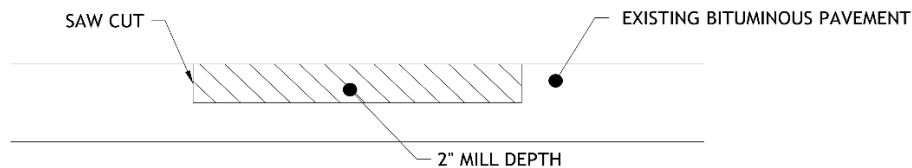
PAVEMENT CRACK REPAIR DETAIL
CRACK WIDTH 1-1/2 INCH OR
LARGER
NOT TO SCALE

Milling (2" Depth) – Bituminous Pavement

Milling is a flexible pavement repair method for both partial and full depth repairs. A two (2) inch milling depth is generally a partial depth pavement repair. A specific depth and width milling repair is quantified by area, square feet or square meter. Mark the outline limits of the removal area. The outer edges of the repair area should be saw cut or milled directly. The area of the repair should extend outwardly six (6) inches to a foot past the distressed pavement limit. The milled area should then be cleaned with an air compressor to remove all dirt and loose impediments. The unit costs are per square yard of the area milled.

Unit Cost Includes:

- Saw Cutting at Interfaces
- Milling – 2" Depth



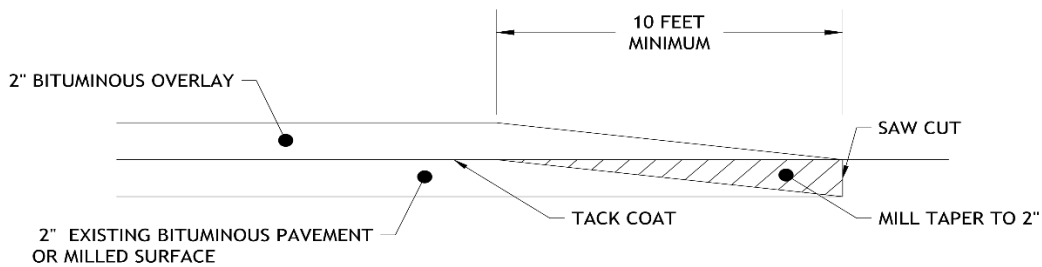
MILLING DETAIL
NOT TO SCALE

Bituminous Overlay (2" Depth) – Bituminous Pavement

A bituminous overlay is a common repair for both flexible and rigid pavements. The overlay can be either structural or non-structural which is directly dependent to the condition of the existing pavement. The existing surface of overlay pavements should be structurally sound, level, and clean. If the existing pavement being used as a base is not sound, the pavement must be leveled and repaired. The pavement repairs can include crack sealing, pavement milling, and leveling. Once the existing pavement is repaired, a tack coat as a binding agent should be placed on the existing pavement. The bituminous 2" overlay can now be paved. A hot mix asphalt (HMA) meeting the FAA P-401 or P-403 requirements. The unit costs are per square yard of the placed bituminous pavement.

Unit Cost Includes:


- Tack Coat
- Bituminous Overlay – 2" Depth
- Pavement Marking



OVERLAY DETAIL
NOT TO SCALE

Surface Treatments (FAA P-608 Emulsified Asphalt Seal Coat, FAA P-623 Emulsified Asphalt Spray Seal Coat, FAA P-629 Thermoplastic Coal Tar Emulsion Surface Treatment, and FAA P-632 Asphalt Pavement Rejuvenation)

P-608 Emulsified Asphalt Seal Coat is a “surface treatment” measured by area in square yards for new airport pavements or airport pavements in fair or better condition with low to moderate weathering in accordance with ASTM D5340. The pavements must be clean and free of dust, dirt, grease, vegetation, and oil of any type. It is the application of an emulsion of natural and refined asphalt materials, water, and a polymer additive. An aggregate additive is required when used on high-speed pavements and shall be tested in accordance with AC 150/5320-17. The P-608-R treatment is an ideal option for projects with limited closure durations. Use of the material requires a test strip application prior to the full application. The application rate and distribution of the emulsion shall be applied by a computer-controlled distributor in accordance with ASTM D2995.

P-623 Emulsified Asphalt Spray Seal Coat is a “surface treatment” measured by area in square yards for all airport pavements, *except runways*, with the weight restriction of 30,000 lbs. or less in fair or better condition according to ASTM D5340. The pavements must be clean and free of dust, dirt, grease, vegetation, and oil of any type. It is a spray seal coat of an emulsion of petroleum, mineral fillers, water, and polymers. A controlled test strip is required prior to full production. The application rates for the material varies per coat and pavement application. 

P-629 Thermoplastic Coal Tar Emulsion Surface Treatment is measured in square yards or lump sum and is for general aviation airport use on all pavements for planes 30,000 lbs. or less and for all pavements except runways for airports serving aircrafts of 60,000 lbs. or less. It is a mixture of a thermoplastic coal tar emulsion which is a plastic resin and emulsified coal tar pitch. The cured thermoplastic coal tar emulsion sample must be in accordance with ASTM D5727. The composition of the mixture must meet an approved job mix formula. The combination of aggregates must also conform to gradation in accordance with ASTM C131 and ASTM C136. The existing pavement joints and cracks shall be treated in accordance with P-101. The material is placed at a specified application rate by a mobile mixing machine. A controlled test strip is required prior to full production. The application rates for the material varies per coat and pavement application.

