

TCP

THIN CONCRETE PAVEMENT

Advanced Concrete Pavement Engineering System

HIGH PERFORMANCE

LOW INVESTMENT COST

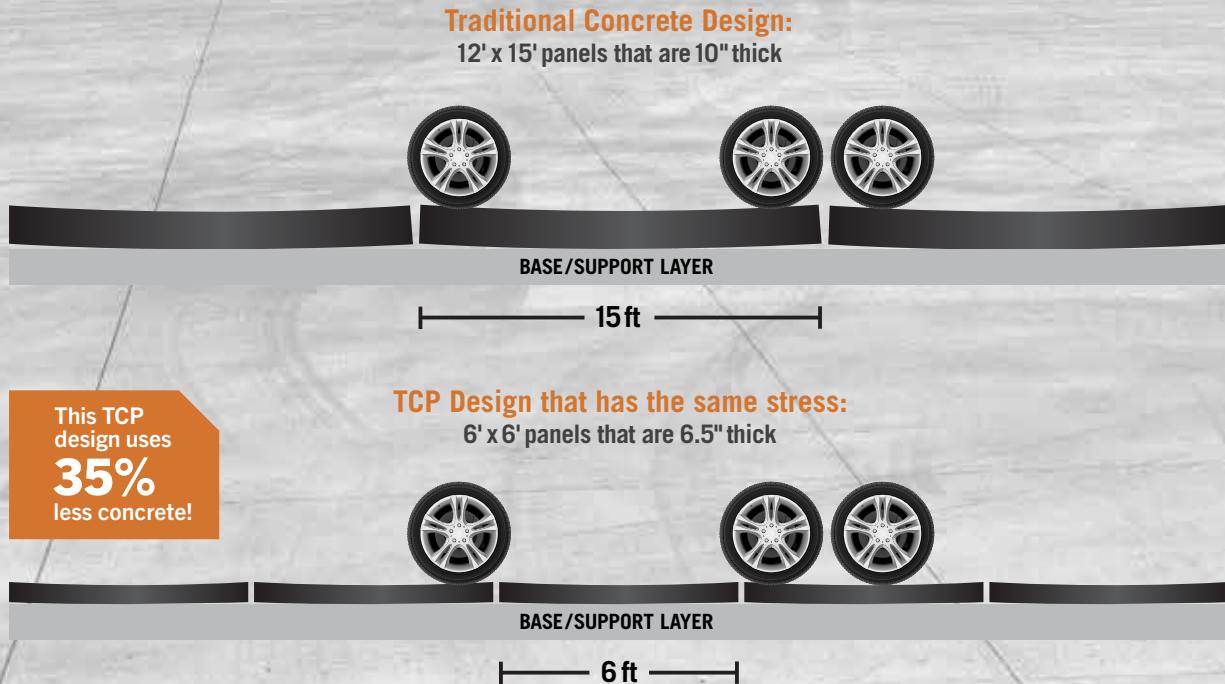
MORE SUSTAINABLE

PNA's patented Thin Concrete Pavement (TCP) allows you to cost-effectively replace asphalt with long-lasting, low-maintenance concrete. This advanced concrete pavement engineering system reduces construction and maintenance costs while maximizing performance and service life.



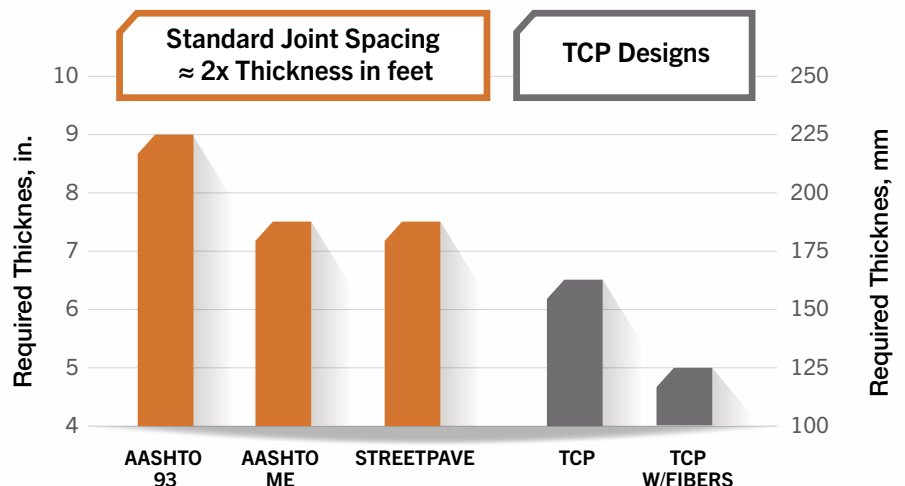
Less Out-Of-Joint Cracking

TCP minimizes the stresses that cause mid-panel cracking by shortening the panel length. This reduces the amount of curl, improves joint load transfer without the use of dowels, and prevents both edges of the panel from being loaded simultaneously. As a result, the panel experiences less stress and fewer cracks.



Reduce Construction Costs

By distributing wheel loads over shorter panels, TCP allows concrete volume to be minimized while maintaining the same load-bearing capacity. Slab thickness can often be reduced by 2 inches or more, saving up to 30-40 percent in material costs while expediting placement work. In some cases, base and sub-base materials can also be conserved providing additional savings.



Above designs based on 500 trucks/day in freeze-thaw climate.
All other inputs are the same across design methodologies.



TCP System Replaces Asphalt

Concrete is a cost-effective alternative to asphalt, thanks to PNA's patented TCP system. TCP significantly reduces concrete thickness and construction costs while maintaining equivalent or better performance.

Category	Traditional Concrete Design	Asphalt Design	TCP Design
First Cost Savings	Baseline	10-15%	20-30%
Maintenance/Repair Costs (Pothole patching, resurfacing, etc.)	\$	\$\$\$	\$
Safety (Skid/slip hazard reduction, reflectivity)	★★★★★	★★	★★★★★

Minimize Your Environmental Footprint

- A TCP design is more sustainable than traditional concrete pavement, thanks to thinner slabs that don't require continuous steel reinforcement or dowels at saw cut joints.
- Petroleum-based asphalt is high in volatile organic compounds (VOCs), which release toxic greenhouse gas emissions.
- TCP's long lifespan and low maintenance mean fewer repairs and resources.
- Concrete is highly reflective, while asphalt isn't. As a result, asphalt retains significantly more heat than concrete pavement. The concrete used on a TCP design significantly reduces the urban heat island effect.

PNA'S CASE STUDIES



Prologis — IL

- Traffic: 6M ESALs
- 6" Thick
- 580 PSI Flexural Strength
- Macro-Synthetic Fibers
- 6' Joint Spacing
- 6" Granular Base

Home Center Warehouse — TX

- Traffic: 4M ESALs
- 5.5" Thick
- 580 PSI Flexural Strength
- Macro-Synthetic Fibers
- 6' Joint Spacing
- 8" Cement Stabilized Soil



AmeriPort — TX

- Traffic: 3.65M ESALs
- 5" Thick
- 580 PSI Flexural Strength
- Macro-Synthetic Fibers
- 6' Joint Spacing
- 6" Cement Stabilized Soil

Visit pna-inc.com/tcp to contact us about an upcoming project, find an authorized TCP Contractor, and view our list of projects. Other resources that can be found online include information about our engineering services, articles, white papers, and presentations on flatwork design and construction.

Contact PNA today to find out how we can help you with your commercial/industrial flooring and pavement needs.

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