

HOT-MIX ASPHALT - Mix Selection

DISTRICT ONE - HOT-MIX ASPHALT MIXTURE TREATMENTS

ADT	PAY CODE NO	PAY ITEM DESCRIPTION	UNIT	PERCENT AIR VOIDS @ Ndesign	MINIMUM LIFT THICKNESS	UNIT WEIGHT Lbs/SqYd/in	NOTES
Surface Course							
0 - 10,000	40604060	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N50	TON	4% @ 50 Gyr.	1-1/2"	112	1, 5, 8, 14
10,000 - 25,000	40604062	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N70	TON	4% @ 70 Gyr.	1-1/2"	112	1, 5
25,000 - 35,000	40604172	POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "E", N70	TON	4% @ 70 Gyr.	1-3/4"	112	1
35,000 - 100,000	40605026	POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, STONE MATRIX ASPHALT, 9.5, MIX "F", N80	TON	3.5% @ 80 Gyr.	1-3/4"	112	1
100,000 +	40605036	POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, STONE MATRIX ASPHALT, 12.5, MIX "F", N80	TON	3.5% @ 80 Gyr.	2"	112	1, 11
Binder Course							
0 - 10,000	40603080	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	TON	4% @ 50 Gyr.	2-1/4"	112	2, 6, 8, 10
10,000 - 25,000	40603085	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N70	TON	4% @ 70 Gyr.	2-1/4"	112	2, 6, 10
25,000 - 100,000	40603090	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N90	TON	4% @ 90 Gyr.	2-1/4"	112	2, 10, 12
100,000 +	40605015	POLYMERIZED HOT-MIX ASPHALT BINDER COURSE, STONE MATRIX ASPHALT, 12.5, N80	TON	3.5% @ 80 Gyr.	2"	112	2, 11, 13
Over 300 Tons							
All	40603200	POLYMERIZED HOT-MIX ASPHALT BINDER COURSE, IL-4.75, N50	TON	3.5% @ 50 Gyr.	3/4" - 1"	110	3, 7, 9
< 300 Tons							
0 - 10,000	40602978	HOT MIX ASPHALT BINDER COURSE, IL-9.5, N50	TON	4% @ 50 Gyr.	1-1/2"	112	8, 9, 10
10,000 +	40602985	HOT MIX ASPHALT BINDER COURSE, IL-9.5, N70	TON	4% @ 70 Gyr.	1-1/2"	112	10
0 - 10,000	40600900	HOT-MIX ASPHALT BINDER COURSE (HAND METHOD), N50	TON	4% @ 50 Gyr.	1-1/2"	112	4, 8
10,000 +	40600901	HOT-MIX ASPHALT BINDER COURSE (HAND METHOD), N70	TON	4% @ 70 Gyr.	1-1/2"	112	4

NOTES:

1. a) For reconstruction or new construction, use 2" Surface Course for Full-Depth HMA Pavement - see **Example Cross Section** (Page 3).
 b) If minor roadway resurfacing (Typ. < 250 Tons) use the following surface mix:

40604062	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", IL-9.5, N70	TON	4% @ 70 Gyr.
----------	--	-----	--------------
- c) If resurfacing of a Bridge is part of a larger roadway resurfacing use the same mixture as the roadway.
 or If there is only Bridge resurfacing with no roadway resurfacing (< 250 Tons) use w/ "Waterproofing Membrane System" & the following surface mix:
 or If there are only Bridge Repairs with minor roadway resurfacing (< 250 Tons) use the following surface mix:

40604062	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", IL-9.5, N70	TON	4% @ 70 Gyr.
----------	--	-----	--------------
2. Used instead of Binder Course IL-9.5 when the Binder Course is 2 1/4" or greater.
3. **Per Art.406.06 (e): For initial overlay on bare PCC pavement, the thickness will be 1". Special cases as directed by Bureau of Materials.**
 For initial overlay on flexible pavement, the thickness will be 3/4".
4. Used in small areas that may not be reached with a Paving Machine (e.g. mailbox turnouts)
5. Use "Polymerized HMA SURFACE COURSE IL-9.5, Mix E, N70" or "P SC SMA, 9.5, N80" if a Skid Proofing Project, large volume of trucks like a weigh station, or at a High Stress Intersection (BDE Manual Chapter 54-1.05(a)). Consult Bureau of Materials.
6. Use "Polymerized HMA Binder Course, IL-19.0, N90" if a Skid Proofing Project, large volume of trucks like a weigh station, or at a High Stress Intersection (BDE Manual Chapter 54-1.05(a)). Consult Bureau of Materials.
7. **Local Agency:** When using Polymerized HMA Binder Course IL-4.75 N50, the requirement for "Strip Reflective Crack Control" is waived.
8. **Local Agency:** May use surface and binder N30 L (Low ESAL) for ADT<700 and 10% trucks or less (4% Air Voids @ 30 Gyr.)
9. Designer Options:
 - A. For high ADT use Polymerized HMA Binder Course IL-4.75 N50
 - B. For intersection use Polymerized HMA Binder Course IL-4.75 N50
 - C. For superelevation correction use HMA Binder Course IL-9.5 Ndes
 - D. For cross-slope correction use HMA Binder Course IL-9.5 or IL-19.0 Ndes
 - E. **Local Agency:** May use HMA Binder Course IL-9.5 N_{des} (at 1-1/2" min.) instead of Polymerized HMA BC IL-4.75 N50 on non-State routes.
 Note that there are differences in thickness requirements.
 - F. Do NOT use Polymerized HMA Binder Course IL-4.75 N50 on any temporary roads or pavements
10. **Local Agency:** May use with Pay Item for "Strip Reflective Crack Control" along pavement joints and widening.
11. Use **SMA, 12.5, N80** on expressways in conjunction with a required Material Transfer Device (MTD) (Pay Code Z0034105) or on arterials as requested by Bureau of Materials.
12. For Full-Width applications; If Total binder depth is 2 1/4" then use "POLYMERIZED HMA BINDER COURSE, IL-19.0, N90; 4% @ 90 Gyr. (Pay Code 40603240)"
 If Total binder depth is greater than 2 1/4" then use "POLYMERIZED HMA BINDER COURSE, IL-19.0, N90; 4% @ 90 Gyr." for only the top Binder lift thickness and use regular "HMA BINDER COURSE, IL-19.0, N90; 4% @ 90Gyr" for the remaining thickness
13. For Full-Width applications (Reconstruction); If Total binder depth is greater than 2" then use "POLYMERIZED BINDER COURSE, SMA, N80; 3.5% @ 80 Gyr." for only the top Binder lift thickness and use regular "HMA BINDER COURSE, IL-19.0, N90; 4% @ 90Gyr" for the remaining thickness
14. If designer is interested in using "Fine Graded" mix, consult Materials.