P-632 Asphalt Pavement Rejuvenation is measured in square yards and is for general aviation airport use on all pavements serving aircrafts of 60,000 lbs. or less except runways or acute-angled taxiways. Asphalt Rejuvenator is commonly called a “fog seal” and can be considered for use on pavements with low to moderate weathered surfaces defined by ASTM D5340. Rejuvenator contains volatile organic compounds

(VOC) and the engineer must check with federal, state, and local authorities prior to use. The product rejuvenates the upper 3/8 inch of oxidized or otherwise aged asphalt binder without causing an unacceptable reduction in the friction characteristics of the pavement section. The material is placed at a specified application rate by equipment per manufacture's recommendation. A controlled test strip is required prior to full production. The application rates for the material varies per coat and pavement application.

Unit Cost Includes:

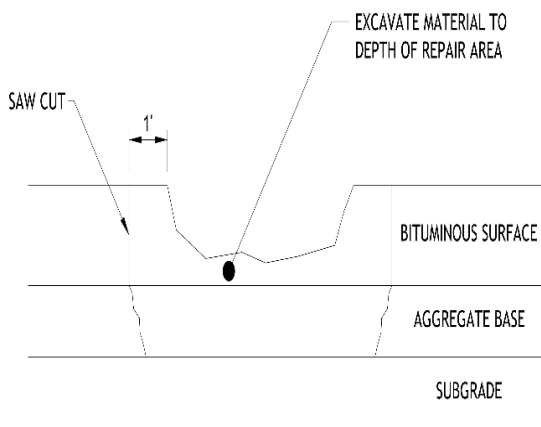
- Pavement Marking Removal
- Seal Coat Application
- Pavement Marking

Asphalt Patching (Areas Typically Less Than 100 SF)

There are several asphalt patching techniques that may be used for filling cracks, repairing pavements, etc. Asphalt patching helps prevent further deterioration and avoid large repair expenses. Some commonly used asphalt repair methods are applying cold patch, applying aggregate emulsion as a surface treatment, partial depth pavement replacement and full depth pavement patching. Cold patch is a temporary patch repair where cold asphalt is filled into a hole or depression and then rolled over for compaction. This is typically an adverse weather repair or an emergency repair method. The repair using aggregate and emulsion as a spray application or otherwise requires that the pavement is prepared by removing all water and debris from cracks or holes by an air compressor. After the pavement is clean, an aggregate and emulsion mix is applied under pressure into the pavement to fill the cracks. Partial and full depth patch repairs are longer lasting repairs that require excavating the pavement by hand tools or milling, removing any dirt and debris, and then replacing pavement layers with the proper asphalt mix. The unit costs are per square feet for the pavement replaced as partial and full depth patch repairs.

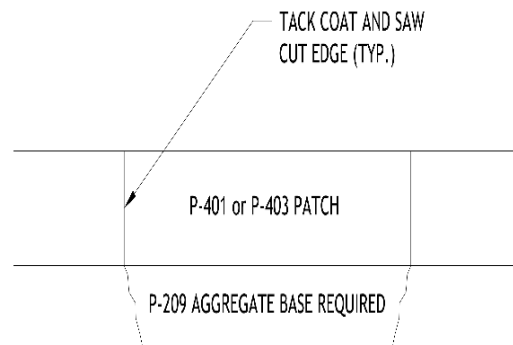
Unit Cost Includes:

- Saw Cut
- 4" P-209
- 4" P-401/P-403
- Tack Coat



PARTIAL DEPTH PATCH REPAIR

NOT TO SCALE



FULL DEPTH PATCH REPAIR

NOT TO SCALE

Paint Removal

Paint removal from existing pavements for resurfacing, bond overlaying or remarking shall be removed by chemicals, water blasting, heater scarifier (asphaltic concrete only), cold milling, sand blasting, or by other methods approved by the Engineer minimizing damage to the pavement surface. The removal area may need to be larger than the area of the pavement markings to eliminate ghost markings. After removal of markings on asphalt pavements, it may be necessary to apply a fog seal or seal coat to 'black out' the removal area to eliminate 'ghost' markings. The unit costs are per square foot of the paint removed.

**When applied to the unit costs for the various pavement repairs and maintenances in Appendix B, the quantity of the removal is approximately eleven (11) percent of the pavement surface area.

Unit Cost Includes:

- Water Blasting Paint Removal

Painting

Proposed pavement markings are measured by area in square feet and shall be laid out in advance of the paint application. The paint and the reflective media shall meet the specifications of P-620. The locations of markings to receive reflective media should be outlined as shown on the plans. A period of 30 days shall elapse between placement of surface course or seal coat and application of the permanent paint markings. Paint shall not be applied until the layout and condition of the surface has been approved by the Engineer. The unit costs are per square foot.

**When applied to the unit costs for the various pavement repairs and maintenances in Appendix B, the quantity of the pavement marking is approximately eleven (11) percent of the pavement surface area.

