

Questions and Answers from Tech Tuesday Webinar on *General Aviation Airport Concrete Overlays*

July 21, 2026

Answers to some of these questions can be found in the following resources. While brief answers are provided it is recommended you review the detailed information in the resources.

- [AC 150/5320-6G](#) Airport Pavement Design and Evaluation
- [AC 150/5380-7B](#) Airport Pavement Management Programs
- [AC 150/5370-10H](#) Standard Specifications for Construction of Airports
- [FAA Order 5100.38D](#) Airport Improvement Program Handbook
- [Concrete Overlay Guide - 4th edition](#) CP Tech Center Concrete Overlay Guide

Q1 - How is the adjacent airport lighting adjusted if the pavement surface has an increased in elevation? 5 or 6 inches? (Agency, SD)

Answer: The design of an overlay would require analysis of the entire runway facility including lighting, signage, grading, drainage, etc. Most of the projects presented in the webinar did not require major re-work outside of the pavement limits so adjustments to edge lighting systems were not required. There are examples of overlay projects that include in-pavement lighting. Adjustments to the lights were designed with the project and retrofitting was able to be accomplished with no major issues.

Q2 - How does this work in the northern states with freeze and thaw cycles? (Agency, SD)

Answer: Concrete overlays have performed very well in freeze-thaw environments when properly designed and constructed. When evaluating existing conditions, it is important to evaluate for signs of detrimental freeze-thaw action in the pavement. The only way to correct detrimental freeze-thaw is through full reconstruction to establish freeze-thaw protection. No overlay regardless of type will correct existing freeze-thaw damaged pavement.

Q3 - If it is a concrete overlay, how do we manage the curing process? Concrete curing generally takes a longer duration to attain the required strength. Is it economically feasible to halt airport services for that longer duration? (Academic, India)

Answer: Concrete overlays still require sufficient curing time to develop minimum strength to support aircraft traffic. Runway closure timelines must be considered appropriately, and cessation of airport services is always a key consideration. Some projects have developed alternate landing surfaces to allow certain aircraft traffic. Other airports shut down completely and the construction schedule is built to re-open as quickly as possible. Many owners justify the shutdown with the long-term benefit that a concrete overlay will last longer and require fewer future closures to maintain.

Q4 - Regarding the bond breaker in rigid overlay on rigid, can an asphalt interlayer or geosynthetics mitigate reflective cracking for 10 years of service life, given their lower tensile strain capacity and lower potential stress distributions at higher loads? (Academic, India)

Answer: The bond breaker for an unbonded concrete overlay of concrete is not for reflective crack mitigation. Instead, it is used to break the structural bond between the overlay and the underlying concrete surface. This allows the concrete overlay to perform independent of the underlying concrete and only rely in the original concrete for a uniform support structure. As long as the underling concrete remains stable (i.e. no pumping or faulting) the unbonded overlay performs very well and underly distresses do not overlap. The asphalt interlayer has been used on unbonded rigid overlays of rigid pavements since the 1960s and performed very well.

Q5 - If Whitetopping design for the GA Airport uses a State DOT PCC spec for the surface layer (<60k aircrafts) instead of P-501 then a MOS is required...correct? (Agency, GA)

Answer: We cannot provide any further guidance on how state specifications for concrete may be authorized for use on FAA grant projects than what is already covered in AC 150/5370-10H. However, some of the overlay projects highlighted in South Carolina were completed using South Carolina DOT specified concrete and have performed very well. And when P-501 was used the engineer often edited the specifications to include allowable edits, such as acceptance using compressive strength instead of flexural strength, to make the P-501 concrete more cost-effective for the project.

Q6 - With the 6" concrete overlay, what method is typically used to tie into the existing taxiway? How much extra work is this? (Industry, NC)

Answer: Tying into taxiways depends on the taxiway geometry and existing slopes, lengths, etc. The complexity and method vary greatly depending on each individual situation. Figure 3-7 within AC 150/5370-6G illustrates a detail that has been used on projects, but we have also seen butt joints used without thickening the section for general aviation projects where structural stress from lighter loads is less likely.

