Interlocking Concrete Pavement Distress - Summary

The following is a summary of protocol detailed in the Interlocking Concrete Block Pavement *Distress Manual* published by the Interlocking Concrete Pavement Institute (ICPI) to assess the condition of interlocking concrete pavement (ICP). The procedure follows ASTM, APWA and US. Corps of Engineers to rate the pavement according to an accepted Pavement Condition Index (PCI).

The PCI evaluates pavements in the following areas of distress:

- **Damaged Pavers** – This describes the condition of the paver units. Damage would include chips, cracks or spall. Minor chips or cracks with little or no opening will not affect performance.

- **Deteriorated pavers** – Refers to sections of the pavement where pavers are deteriorated, disintegrated or missing. This condition can compromise the integrity of the surface and can create a trip hazard.

- **Depressions/Settlement** – Depressions are areas of the pavement surface that have elevations which are lower than surrounding areas. This condition is typically caused by settlement of the underlying subgrade or base.

- **Edge restraint** – Buildings and curbs act to provide lateral support and restrain the pavers along the lengths pavement perimeter. Lateral support is considered essential to resist displacement of pavers along the edge, minimize loss of joint and bedding sand and prevent block rotation.

- **Excessive Joint Width** – This condition is a surface distress feature in which the joints between paver units have widen. As joints widen the integrity of lock-up between paver units lessens leading to overstressing the substructure layers.

- **Faulting** – Faulting are areas of pavement surface where the elevation of the adjacent pavers differ or have rotated. It can be caused by settlement of the bedding sand, pumping of the joint and/or bedding sanding. Faulting can pose a tripping hazard.

- **Heaving** – Heaves are areas of the pavement surface that have elevations higher than adjacent areas. Heaves are typically caused by differential frost heave of the underlying soil or subgrade instability. .

- **Horizontal Creep** – The longitudinal displacement of the pavement caused by traffic loading.

- **Joint sand loss** – Loss of sand in the joints can occur from a number of factors including heavy rain, sweeping, power-washing or pumping under traffic loading. Joint sand is considered essential to pavement performance as it provides interlock and stiffness of the paver layer.

- **Patching** – This addresses sections of pavement that are missing pavers and have patched with dissimilar materials. While deemed a "quick fix" patching can compromise the integrity of the pavement structure and lead to settlement and surface roughness. Patches are unsightly and should be replaced with whole pavers at the earliest convenience.

- **Rutting** – Rutting is a depressed area of a pavement surface that occurs in a longitudinal direction associated with repetitive wheel paths. It is typically caused by stress to the underlying subgrade or base under vehicle loading resulting in settlement that translates to the pavement surface.

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