Unit Cost Includes:

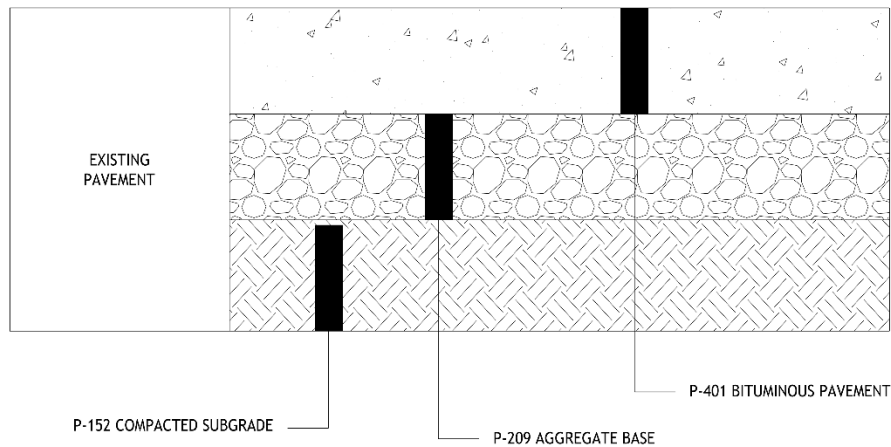
- Layout of Pavement Markings
- Airfield Pavement Marking
- Reflective Media

Full Depth Reconstruction – Bituminous Pavement

Full depth flexible pavement reconstruction consists of the removal of the entire existing pavement section down to the native subgrade material; grading, compaction and testing of the subgrade material; placement, compaction and testing of an aggregate base course and the paving of the asphalt base and surfaces courses. The depth of the replacement pavement section is dependent upon the design aircraft and that design weight. The unit costs are per square yard for the different design aircraft.

Unit Cost Includes:

- P-209 Aggregate Base
- P-401/P-403 Bituminous Pavement
- P-603 Tack Coat
- Compaction of Subgrade
- Pavement Marking



FULL DEPTH RECONSTRUCTION

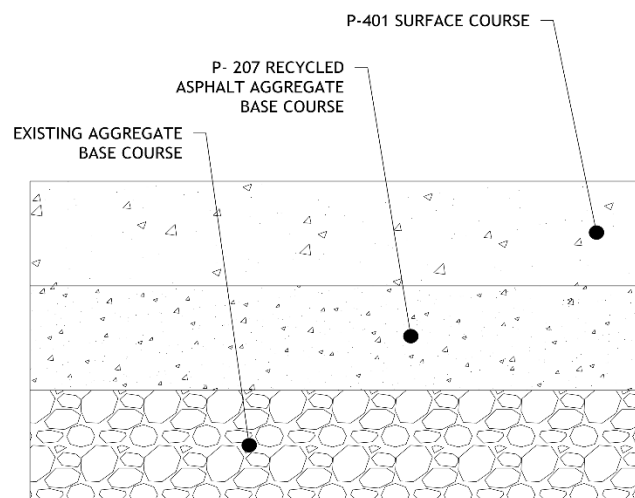
NOT TO SCALE

Full Depth Reclamation (FDR) – Bituminous Pavement

FDR is a pavement rehabilitation technique in which a flexible pavement section and a pre-determined portion of the underlying aggregate base are uniformly crushed. The crushed material is blended with asphalt, aggregate or chemicals to form a stabilized base course. This stabilized base course is then graded, compacted, and allowed to cure before adding a surface course. FAA specification item P-207 is measured by the number of square yards of material reclaimed. The unit costs are per square yard for the different design aircraft.

Unit Cost Includes:

- P-207 Recycled Asphalt Aggregate Base
- P-401/P-403 Bituminous Pavement
- P-603 Tack Coat
- Pavement Marking



FULL DEPTH RECLAMATION

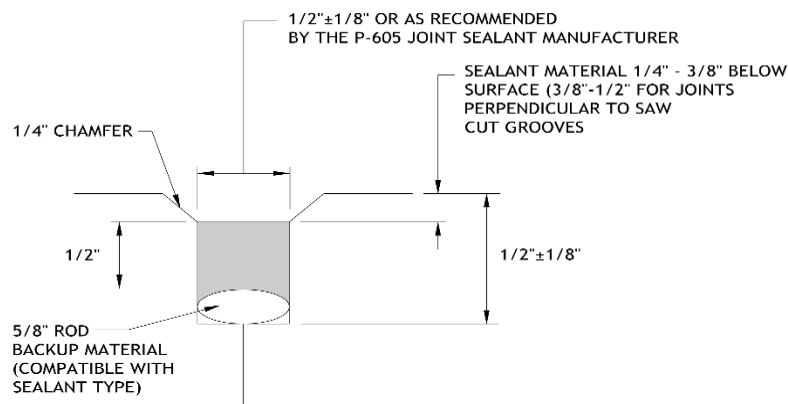
NOT TO SCALE

Joint Cleaning and Sealing – Portland Cement Concrete Pavement

Cleaning of the joint is the most important aspect of joint sealing. A thorough cleaning is required to be sure of good sealant adhesion and long-term performance. No dust, dirt, or visible traces of old sealant should remain on the joint faces after cleaning. Clean the joints using a mechanical action, air compressor, or pure water flushing to remove contaminants. Do not use chemical solvents to wash the joint reservoirs. Solvents can carry contaminants into pores and surface voids on the reservoir faces. The contaminants will inhibit bonding of the new sealant. Installation of the backer rod is next after the cleaning of the joints and prior to the liquid sealant installation. The backer rod and sealant must be compatible. Install the backer rod with a double-wheeled, steel roller, or any smooth blunt tool without puncturing or stretching to the desired and proper depth. Liquid sealants are used with backer rods to complete a uniform installation. Hot-poured and cold-poured sealants are uniformly installed through a nozzle upward from the backer rod to avoid open air pockets. Follow the manufacturer's directions for the specific material. The different sealants have various minimum placement temperatures and cure times. Preformed compression seals are used with a lubricant/adhesive and do not require a backer rod. The compression seal is installed mechanically compressed and inserted in the joint reservoir. The lubrication/adhesive material eases the sealant insertion and forms a weak adhesive to help hold the seal in place. The costs are per linear foot.