HOT-MIX ASPHALT - Mix Selection

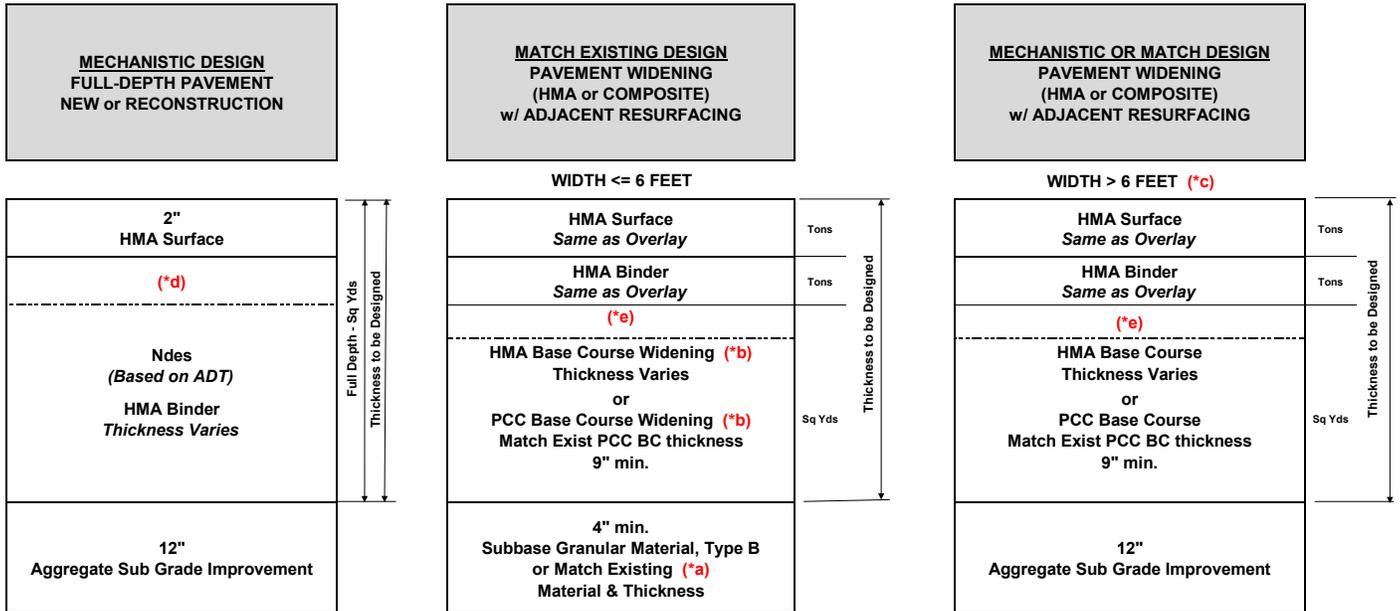
DISTRICT ONE - HOT-MIX ASPHALT SPECIALTY TREATMENTS

OPERATIONS	LOCATION	PAY CODE NO	PAY ITEM DESCRIPTION	UNIT	PERCENT AIR VOIDS @ Ndesign	LIFT THICKNESS	MIX TYPE	QMP DESIGNATION <i>SEE NOTE 6</i>	NOTES
PATCHING	ALL	4420_ ___	CLASS D PATCHES, Of TYPE and THICKNESS specified	SQ YD	4% @ 70 Gyr.	2-1/4" Min.	CLASS D PATCH (HMA BINDER IL-19.0)	QC/QA	
	ALL	40601005	HOT-MIX ASPHALT REPLACEMENT OVER PATCHES	TON	4% @ 70 Gyr.		HMA REPLACEMENT OVER PATCHES (HMA BINDER IL-19.0)	QC/QA	
	CASE BY CASE	X442_ ___	CLASS D PATCHES, of TYPE and THICKNESS specified, SPECIAL	SQYD	4% @ 70 Gyr.	2-1/4" Min.	HMA BINDER IL-19.0	QC/QA	8
					4% @ 70 Gyr.	TOP 2"	HMA SURFACE COURSE, MIX "D", IL-9.5, N70	QC/QA	8
SHOULDER RESURFACING	NON-INTERSTATE	406_ ___	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, Ndes	TON	BINDER N Design - SAME AS SURFACE		HMA BINDER COURSE, IL-19.0, Ndes	QC/QA or QCP	
		406_ ___	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", Ndes	TON	SURFACE N Design - See Note 5		HMA SURFACE COURSE, MIX "D", IL-9.5, Ndes	QC/QA or QCP	5
	INTERSTATE	40603085	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N70	TON	4% @ 70 Gyr.	2-1/4" Min.	HMA BINDER COURSE, IL 19.0, N70	QC/QA or QCP	
		40604062	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N70	TON	4% @ 70 Gyr.	1-1/2"	HMA SURFACE COURSE, MIX "D", IL-9.5, N70	QC/QA or QCP	4
SHOULDER RECON	NON-INTERSTATE	48203_ ___	HMA SHOULDER, of specified THICKNESS	SQ YD	BINDER N Design - SAME AS SURFACE		HMA BINDER COURSE, IL-19.0, Ndes	QC/QA or QCP	
					SURFACE N Design - See Note 5		HMA SURFACE COURSE, MIX "D", IL-9.5, Ndes	QC/QA or QCP	5
	INTERSTATE	48203_ ___	HMA SHOULDER, of specified THICKNESS	SQ YD	4% @ 70 Gyr.	2-1/4" Min.	HMA BINDER COURSE, IL-19.0, N70	QC/QA or QCP	
