

GUIDANCE FOR PARKING LOT PAVEMENTS

Introduction

This document provides pavement structure guidance for parking lots and storage areas that are not subject to high traffic volumes. This document may be used by State and/or consultant personnel that are responsible for designing such facilities.

Due to relatively low volumes, with the exception of heavy use (truck or bus) lots, Traffic Level 1 mixes are recommended for these facilities. In addition, many of the pavement structures outlined below are thinner than what would be required of CTDOT roadway pavement structures, which are outside the scope of this document and should be designed separately.

Please contact the Pavement Design Unit at 860-594-3287 if you have any questions.

Recommendations

Three pavement structures are listed below for three traffic usage categories. Designers should take into consideration the demand on these parking facilities when determining which category to select. Consideration should be given to the parking lot's primary use, whether that be cars, buses, or maintenance vehicles. The presence of heavily loaded vehicles should be the primary determining factor.

Category A: Very Light Use

A very light use parking lot is described as handling exclusively four tire passenger cars, motorcycles, and other light load vehicles. Examples of such parking lots would include hiking or bike trail parking lots, parking lots that service state or other parks, and commuter parking lots.

- 1.5" HMA S0.375 (Traffic Level 1), on
- 2" HMA S0.5 (Traffic Level 1), on
- 4" Processed Aggregate Base, on
- 10" – 12" Subbase

Category B: Light Use

A light use parking lot is described as handling mostly four tire passenger cars while infrequently experiencing loading by heavier vehicles such as multi-axle trucks. Examples of such parking lots would include commercial centers and office facilities.

- 1.5" HMA S0.375 (Traffic Level 1), on
- 2.5" HMA S0.5 (Traffic Level 1), on
- 6" Processed Aggregate Base, on
- 10" Subbase

Category C: Heavy Use

A heavy use parking lot is described as frequently handling heavily loaded, multi-axle vehicles. Examples of such parking lots would include parking lots for tractor trailer rest stops, storage parking lots for buses and large equipment, industrial zones which frequently load and unload

freight transport vehicles, and maintenance facilities with frequent heavy truck traffic such as garages, salt sheds, or equipment repair facilities.

- 1.5” HMA S0.375 (Traffic Level 2), on
- 4” – 5” HMA S0.5 (Traffic Level 2) placed in two equal lifts, on
- 6” Processed Aggregate Base, on
- 8” – 10” Subbase

Notes:

1. Street parking, parking which is delineated with the use of pavement marking along the sides of the road, are exempt from these recommendations. These facilities should be designed to the normal pavement design requirements of the roadway it is located on and should not be designed separately.
2. The surface lift in all categories above utilizes a nominal maximum aggregate size of 0.375 inches. Instances such as heavy vehicle storage areas that are subject to large static loads for extended periods of time would benefit from mixes of larger nominal maximum sized aggregate. Therefore, it is recommended that these areas instead receive a surface lift of 2” HMA S0.5 instead of the lift of 1.5” HMA S0.375 that is listed above. These mixes typically are coarser, making greater use of stone-on-stone contact, which may limit the potential for development of rutting and depressions.
3. Depending on project circumstances, the inclusion of an additional granular base material item may not be financially conducive. Therefore, in projects where Subbase is not already included, the Subbase layer of any of the aforementioned pavement structures may be replaced with an equivalent depth of Processed Aggregate Base, which is considered superior at providing support to the pavement layers placed above it.
4. To maximize the pavement’s resistance to rutting and tire damage from turning movements, it is beneficial to place heavy equipment on wooden platforms for the first one or two summers of the pavement’s life. This allows the mix to slightly oxidize and stiffen.
5. One of the primary causes of failure in thinner pavement sections is a lack of proper maintenance. Once full depth cracks develop and water infiltrates below the pavement, structural pavement cracks can rapidly develop leading to potholes that compromise the parking lot. Therefore, it is recommended that parking facilities designed using these guidelines be crack sealed every three to five years. Addressing minor cracks as they arise is the most cost-effective way to ensure the desired service life of the parking lot.