Unit Cost Includes:

- Cleaning of Joints
- Backer Rod
- Sealant



JOINT CLEANING - SEALING DETAILS

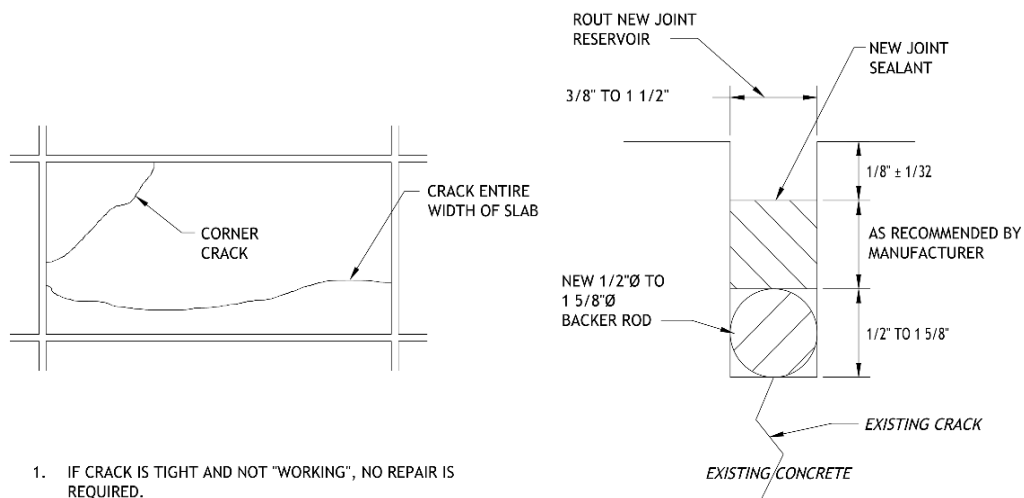
NOT TO SCALE

Crack Sealing – Portland Cement Concrete Pavement

Concrete cracks 1/16 inch to 1-1/2 inches wide shall be routed, cleaned, and sealed. The crack shall be sawed with equipment specially designed to follow random cracks. The reservoir for joint sealant in the crack shall be formed by sawing to a width of 3/8 inch to 1-1/2 inches, and to a depth as recommended by the sealant manufacturer. Any equipment or procedure which causes raveling or spalling along the crack shall be modified or replaced to prevent such raveling or spalling. The cracks/joints shall be sealed in accordance with Item P-605. The unit costs are per linear foot.

Unit Cost Includes:

- Routing of Joints
- Backer Rod
- P-605 Sealant



1. IF CRACK IS TIGHT AND NOT "WORKING", NO REPAIR IS REQUIRED.
2. IF CRACK IS OPEN AND/OR "WORKING", ROUT, CLEAN, AND SEAL WITH JOINT SEALING MATERIAL. SEE DETAIL 4.

CONCRETE CRACK ROUT AND SEAL(1/16 INCH TO 1/ 1/2 INCHES)

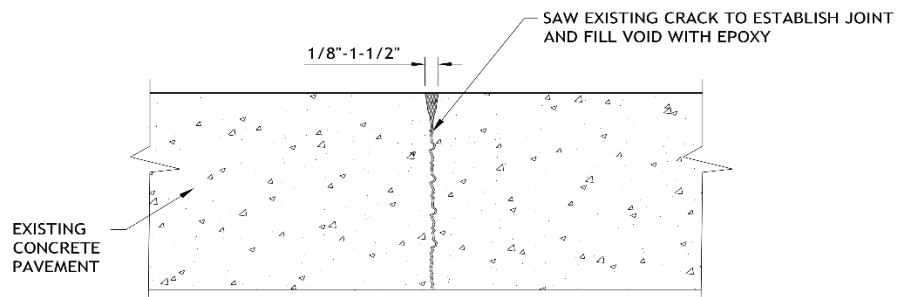
NOT TO SCALE

Crack Repair (Epoxy Injection) – Portland Cement Concrete Pavement

Epoxy injection crack repair is for longitudinal or transverse concrete cracks 1-1/2 inches and less. The repair is measured by length in linear foot. The cracks shall be repaired first by sawing to reestablish a joint and removing the dust and debris from the void. The cracks then are filled by injecting a concrete epoxy adhesive into the voids. The epoxy is smoothed and finished to meet the surrounding pavement level. The cavity shall be filled with an ASTM C881 approved epoxy. The unit costs are per linear foot of the cracks.