Q7 - How does this impact runway lights, signs, and cabling? (Industry, NC)

Answer: The impact on runway lighting, signs and cabling would be an important consideration during the design of the concrete overlay. The engineer will need to ensure the entire project remains compliant with FAA standards and any elevation changes are properly designed. In most cases presented in this webinar there was minimal need to adjust lighting and infield grading when the overlay is just 5 or 6"

Q8 - Does the FAA recognize benefits of fiber reinforced concrete for thin overlays? (Contractor, IA)

Answer: The FAA does not specifically discuss fibers in AC 150/5320-6G. And fibers are not currently included in P-501. However, some engineers have specified fibers in concrete overlays in the past. And in the industry review draft of AC 150/5370-10J the proposed updates to P-501 do include fibers as an allowable option to be specified. Once

that update is released it will be easier to specify the use of fibers with overlays. As noted in the webinar, the FAA is in the process of updating AC 150/5320-6G. They will release a draft of -6H for industry review as part of the update process and you may be able to make a comment on that draft to encourage them to include a discussion on the benefits of fibers in thin concrete pavement and overlays.

Q9 - At what minimum thickness is the threshold for using dowel bars for load transfer? Is the jointing design similar for parking lots or is there a specific jointing design for concrete overlays of GA airports? (Industry, FL)

Answer: We encourage the design engineer to refer to section 3.16.10 (dowels and tie bars for joints) within AC 150/5320-6G for proper use. For 5-inch and 6-inch overlays, we typically do not see the use of dowels for load transfer in transverse joints or longitudinal construction joints. Tied longitudinal joints are often included for the last longitudinal joint before the edge of pavement following the FAA guidance in -6G. We have seen some projects begin using dowels at 7-inch thicknesses in the longitudinal construction joints only. Again, it depends upon local conditions and the aircraft weights that will be using the airport.

Q10 - Just to confirm a PCI of 55 and below is when structural overlays or replacements would take place? (Industry, ID)

Answer: This is not correct. Section 4.3.1 of AC 150/5320-6G says "Pavements with PCI less than 70 and greater than 55 are candidates for rehabilitation. There are times when a rehabilitation strategy is justified on pavements with PCI greater than 70 or less than 55." PCI alone cannot determine the best strategy for a pavement. It is only a general guide to help predict pavement deterioration and identify when a more detailed analysis is required to determine the best method to address the pavement's deteriorating condition.

In many cases a concrete overlay can effectively rehabilitate a pavement in the lower PCI ranges more effectively than a flexible overlay, especially if some of the distresses are structural in nature. However, even a concrete overlay may not be effective rehabilitation for a pavement in the lower PCI ranges if there are certain distresses (such as detrimental freeze-thaw related distresses) and reconstruction is the best strategy.

Q11 - Why does AC 150/5320-6G outline in table 3-7(b) a minimum thickness of 8 inches on a stabilized base? does this mean PCC overlays on a stabilized base should be a minimum thickness of 8"? Should existing HMA be considered a stabilized base? (Industry, IL)

Answer: Table 3-7 does not establish minimum thickness. It only provides maximum joint spacing for the various thicknesses. 12.5 feet is the maximum joint spacing regardless so the fact that (b) starts at 8 inches is irrelevant. As mentioned in the webinar, it is common to reduce the joint spacing on overlays even further and use 8-10 ft spacing.

Q12 - Load transfer used on 6" overlays (transverse dowel bars)? (Industry, TN)

Answer: This is similar to Q9 so review that question for more details. Generally, we have not seen load transfer used on thin overlays (less than 7 inches). Tied joints are often specified for the last longitudinal joint. The aircraft loads are light enough on the thinner overlays that they perform fine without load transfer devices.

Q13 - From a contractor/equipment standpoint, is there FAA guidance on the placing of concrete in front of the slipform paver on a GA airport? (Industry, TN)

Answer: P-501 has requirements for the type of equipment that can be used for placing concrete and does not provide differentiation between a GA airport and a non-GA airport. For thin overlays it is very important to consider the construction loads being placed on the pavement, especially the new overlay pavement. Construction loads can be higher than the design aircraft loads and special consideration may be required for reducing the loads to prevent damage to the original pavement being overlaid and/or the new concrete.