					4% @ 70 Gyr.	1-1/2"	HMA SURFACE COURSE, MIX "D", IL-9.5, N70	QC/QA or QCP	4
DRIVEWAY	P.E. & C.E.	35501_ __	HOT-MIX ASPHALT BASE COURSE, of specified THICKNESS	SQ YD	4% @ 50 Gyr.	P.E. 6" C.E. 8"	HMA BASE COURSE (HMA BINDER IL-19.0)	QC/QA	
		40604060	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N50	TON	4% @ 50 Gyr.	2"	HMA SURFACE COURSE, MIX "D", IL-9.5, N50	QC/QA	
BASE CSE & BASE CSE WIDENING	ALL	35501_ __	HOT-MIX ASPHALT BASE COURSE, of specified THICKNESS	SQ YD	4% @ XX Gyr.	2-1/4" Min.	HMA BASE COURSE (HMA BINDER IL-19.0)	QC/QA or QCP	3,7
		35600_ __	HOT-MIX ASPHALT BASE COURSE WIDENING, and specify THICKNESS	SQ YD	4% @ XX Gyr.	2-1/4" Min.	HMA BASE COURSE WIDENING (HMA BINDER IL-19.0)	QC/QA or QCP	3,7
FULL DEPTH PAVEMENT	ALL	4070_ ____	HOT-MIX ASPHALT PAVEMENT (FULL-DEPTH), and specify THICKNESS	SQ YD	BASED ON MIX TYPE	2-1/4" Min.	BINDER MIX/MIXES (BASED ON ADT)	QC/QA, QCP, or PFP	2,7
					BASED ON MIX TYPE	2"	SURFACE MIX (BASED ON ADT)	QC/QA, QCP, or PFP	7
TEMPORARY ROAD	ALL	Z0062456	TEMPORARY PAVEMENT (Thickness shown on Plans)	SQ YD	4% @ 70 Gyr.	2-1/4" Min.	HMA BINDER IL-19.0	QC/QA	1,7
					4% @ 70 Gyr.	2"	HMA SURFACE COURSE, IL-9.5, MIX "D", N70	QC/QA	1,7
TEMPORARY RAMP SPL	DESIGNED OVERLAY	X4060995	TEMPORARY RAMP (SPECIAL)	SQYD	4% @ 70 Gyr	VARIABLE	HMA BINDER COURSE, IL-9.5, N70	QC/QA	9
MEDIAN SURFACE/BIKEWAY	MEDIAN SURFACE/BIKEWAY	40604060	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N50	TON	4% @ 50 Gyr.	2" Min.	HMA SURFACE COURSE, IL-9.5, MIX "D", N50	QC/QA	
STABILIZED SUBBASE	AS SPECIFIED	31200_ __	STABILIZED SUB-BASE-HOT-MIX ASPHALT of specify THICKNESS	SQ YD	3% @ 50 Gyr.	4"	STABILIZED SUBBASE-HMA (HMA BINDER IL-19.0)	QC/QA or QCP	