Unit Cost Includes:

- Sawing of Cracks
- Epoxy Injection



CONCRETE CRACK REPAIR (1/8 INCH TO 1-1/2 INCHES)

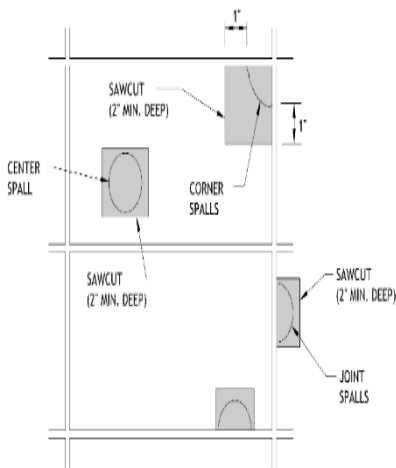
NOT TO SCALE

Spall Repair

Identify and outline spalls in the existing concrete pavement. Make saw cut at least 1" beyond the outer edge of the area of damaged concrete, sawing shall not be less than 2" deep. Remove all spalled PCC down to firm, sound, concrete (indicated by a ringing tone when tapped with a steel bar), providing a minimum of 2" depth of concrete removal and uniformly level exposed surface. Remove all loose material and dust from the area by air blasting. Maintain the working joint by use of a fiberboard or other suitable insert material. Caulk the base of the insert to prevent material from entering the void area between the insert and the concrete to remain. Oils, waxes, grease, or silicones shall not be used on the insert to prevent bonding. Thoroughly clean the area by air jet to remove all residual fines. Carefully check that no trace of oil, grease, or materials that would prevent concrete from bonding are present immediately prior to replacement of repair material. The surface of the cavity (except the face of the working joint) shall be prepared per repair material manufacturer's instructions. Carefully remove the insert before the repair material hardens to high bond. Slightly tool the edges. Repair material shall be a latex modified concrete repair mortar. Finish concrete to grade. Excess mortar or binder carried over the pavement shall be removed. Finally, open saw cuts are to be filled with sand and epoxy resin binder. The unit costs are per square foot for the area of the spall repairs.

Unit Cost Includes:

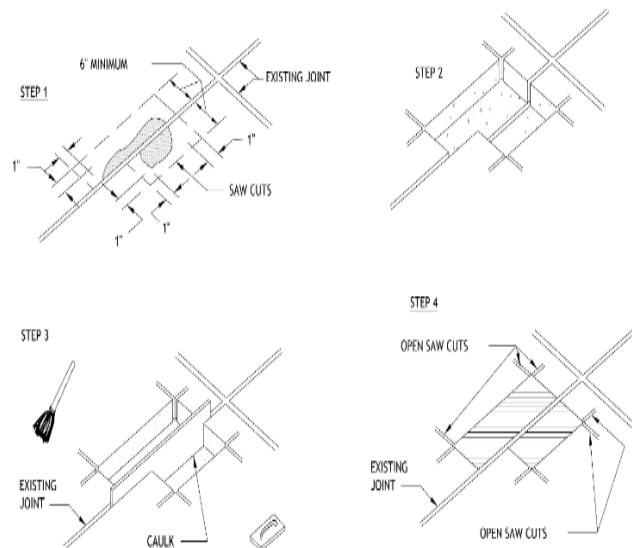
- Removal of Concrete
- Cleaning and Site Preparation
- Latex Modified Concrete



1. FOR CORNER OR JOINT SPALLS, REPAIR IN ACCORDANCE WITH SPALL REPAIR STEPS 1-4.

SPALL REPAIR IN CONCRETE PAVEMENT

NOT TO SCALE



SPALL REPAIR STEPS

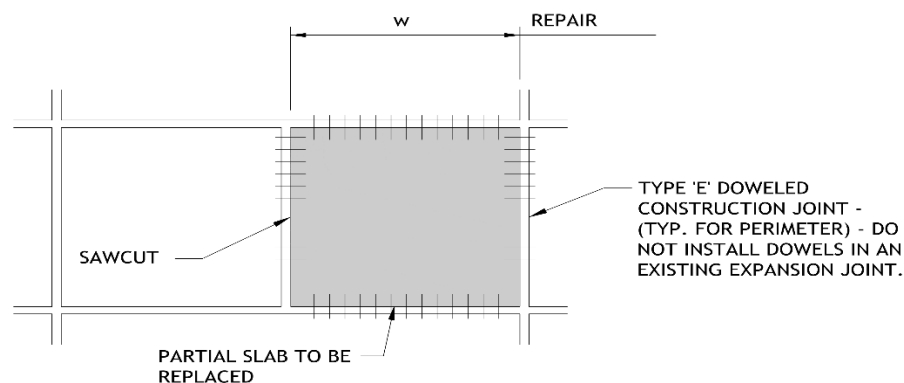
NOT TO SCALE

Partial Slab Replacement

Partial slab replacement is removing a portion of a single failing slab in a concrete pavement. Double saw cut along the outer edges of the slab. Remove the concrete to its full depth across the full width of the panel. Repair or replace base course material and compact the base course material accordingly. Install dowel bars in vertical faces except when the existing joint is an expansion joint. Place new concrete the full depth of the slab void. Maintain the existing joint by use of fiber board or similar material. The unit costs are per square yard for the various pavement thicknesses. Each of the three thicknesses equate to different slab widths.

Unit Cost Includes:

- Removal of Concrete
- P-209 Aggregate Base
- P-501 PCC
- Dowel Bars
- Pavement Marking