Q14 - What has been your experience using rubblization of the existing pavement prior to PCC overlay? (Agency, NY)

Answer: We generally don't recommend rubblization, but it is an allowable reconstruction method in AC 150/5320-6G. We would recommend evaluating an unbonded overlay before considering rubblization. In many cases they require similar existing pavement conditions and result in a similar finished product. But concrete overlays are often easier to construct and less risky than rubblization.

Q15 - For PCC Overlay on existing AC pavement, need a in between drainage layer like Macadam? (Agency, NY)

Answer: The rigid overlay can be placed directly on the existing flexible pavement, and no drainage layer is required. The overlay performs just fine with the concrete directly on the asphalt. Sometimes edge drains will be installed along the edge of the overlay pavement to promote proper drainage, but nothing in-between the pavement layers.

Q16 - Why do we need a bond breaker when concrete is placed over asphalt? (Agency, CA)

Answer: A bond breaker typically provides two benefits when placing concrete on asphalt. First, it reduces the friction between the concrete overlay and underlying asphalt. Early-age cracking of concrete surfaces has been observed if too much friction builds up between the concrete and underlying material. Reduced joint spacings can also help reduce these friction concerns. Second, the bond breaker allows for easier rehabilitation of the concrete surface throughout it's life-cycle. If a panel needs to be replaced the bond breaker makes it easier to remove the panel without damaging the underlying asphalt.

For overlays a granular bond breaker like a choke stone may also help fill in some of the cracks and irregularities in the underlying asphalt providing a smoother surface to pave

on. In some cases when asphalt milling is done a layer of asphalt milling is left on the surface to act as a bond breaker similar to a choke stone.

Q17 - Can you Design a 50-year Pavement for Airports? (Industry, FL)

Answer: FAA grant policies require a pavement to be designed for a 20-year structural life. Anything greater than 20 years is not eligible for FAA funding. However, in most cases the functional life of airfield pavement, especially concrete pavement, is much longer than the 20-year structural life. With proper maintenance and rehabilitation many airfield concrete pavements have successfully performed for 30+ years before reconstruction is required.

Q18 - Is there a standard FAA specification for the 1" thick asphalt interlayer? (Industry, NC)

Answer: The standard FAA specifications for asphalt pavement (P-401/403) are just fine if sticking to FAA standards, but there is no need to grade bump the asphalt binder or require the strict acceptance requirements of the specifications. The asphalt interlayer just to be uniformly placed, compacted, and smooth. You could also use any state specification asphalt mix if the FAA will allow it.

Q19 - When using a thin layer of asphalt as a bond breaker for a rigid overlay, are there any additional materials needed on the asphalt surface (e.g., curing compound) to ensure proper bond breaker? (Industry, NC)

Answer: There is nothing else needed. The asphalt interlayer itself has been found to do an excellent job of providing sufficient breaking of the bond to prevent the underlying concrete from propagating distresses into the overlay. One factor to consider, when paving concrete upon an asphalt interlayer during high temperature periods, misting the asphalt surface to cool is a recommended practice.

Q19 - On the Alternatives Analysis slide showing the three alternatives, the notes indicate that the functional life of HMA and PCC can vary significantly. When developing a Life Cycle Cost Analysis (LCCA) comparing these two pavement options, should the analysis account for the expected functional life based on historical HMA performance, or should it be based solely on the structural life of each alternative? I appreciate your time and any clarification you can provide. (Industry, IL)

Answer: Refer to the LCCA guidance in AC 150/5320-6G. It provides some recommendations for what life analysis period to use and how to structure the LCCA to account for functional life differences between the different pavement types. The general recommendation is that you set an analysis period that includes at least 1 major rehabilitation for each alternative. However it is structured, it is important to consider salvage value if you anticipate any life remaining beyond the analysis period. If you would like to have a further discussion on LCCA, feel free to reach out to ACPA.