- NOTES:**
- HMA temporary pavement usually consists of two items: an HMA binder course; typically 8"-10" and an HMA surface course; typically 2" (required when in place for more than one construction season).
When PC Temp Pavement is used as an option, insert the following PLAN NOTE:
"PC concrete temporary pavement shall consist of Class PV Concrete meeting the requirements of Art. 1020 of the Standard Specifications, PCC pavement XX" thick. Temporary PCC pavement does not require dowel bars."
All temporary pavement shall be provided over an improved subgrade; typically 4" Subbase Granular Material, Type B or 12" Aggregate Subgrade Improvement as directed by the District Geotechnical Engineer.
For quantity estimation purposes, excavation quantities should be estimated assuming the thicker design if both design options are shown in the plans.
 - If using an N90 Binder mix, then use "POLYMERIZED HMA BINDER COURSE, IL-19.0, N90" for the **TOP 2 1/4"** lift.
 - If using an N90 Binder mix, then use "HMA Binder Course, IL-19.0, N90"
 - If using SMA, 12.5, N80 for mainline surface, use also on the inside shoulder. For outside shoulder surface, use Mix "D", N70.
 - For shoulder width <= 6':** Surface same as overlay. **For shoulder width > 6':** HMA Surface Course, Mix "D", N70 or HMA Surface Course, Mix "D", N50 if mainline is also N50.
 - Show only one of the following three QMP designations on the HMA table: Quality Control/Quality Assurance (QC/QA), Quality Control for Performance (QCP), or Pay for Performance (PFP).
In the Standard Specifications for Road and Bridge Construction: See Article 1030.06 (QMP); Article 1030.07 (PFP); Article 1030.08 (QCP); Article 1030.09 (QC/QA)
 - Local Agency Contracts:** All mixtures are designated as LR1030-2.
 - Thicknesses as stated in the Phase II Pavement Design Memo.
 - Typically used outside resurfacing or reconstruction limits or as directed by Materials.
 - For drop-offs at side streets and entrances along the limits of a DESIGNED OVERLAY project or as needed.

HOT-MIX ASPHALT - Mix Selection

PAVEMENT DESIGN (BDE Chapter 54)



All Thicknesses Determined by the Pavement Design Engineer.

Submit for a pavement design for any amount of reconstruction and/or roadway widening.

NOTES:

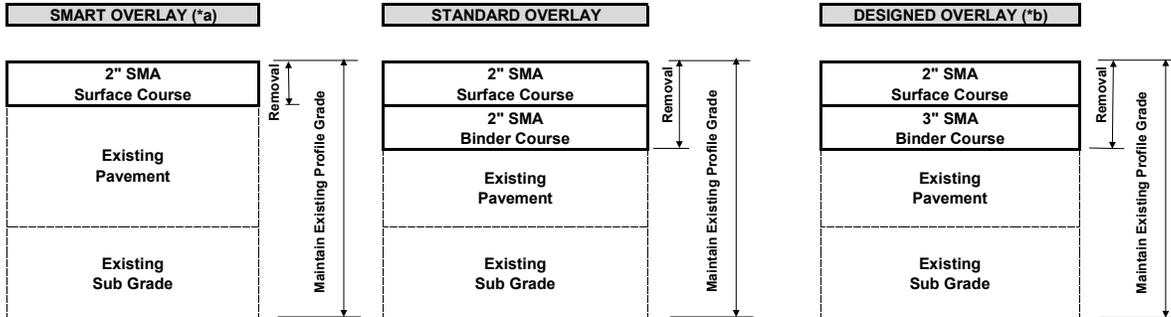
- (*a) May try to match existing pavement Design; depends on quality of existing material which needs to be verified with Pavement Cores.
- (*b) May also use "BASE COURSE WIDENING" which gives contractor option to use PCC or HMA. "PCC Base Course Widening" or "HMA Base Course Widening" is a good option when you have a difficult to compact area for HMA; see Pavement Design Engineer
- (*c) Must be able to fit a 6 ft roller and a majority of the area will be compacted by the 6 ft or larger roller.
- (*d) If using an N90 Binder mix, and no IL-4.75 layer, then use "POLYMERIZED HMA BINDER COURSE, IL-19.0, N90" for the **TOP** Binder lift. (New or reconstruction)
- (*e) If using an N90 Binder Mix, use (IL-4.75 with HMA BINDER COURSE, IL-19.0, N90) or (POLYMERIZED HMA BINDER COURSE, IL-19.0, N90 for the TOP lift if also used on mainline resurfacing).