PARTIAL SLAB REPLACEMENT

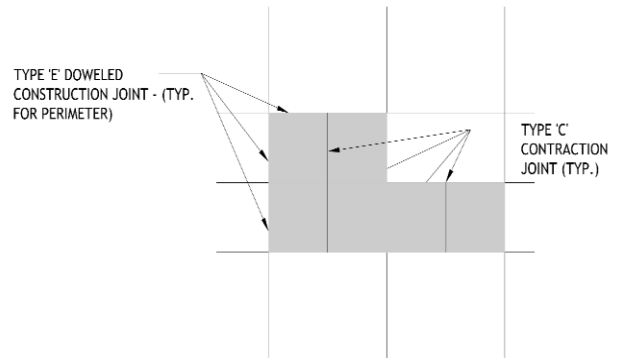
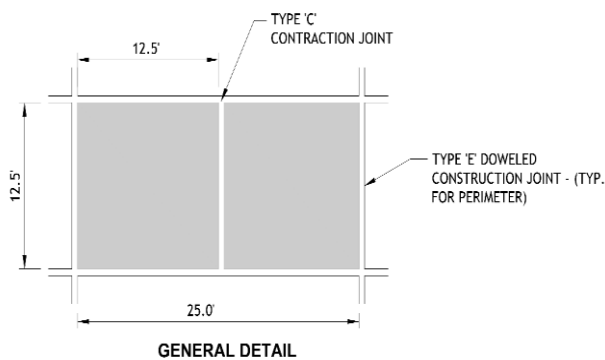
NOT TO SCALE

Full Slab Replacement

Full slab replacement is removing failing slabs in a concrete pavement. Double saw cut along the outer edges of the slabs to be replaced. Remove the concrete to its full depth across the full width of the removed panels. Repair or replace base course material and compact the base course material accordingly. Install Type 'E' Construction joints along the perimeter of the replacement slab area except for existing expansion joints. Install Type 'C' Contraction joints between replacement slabs. Place new concrete the full depth of the slab voids. Maintain the existing joints by use of fiber board or similar material. The unit costs are per square yard for the various pavement thicknesses. Each of the three thicknesses equate to different slab widths.

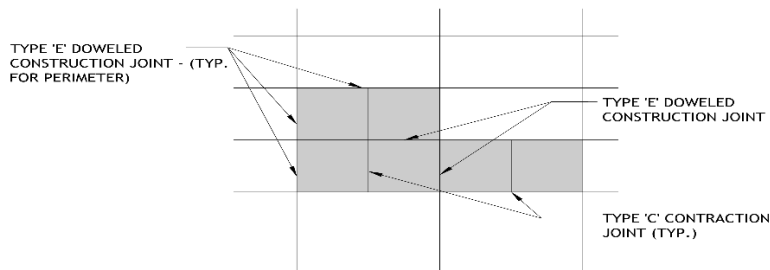
Unit Cost Includes:

- Removal of Concrete
- P-209 Aggregate Base
- P-501 PCC
- Dowel Bars
- Pavement Marking



ADJACENT SLABS REPLACED SIMULTANEOUSLY

ADJACENT SLABS REPLACED SIMULTANEOUSLY



ADJACENT SLABS REPLACED INDIVIDUALLY

FULL SLAB REPLACEMENT

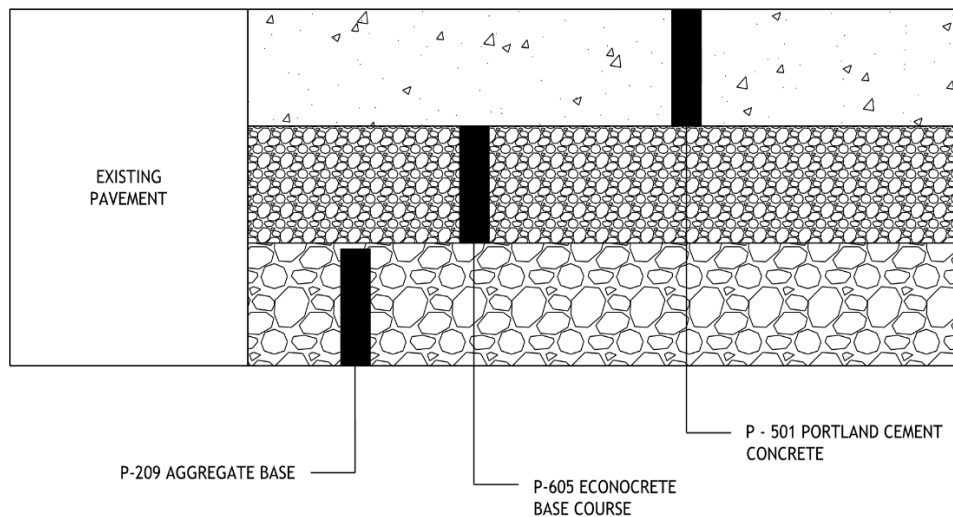
NOT TO SCALE

PCC Reconstruction

Portland Cement Concrete (PCC) reconstruction is the complete removal and replacement of a larger concrete pavement area. The entire existing pavement section removed down to subgrade. Once exposed, the subgrade is trimmed to depth, compacted, and tested. The PCC pavement is designed for specific project conditions, traffic loading, and design duration. The pavement section consists of a layer of aggregate base course (P-209), a layer of econocrete (P-306), and the surface layer of concrete (P-501). The layout joint design details and pavement widths relate directly to the design loading. To ensure proper load transfer between connecting pavement lanes, epoxy coated dowel bars are installed with specific diameter and length in relation to the pavement thicknesses. The unit costs are per square yard for the various pavement thicknesses.

