

ELEMENTS OF THE “ULTIMATE” HMAC SYSTEM

Structural Design:

Employ design procedures that optimize structural designs to take advantage of:

- Engineering properties of HMAC and unbound base layers
- “rich” bottom and base layers to assure perpetual structure managed from the top down and minimize penetration of water into the asphalt from below
- Stiff binders to minimize thickness (quantities) and maximize rut resistance while achieving in-place densities that assure impervious layers and maximize fatigue
- Lift thicknesses to optimize the ability to achieve desired in-place density and permeability
- Recognize impacts of traffic make-up and volumes
- That give contractors and field staff the quantities and lifts necessary to provide a smooth ride

Materials Selection/Specification:

- Select aggregate properties that assure compactable, durable, and stable mix designs
- Select binders to match structural design philosophy and traffic levels, speeds, etc
- Select wearing course (and sometimes top base course as well) binders that minimize risk of rutting at the desired in-place density levels
- Apply lime, latex, and other anti-stripping materials to mitigate stripping in high risk facilities

Mix Design:

- Adjust mix design criteria to match structural design philosophy and binder selection
- Apply state of the practice criteria for mix volumetrics, stripping, and other mix durability/performance related items (ie dust to effective asphalt, film thickness, etc)
- Apply a performance test to assure a stable, rut resistant aggregate structure and mix design.
- Recognize amount of secondary compaction from anticipated traffic make-up, speeds, and volumes

Compaction:

- Apply compactive effort and processes necessary to achieve maximum density for a given set of conditions
- Specifications that require density levels that achieve impervious layers and match structural design philosophy

Production Mix Properties:

- Measure and pay on properties that relate to performance, that assure that mix design criteria are met, and that contractors understand how to control and adjust.
- Adjust mix designs to allow specified density levels to be achieved (and thus structural design philosophies) with adequate compactive effort and processes without compromising or unbalancing performance characteristic of the mix

Workmanship:

- Apply specifications that result in uniform mixtures with no thermal or mechanical segregation
- Apply specifications that result in tight, dense longitudinal joints
- Apply specifications that result in quality work around utilities, curbs, islands, approaches, etc

Smoothness:

- Apply specifications that encourage contractors to take actions to provide smooth ride for all applications
- Apply specifications and processes to assure smooth transitions into and out of bridges