See Bureau of Materials regarding mixture questions.

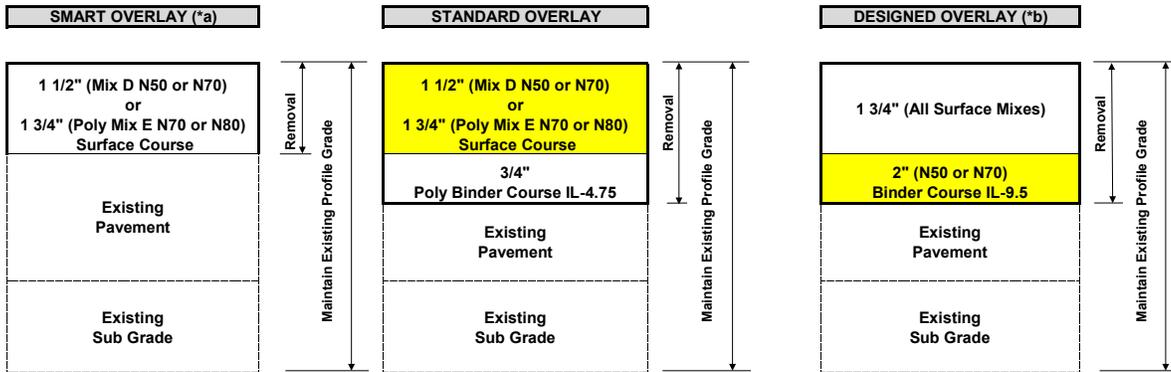
HOT-MIX ASPHALT - Mix Selection

PAVEMENT PRESERVATION AND REHABILITATION (BDE Chapter 53)

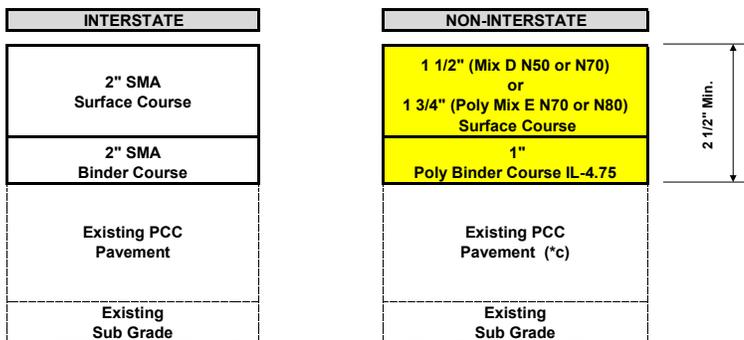
RESURFACING (INTERSTATE)



RESURFACING (NON-INTERSTATE)



FIRST HMA OVERLAY ON BARE PCC PAVEMENT



NOTES:

Mixtures and thicknesses shown subject to change per Bureau of Materials or special needs (e.g. existing pavement information)

See Bureau of Materials regarding mixture questions.

(a*) For SMART (Surface Maintenance At the Right Time), only remove and replace Surface Course per thicknesses above.

(b*) If the thicknesses for Design Overlay cannot be provided (e.g. existing pavement restriction), a Program Exception is required.

(c*) Refer to CAD Design Detail BD-33, HMA Taper at Edge of PCC Pavement for transition at existing curb and gutter.