Unit Cost Includes:

- Removal of Concrete
- P-209 Aggregate Base
- P-306 Econocrete Base
- P-501 PCC
- Dowel Bars
- Pavement Marking



PCC RECONSTRUCTION

NOT TO SCALE

Appendix A

Tennessee Area Unit Cost Development

Tennessee Regional Unit Cost Development					
Item No.	Description	Unit	West Tennessee	Middle Tennessee	East Tennessee
			Unit Price	Unit Price	Unit Price
MST-01-3.1	Mobilization/Demobilization	LS	13%	12%	14%
MST-02-3.1	Maintenance of Traffic	LS	5%	5%	5%
MST-03-4.1	Construction Engineering	LS	5%	5%	5%
P-101-5.4	Pavement Marking Removal	SF	\$ 5.00	\$ 7.50	\$ 8.50
P-101-5.5	Milling (2" Asphaltic Pavement)	SY	\$ 12.00	\$ 18.00	\$ 19.00
P-101-5.7	Asphalt Pavement Crack Sealing (1/8" ≤ 1" Wide)	LF	\$ 4.00	\$ 4.00	\$ 4.00
P-101-5.8	Asphalt Pavement Crack Sealing (1" to 1-1/2" Wide)	LF	\$ 8.00	\$ 6.50	\$ 6.50
P-101-5.9	Asphalt Pavement Crack Sealing (1-1/2" to 3-1/2" Wide)	LF	\$ 18.00	\$ 18.00	\$ 18.00
P-207-5.1	In-place Full Depth Recycled (FDR) Asphalt Aggregate Base Course	SY	\$ 19.00	\$ 21.00	\$ 18.00
P-209-5.1	Crushed Aggregate Base Course, 7" Minimum	CY	\$ 60.00	\$ 60.00	\$ 60.00
P-401-8.1.1	Bituminous Surface Course, 2" Minimum Thickness	TON	\$ 172.00	\$ 172.00	\$ 180.00
P-401-8.1.2	Bituminous Base Course, 4" Minimum Thickness	TON	\$ 146.00	\$ 150.00	\$ 150.00
P-501-8.1	PCC Crack Sealing	LF	\$ 8.50	\$ 9.00	\$ 8.50
P-501-8.2	PCC Crack Repair	LF	\$ 10.00	\$ 10.00	\$ 10.00
P-501-8.3	PCC Spall Repair	SF	\$ 70.00	\$ 70.00	\$ 70.00
P-501-8.4	PCC Partial Full Depth Replacement	SY	\$ 280.00	\$ 280.00	\$ 280.00
P-501-8.5	PCC Full Depth Slab Replacement	SY	\$ 264.00	\$ 264.00	\$ 264.00
P-603-5.1	Bituminous Tack Coat	GAL	\$ 6.00	\$ 6.50	\$ 6.00
P-605-5.1	Joint Cleaning and Sealing	LF	\$ 8.50	\$ 13.00	\$ 8.50
P-608-8.1	Asphalt Surface Treatment (Emulsified Asphalt Seal Coat)	SY	\$ 5.00	\$ 6.50	\$ 5.50
P-608R-8.1	Asphalt Surface Treatment (Rapid Emulsified Asphalt Seal Coat)	SY	\$ 5.50	\$ 7.00	\$ 6.00
P-623-8.1	Asphalt Surface Treatment (Emulsified Asphalt Spray Seal Coat)	SY	\$ 5.00	\$ 5.00	\$ 6.00
P-629-8.1	Thermoplastic Coal Tar Emulsion Surface Treatment	SY	\$ 8.00	\$ 8.00	\$ 8.00
P-632-6.1	Asphalt Pavement Rejuvenation	SY	\$ 2.00	\$ 2.00	\$ 2.00
P-620-5.1	Airfield Pavement Markings	SF	\$ 6.00	\$ 5.00	\$ 7.00


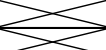

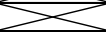
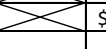







