226 Patterned Pavement and Architectural Pavers

226.1 General

Alternative paving treatments, such as patterned pavement and architectural pavers meeting ***Standard Specifications***, may be used for enhancing aesthetics and appearance when requested by a local community, and when the conditions and restrictions provided in this section are met. Patterned pavement treatments are covered under ***Section 523*** of the ***Standard Specifications*** and are surface markings applied either as an overlay to the pavement surface or imprinted in the pavement surface. Architectural pavers are covered under ***Section 526*** of the ***Standard Specifications*** and consist of brick pavers or concrete pavers placed on specially prepared bedding material.

These alternative pavement treatments are purely aesthetic treatments and are not considered to be traffic control devices. Use of either of these treatments is highly restricted as stated below. Even when all conditions and restrictions are met, any decision to use these treatments should consider that there may be potential adverse impacts to the traveling public as well as potential long term maintenance problems. Architectural pavers have been found to create significant ride-ability problems even on low speed roadways. Therefore, architectural pavers are prohibited within the traveled way on the State Highway System. Properly installed patterned pavement treatments do not significantly affect ride-ability; however, their use is also restricted since they are not likely to sustain their friction and wear characteristics for the full life of typical roadway pavement.

These paving treatments involve additional construction and maintenance costs not associated with typical roadway pavement. Therefore, obtain the appropriate agreements with the local maintaining agency. The additional funding for construction and assumption of responsibility for regular inspection and maintenance of the pavement treatment are to be provided by the local maintaining agency. In cases where existing alternative pavement is being removed as part of a Department project, replacement of such pavement is to adhere to the requirements in this chapter regardless of the circumstances of the original installation and maintenance. Maintenance agreements for installations within the traveled way on the State Highway System are to include the provisions outlined in ***FDM 226.4.1*** for the duration of the installation.

226.2 Design Variations

Design Variations to any of the requirements in this chapter are to be approved by the District Design Engineer.

226.3 Architectural Pavers

When architectural pavers are used, identify the location, type, pattern, shape and color in the plans. In addition, identify the project specific details and requirements for edge restraints, bedding material thickness, and base and sub-base materials and thicknesses, as appropriate in the plans, which are to be signed and sealed by a licensed Florida Professional Engineer. The following restrictions apply to the use of architectural pavers:

(1) May not be used on the traveled way of the State Highway System.

(2) May be used on local side streets (with a design speed of 35 mph or less), non-traffic medians and islands, curb extensions, sidewalks, borders, and other areas not subject to vehicle traffic.

(3) Meet ADA requirements in areas subject to pedestrian traffic. See ***Public Rights of Way Accessibility Guidelines (PROWAG)*** ***R301.5 and R301.7*** and ***Americans with Disabilities Act Accessibility Guidelines (ADAAG)*** ***302*** and ***303*** for surface requirements.

226.4 Patterned Pavement

When patterned pavement treatments are used, identify the location, patterned type (brick, stone, etc.), and surface color in the plans. Product brands, colors and patterns may be specified in the plans as long as the brand is listed on the ***Approved Products List (APL)*** at the time of use if requested by the local agency funding and maintain these treatments. The following restrictions apply to the use of pattern pavement:

- Use on the traveled way of the State Highway System is restricted to areas within marked pedestrian crosswalks where the design speed is 45 mph or less; however, patterned pavement cannot be used on pedestrian crosswalks across limited access roadway ramps. Use on pedestrian crosswalks with heavy truck traffic turning movements (≥ 10% trucks) should be avoided.

- The pavement to which the treatment is applied is required to be of the same pavement type as, and continuous with, the adjoining pavement. For example, replacing flexible pavement with rigid patterned pavement within the limits of a crosswalk where the abutting pavement is to remain flexible pavement will likely result in pavement joint problems and adverse impacts to rideability. This type treatment is therefore not permitted. Replacing flexible pavement with rigid pavement for an entire intersection including crosswalks may be permitted with a Technical Special Provision submitted to the State Roadway Design Engineer for approval.

- The initial treatment cannot be applied to any State Highway whose asphalt pavement surface is older than 5 years.

- May be used in areas not subject to vehicle traffic such as median islands, curb extensions, sidewalks, and landscaping borders.

- Meet ADA requirements in areas subject to pedestrian traffic. See ***PROWAG R301.5 and R301.7*** and ***ADAAG 302 and 303*** for surface requirements.

226.4.1 Maintenance Memorandum of Agreement

Prior to the installation of patterned pavement crosswalks in intersections on the State Highway System, a Maintenance Memorandum of Agreement is required to be entered into with the local government agency requesting this aesthetic enhancement to the project. This agreement is filed with the District Maintenance Office. This Agreement requires the local government agency to acknowledge that the installation and maintenance of patterned pavement is the total responsibility of the local agency, including contracting for friction testing with a qualified firm.

"Maintenance" of all patterned pavement crosswalks in these Agreements is to be defined, as a minimum, to include its frictional characteristics and integrity as follows:

- Evaluate all lanes of each patterned crosswalk for surface friction within 60 days of project acceptance by the Department. Conduct the friction test using either a locked wheel tester in accordance with ***FM 5-592*** (***Florida Test Method for Friction Measuring Protocol for Patterned Pavements***) or a Dynamic Friction Tester in accordance with ***ASTM E1911***. ***FM 5-592*** can be accessed at the following link:

  http://www.fdot.gov/materials/administration/resources/library/publications/fstm/methods/fm5-592.pdf

  The initial friction resistance must be at least 35 obtained at 40 mph with a ribbed tire test (FN40R) or equivalent. Failure to achieve this minimum resistance will require all deficient crosswalk areas to be removed to their full extent (lane-by-lane) and replaced with the same product installed initially. If the Department determines that more than 50% of the lanes in the intersection require replacement, the entire intersection installation may be reconstructed with a different product on the ***APL*** or replaced with conventional pavement.

- Approximately one year after project acceptance and every two years thereafter and for the life of the adjacent pavement, only the outside traffic lane areas of each patterned crosswalk must be tested for friction resistance in accordance with

ASTM E274 or ***ASTM E1911***. Friction resistance must, at a minimum, have a FN40R value of 35 (or equivalent).

- Send the results of all friction tests to the District's Warranty Coordinator with a cover letter either certifying that the crosswalks comply with the minimum friction criteria, or stating what remedial action will be taken to restore the friction.
- Failure to achieve the minimum resistance requires all lanes of the crosswalk to be friction tested to determine the extent of the deficiency. All deficient areas must be removed to their full extent (lane-by-lane) and replaced with the same product installed initially. If the Department determines that more than 50% of the lanes in the intersection require replacement, the entire intersection installation may be reconstructed with a different product on the APL or replaced with conventional pavement.
- When remedial action is required in accordance with the above requirements, the local agency must complete all necessary repairs at its own expense within 90 days of the date when the deficiency was identified. No more than two full depth patterned pavement repairs can be made to an area without first resurfacing the underlying pavement to 1" minimum depth.
- The Department will not be responsible for replacing the treatment following any construction activities in the vicinity of the treatment.
- Should the local agency fail to satisfactorily perform any required remedial work in accordance with this agreement, the Department reserves the right to replace the patterned pavement with conventional pavement (matching the adjacent pavement) and bill the local agency for this cost.