HOT-MIX ASPHALT - Mix Selection

HMA MIXTURE TABLE (Required on Plans) --EXAMPLE--

INTENDED AS AN EXAMPLE ONLY - Use actual mixtures needed based on ADT

SEE NOTE 2 SEE NOTE 3 SEE NOTE 4

HOT-MIX ASPHALT MIXTURE REQUIREMENTS		QMP	MTD Required? (YES/NO)
MIXTURE TYPE	AIR VOIDS @ N _{design}		
HMA STABILIZED SUBBASE - HMA 4" (HMA BINDER IL-19.0)	3% @ 50 Gyr.		
PAVEMENT RECONSTRUCTION (LIST THE FULL DEPTH PAY ITEM)			
POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, STONE MATRIX ASPHALT, 9.5, MIX "F", N80	3.5% @ 80 Gyr.		
POLYMERIZED HMA BINDER COURSE, IL-19.0, N90; TOP 2-1/4"	4% @ 90 Gyr.		
HMA BINDER COURSE, IL-19.0, N90	4% @ 90 Gyr.		
PAVEMENT RESURFACING			
HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N50	4% @ 50 Gyr.		
POLYMERIZED HOT-MIX ASPHALT BINDER COURSE, IL-4.75, N50	3.5% @ 50 Gyr.		
PAVEMENT WIDENING			
HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D" N70	4% @ 70 Gyr.		
POLYMERIZED HOT-MIX ASPHALT BINDER COURSE, IL-4.75, N50	3.5% @ 50 Gyr.		
HMA BASE COURSE (HMA BINDER IL-19 mm); 10"	4% @ 70 Gyr.		
DRIVEWAYS			
HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N50; 2"	4% @ 50 Gyr.		
HMA BASE COURSE (HMA BINDER IL-19 mm); PE - 6", CE - 8"	4% @ 50 Gyr.		
HMA DRIVEWAY PAVEMENT 8"			
HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N50; 2"	4% @ 50 Gyr.		
HMA BINDER COURSE IL-19.0, N50; 6"	4% @ 50 Gyr.		
PATCHING			
CLASS D PATCHES (HMA BINDER IL-19 mm)	4% @ 70 Gyr.		
HMA REPLACEMENT OVER PATCHES (HMA BINDER IL-19 mm)	4% @ 70 Gyr.		
CLASS D PATCHING (SPECIAL)			
HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N70; TOP 2"	4% @ 70 Gyr.		
HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N70	4% @ 70 Gyr.		
TEMPORARY PAVEMENT			
HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N70; 2"	4% @ 70 Gyr.		
HOT MIX ASPHALT BINDER COURSE, IL-19.0, N70; 8"	4% @ 70 Gyr.		
TEMPORARY RAMP (SPECIAL)			
HOT MIX ASPHALT BINDER COURSE, IL-9.5, N70	4% @ 70 Gyr.		
HMA STABILIZATION 6" AT STEEL PLATE BEAM GUARDRAIL			
HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N70; 6"	4% @ 70 Gyr.		
QMP Designations: Quality Control/Quality Assurance (QC/QA); Quality Control for Performance (QCP); Pay for Performance (PFP) SEE NOTE 5			

SEE NOTE 6 ==>

SEE NOTE 1 ==>

THE UNIT WEIGHT USED TO CALCULATE ALL HMA SURFACE MIXTURE QUANTITIES IS 112 LBS/SQ YD/IN.

THE "AC TYPE" FOR POLYMERIZED HMA MIXES SHALL BE "SBS/SBR PG 76 -22" AND FOR NON-POLYMERIZED HMA THE "AC TYPE" SHALL BE "PG 64 -22" UNLESS MODIFIED BY RECLAIMED MATERIALS SPECIFICATIONS.

NOTES:

- BOTH NOTES shown above MUST be present under the Mixture Table. The first note addresses pay items for Surface Course measured in Tons. The second note is required per Art. 1032.05.
- The Number of Gyration must match the N_{design} used for all mixtures
- Show only one QMP designation, see Standard Specifications (Article 1030.06). Bureau of Materials will provide support.
- If MTD (BDE Special Provision) is used, add this column and designate Yes/No for each HMA mixture.
- Local Agency:** QMP Designation is Quality Control/Quality Assurance (QC/QA) per LR 1030-2.
- Use only if "paching before milling" operation sequence. Refer to BD-22