Tennessee Counties

The Three Grand Divisions

Appendix B

Unit Cost For Various Pavement Repairs and Maintenance

UNIT COST FOR VARIOUS PAVEMENT REPAIRS AND MAINTENANCE												
	DESCRIPTION / SPECIFICATION	WEIGHT OF AIRCRAFT	THICKNESS OF PAVEMENT SECTION	MISC	UNIT	COST	PAVE MARK REMOVAL	PAVE MARK	TOTAL COSTS INCLUDING MOBILIZATION, M.O.T. & CONSTRUCTION ENGINEERING			
		lbs.	inch						(\$)	(\$)	(\$)	
									REGIONS			
HMA PAVEMENT REPAIRS									WEST TENN	MIDDLE TENN	EAST TENN	
	CRACK SEALING (1/8" - 1")	P-101			LF	\$ 4.00			\$ 5.00	\$ 4.90	\$ 5.00	
	CRACK REPAIRS (1" - 1-1/2")	P-101			LF	\$ 7.00			\$ 8.70	\$ 8.60	\$ 8.70	
	CRACK REPAIRS (1-1/2" - 3-1/2")	P-101			LF	\$ 18.00			\$ 18.00	\$ 18.00	\$ 18.00	
	MILLING	P-101		2"	SY	\$ 16.50			\$ 20.50	\$ 20.20	\$ 20.30	
	BITUMINOUS OVERLAY	P-401		2"	SY	\$ 23.00		\$ 6.00	\$ 29.40	\$ 28.90	\$ 29.20	
	ASPHALT PATCHING	P-401 		4" P-401 4" P-209	SF	\$ 10.00			\$ 12.40	\$ 12.20	\$ 12.30	
SURFACE TREATMENTS	P-608 EMULSIFIED ASPHALT				SY	\$ 6.00	\$ 7.00	\$ 6.00	\$ 9.30	\$ 9.10	\$ 9.20	
	P-608R EMULSIFIED ASPHALT				SY	\$ 5.00	\$ 7.00	\$ 6.00	\$ 8.00	\$ 7.90	\$ 8.00	
	P-623 EMULSIFIED ASPHALT SPRAY				SY	\$ 5.50	\$ 7.00	\$ 6.00	\$ 8.60	\$ 8.50	\$ 8.60	
	P-629 THERMOPLASTIC COAL TAR EMULSION SURFACE TREATMENT				SY	\$ 8.00	\$ 7.00	\$ 6.00	\$ 11.70	\$ 11.60	\$ 11.60	
	P-632 ASPHALT PAVEMENT REJUVENATION				SY	\$ 2.00	\$ 7.00	\$ 6.00	\$ 4.30	\$ 4.20	\$ 4.30	
PAINT REMOVAL	P-101				SF	\$ 7.00			\$ 8.70	\$ 8.60	\$ 8.70	
PAINTING	P-620				SF	\$ 6.00			\$ 7.50	\$ 7.40	\$ 7.40	
FULL DEPTH RECONSTRUCTION	P-401 	12,500		4" P-401 7" P-209		SY	\$ 80.00		\$ 6.00	\$ 100.10	\$ 98.50	\$ 99.30
		30,000		6" P-401 10" P-209		SY	\$ 108.00		\$ 6.00	\$ 134.80	\$ 132.60	\$ 133.70
		60,000		8" P-401 12" P-209		SY	\$ 132.00		\$ 6.00	\$ 164.50	\$ 161.90	\$ 163.20
		90,000		10" P-401 14" P-209		SY	\$ 154.00		\$ 6.00	\$ 191.80	\$ 188.70	\$ 190.30
FULL DEPTH RECLAMATION	P-207 	12,500		2" P-401 4" P-207 		SY	\$ 40.00		\$ 6.00	\$ 50.50	\$ 49.70	\$ 50.10
		30,000		4" P-401 8" P-207		SY	\$ 65.00		\$ 6.00	\$ 81.50	\$ 80.20	\$ 80.80
		60,000		4" P-401 10" P-207		SY	\$ 68.00		\$ 6.00	\$ 85.20	\$ 83.80	\$ 84.50
		90,000		4" P-401 10" P-207		SY	\$ 68.00		\$ 6.00	\$ 85.20	\$ 83.80	\$ 84.50

UNIT COST FOR VARIOUS PAVEMENT REPAIRS AND MAINTENANCE											
	DESCRIPTION / SPECIFICATION	WEIGHT OF AIRCRAFT	THICKNESS OF PAVEMENT SECTION	MISC	UNIT	COST	PAVE MARK REMOVAL	PAVE MARK	TOTAL COSTS INCLUDING MOBILIZATION, M.O.T. & CONSTRUCTION ENGINEERING		
		lbs.	inch			(\$)	(\$)	(\$)	(\$)	(\$)	(\$)
									REGIONS		
PCC PAVEMENT REPAIRS									WEST TENN	MIDDLE TENN	EAST TENN
JOINT CLEANING & SEALING	P-605				LF	\$ 7.50			\$ 9.30	\$ 9.20	\$ 9.30
CRACK SEALING	P-501				LF	\$ 8.50			\$ 10.60	\$ 10.40	\$ 10.50
CRACK REPAIR	P-501				LF	\$ 10.00			\$ 12.40	\$ 12.20	\$ 12.30
SPALL REPAIR	P-501				SF	\$ 70.00			\$ 86.80	\$ 85.40	\$ 86.10
				Dowel Bar/Widths							
PARTIAL SLAB REPLACEMENT	P-501	100,000	4"-8"	3/4" dia. x 18" L 12.5'x12.5'	SY	\$ 263.00		\$ 6.00	\$ 327.00	\$ 321.70	\$ 324.40
		150,000	8"-12"	1" dia. x 18" L 15'x15'	SY	\$ 278.00		\$ 6.00	\$ 345.60	\$ 340.00	\$ 342.80
		200,000	12"-16"	1-1/4" dia. x 20" L 17.5'x17.5'	SY	\$ 293.00		\$ 6.00	\$ 364.20	\$ 358.30	\$ 361.30
FULL SLAB REPLACEMENT	P-501	100,000	4"-8"	3/4" dia. x 18" L 12.5'x12.5'	SY	\$ 240.00		\$ 6.00	\$ 298.50	\$ 293.70	\$ 296.10
		150,000	8"-12"	1" dia. x 18" L 15'x15'	SY	\$ 250.00		\$ 6.00	\$ 310.90	\$ 305.90	\$ 308.40
		200,000	12"-16"	1-1/4" dia. x 20" L 17.5'x17.5'	SY	\$ 260.00		\$ 6.00	\$ 323.30	\$ 318.10	\$ 320.70
PCC RECONSTRUCTION	P-501 	12,500	5" P-501 4" P-306 6" P-209	3/4" dia. x 18"	SY	\$ 235.00		\$ 6.00	\$ 292.30	\$ 287.60	\$ 289.90
		30,000	6" P-501 4" P-306 6" P-209	3/4" dia. x 18"	SY	\$ 242.00		\$ 6.00	\$ 300.90	\$ 296.10	\$ 298.50
		60,000	9" P-501 4" P-306 6" P-209	1" dia. x 18"	SY	\$ 250.00		\$ 6.00	\$ 310.90	\$ 305.90	\$ 308.40
		90,000	11" P-501 4" P-306 6" P-209	1" dia. x 18"	SY	\$ 264.00		\$ 6.00	\$ 328.20	\$ 322.90	\$ 325.60