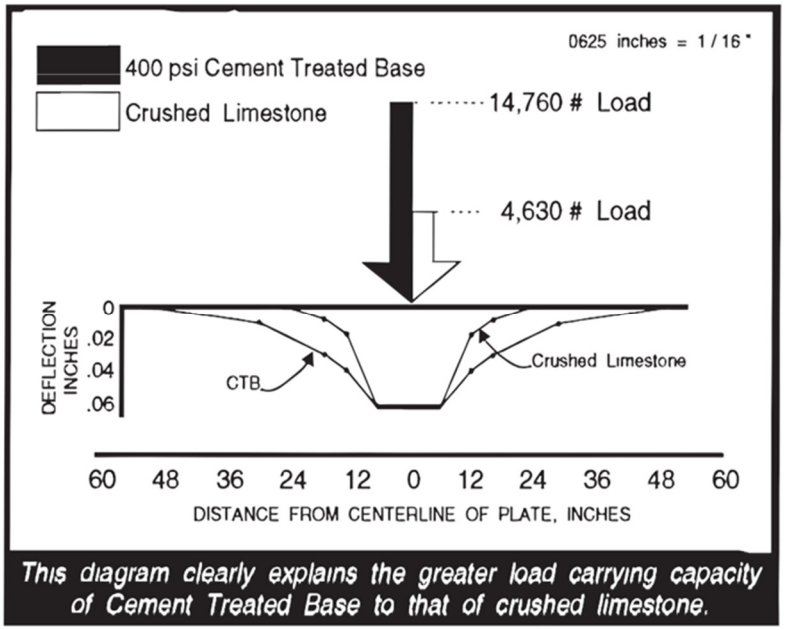
5” of Cement Treated Base Crushes 10” of Limestone

Over five decades ago, the Portland Cement Association (PCA) revealed that increasing the cross-sectional thickness of limestone does not proportionally increase its load capacity. In doing so, the PCA found that Cement Treated Base (CTB) has a significantly greater load-carrying capacity compared to crushed limestone. When comparing a cross-sectional thickness of five inches of 400 psi CTB to ten inches of crushed limestone, CTB can withstand over three times the wheel load of limestone. In contrast to limestone, expanding the vertical cross-section of Cement Treated Base will proportionally improve its load-carrying capacity.

Engineers emphasize the importance of pavement deflection and the load transmitted to the subgrade. Using Plate Bearing Tests, the PCA measured the deflection of these two pavement bases and found that CTB exhibited significantly less deflection than crushed limestone. To achieve the same plate deflection as limestone (1/16”), the PCA concluded that you must apply over three times the wheel load on Cement Treated Base (CTB)

This highlights the exceptional performance of Cement Treated Base (CTB) in managing loads while preserving pavement integrity. The Portland Cement Association's findings underscore the superior advantages of utilizing CTB instead of crushed limestone for a more durable solution in pavement bases. Thus, specifying CTB leads to several benefits, including reduced maintenance, increased durability, and enhanced load-carrying capacity. Knowing that cement gains strength with age ensures long-lasting performance, impermeability, and stability without compromise. The structural equivalency advantage of CTB allows for more cost-effective designs by factoring load capacity into material costs.



This diagram clearly explains the greater load carrying capacity of Cement Treated Base to that of crushed limestone.

Notice that Cement Treated Base will support a significantly greater load than limestone and will distribute the load over twice the area. With superior load-bearing capacity and durability, CTB reduces the point-load impact on the subbase.

For over 40 years, Metro Materials of Memphis has been manufacturing Cement Treated Base (CTB) at its central mix plant and delivering it to jobsites ready for immediate placement. Upon arrival, the cement particulates in the mix have just begun to hydrate, ensuring the material is immediately ready for use. Our 400 psi CTB consists of an angular blend of renewable and sustainable aggregates, cement, and water, providing superior performance in bridging questionable areas more effectively than limestone.

Unlike CTB’s single-step installation, limestone requires costly regrading and compaction after rain events. By switching from crushed limestone to Cement Treated Base, you can save 50% on spreading, transportation, and excavation in cut scenarios. In fill areas, the combined subgrade and pavement section is much more economical.

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