

2250

KENTUCKY PARKS ON US

Asphalt.

SEVEN STEPS TO A HIGHLY SUCCESSFUL PARKING LOT

PAIKY

PLANTMIX ASPHALT INDUSTRY OF KENTUCKY

www.PAIKY.org

Asphalt Parking Lots:

Asphalt.

Seven (7) Steps to a Highly Successful Project

1. Dig Deep

The quality and strength of existing subgrade soil will be a significant factor in the design and performance of your parking lot. Perform a geotechnical analysis and testing to establish current site conditions which will guide site grading activities in terms of moisture content and compaction. The pavement thickness will be heavily influenced by the California Bearing Ratio (CBR value) of the onsite materials.

2. Trucking Along

Passenger cars, pickup trucks, and sport utility vehicles are relatively lightweight and have little influence in pavement thickness. In contrast, the anticipated size, weight, and frequency of commercial trucks are sensitive parameters in this analysis and will have a big influence on the pavement thickness. The cumulative effect of traffic may be expressed as Equivalent Single Axle Loads (ESALs) for the purpose of pavement design.

3. Pick Your Mix

Asphalt mixtures can be manufactured with different combinations of aggregates, liquid asphalt, and additives and should be designed specifically for the application. The combination of materials that perform well in a parking lot application may be different than those used on high traffic roadways. Long lasting parking lot mixtures should be fine graded to prevent moisture intrusion and have a high liquid asphalt content for durability.

4. The Green Scene

Asphalt is the most recycled product in America and experts recognize that mixtures utilizing Recycled Asphalt Pavement (RAP) result in quality pavements. Recycling and reusing materials saves landfill space and is environmentally responsible. Some asphalt producers are recycling old asphalt roofing shingles (RAS), using warm mix asphalt to conserve fuel and designing porous parking lots for storm water management. On building projects with requirements for LEED, these green materials and practices may assist designers and owners in achieving certification.

PAIKY PAVEMENT DESIGN TABLE

Light Duty Parking Lots

AASHTO 1993-80% RELIABILITY PSI=2.0

Traffic Characteristics	98% Autos, 2% Single Unit Trucks				
Estimated ESALs	7,500	15,000	30,000	60,000	120,000
Average Daily Traffic	< 100 ADT	< 200 ADT	< 400 ADT	< 700 ADT	< 1,500 ADT

Highly Compressible Fine Grained Soils - Liquid Limit Greater Than 50

CBR 1		Stabilization is Recommended			
Asphalt Surface	1.25"	1.25"	1.25"	1.25"	1.25"
Asphalt Base	3.00"	3.50"	4.00"	4.50"	5.50"
Dense Graded Aggregate	6.00"	6.00"	6.00"	6.00"	6.00"
CBR 2		Stabilization is Recommended			
Asphalt Surface	1.25"	1.25"	1.25"	1.25"	1.25"
Asphalt Base	3.00"	3.25"	3.50"	4.00"	4.50"
Dense Graded Aggregate	6.00"	6.00"	6.00"	6.00"	6.00"
CBR 3					
Asphalt Surface	1.25"	1.25"	1.25"	1.25"	1.25"
Asphalt Base	2.75"	3.00"	3.25"	3.50"	4.00"
Dense Graded Aggregate	6.00"	6.00"	6.00"	6.00"	6.00"

Low Compressible Fine Grained Soils - Liquid Limit Less Than 50

CBR 4		Stabilization Optional			
Asphalt Surface	1.25"	1.25"	1.25"	1.25"	1.25"
Asphalt Base	2.50"	2.75"	3.00"	3.25"	3.50"
Dense Graded Aggregate	6.00"	6.00"	6.00"	6.00"	6.00"
CBR 5		Stabilization Optional			
Asphalt Surface	1.25"	1.25"	1.25"	1.25"	1.25"
Asphalt Base	2.50"	2.50"	2.75"	3.00"	3.25"
Dense Graded Aggregate	6.00"	6.00"	6.00"	6.00"	6.00"

Course Grained Soils, Sand and Sandy Soils, Gravel and Gravelly Soils

CBR 6					
Asphalt Surface	1.25"	1.25"	1.25"	1.25"	1.25"
Asphalt Base	2.50"	2.50"	2.50"	2.75"	3.00"
Dense Graded Aggregate	6.00"	6.00"	6.00"	6.00"	6.00"
CBR 7					
Asphalt Surface	1.25"	1.25"	1.25"	1.25"	1.25"
Asphalt Base	2.50"	2.50"	2.50"	2.50"	2.75"
Dense Graded Aggregate	6.00"	6.00"	6.00"	6.00"	6.00"
CBR 8					
Asphalt Surface	1.25"	1.25"	1.25"	1.25"	1.25"
Asphalt Base	2.50"	2.50"	2.50"	2.50"	2.50"
Dense Graded Aggregate	6.00"	6.00"	6.00"	6.00"	6.00"

Please Note: ESALs (Equivalent Single Axle Loads), ADT (Average Daily Traffic), CBR (California Bearing Ratio)

*Shaded Area = Practical Construction Minimums

Please see the PAIKY web site www.PAIKY.org (Technical Resources) for the expanded version of this Design Table.

5. Build a Base

All structures need a solid foundation and a well prepared base will pay dividends in building a long lasting pavement structure. Quality materials and good compaction are essential to establish a strong working platform. Most projects will utilize a four to eight inch layer of dense graded aggregate (DGA) which serves as an important layer in the pavement system.

6. Drain the Rain

Water can be detrimental to a soil subgrade and paving materials so drainage should be a strong consideration in the design and construction of any parking lot. The pavement surface must be sloped to provide adequate drainage and to avoid low areas which will lead to ponding water. In contrast, porous pavements are different and are designed to allow the water to drain through the surface pavement layers and be slowly released into the underlying ground.

7. Pave and Save

With proper base preparation and DGA placement, the asphalt mixture can be evenly placed and well compacted for optimal performance. Quality paving contractors are capable of building parking lots to meet compressed building schedules to better serve their customers. Asphalt pavements remain the most versatile and economic pavement product and have decades of proven performance.

For More Information, Contact Us

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