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## Appendix X - Street Acceptance Guidelines

This guidance document is prepared for use by Fort Bend County (FBC) staff, Developers, Engineers, and Contractors to provide understanding and clarity of County pavement requirements for acceptance of public roadways into County Maintenance. The General Acceptance Procedures can be found in the FBC Regulations of Subdivisions, Section 6 – Acceptance of Improvements within Subdivisions. This document provides guidance in determining if concrete pavement can be repaired and when it is necessary to replace.

Compliance with contract documents is required. Development within unincorporated FBC shall use Harris County specifications (Item 360 & 361 for Concrete Pavement). Development within City limits or extraterritorial jurisdiction shall use that City's specifications.

Engineer of Record or their designee shall notify County Engineer or their designee via email of deficiencies that are not within the specification limits as soon as the deficiency becomes known but in no case more than 24 hours after the construction activity. Examples include proof rolling, subgrade density, and concrete placement. **These guidelines do not relieve the developer, engineer, or contractor from adhering to applicable specifications and standards.**

Membrane curing compound shall be applied as soon as the surface water disappears in compliance with the manufacturer's recommendations. Sawing shall take place when concrete strength is acceptable for sawing and in compliance with the specifications without creating excessive raveling along the sawcut.

The following elements are covered in this document:

- Pavement cracking
- Bird Baths
- Construction practices that contribute to pavement failure

### **Concrete Pavement Cracking**

Visible cracks with no measureable width and no surface deflection are acceptable (e.g. shrinkage cracks).

Cracks less than or equal to 1/8" wide for less than 50% of the length of the crack may be sealed with a super low viscosity epoxy (gravity fed) sealant or approved alternative. Crack preparation and application of sealant will be in accordance with manufacturer's recommendations.

Cracks greater than 1/8" for more than 50% of the length of the crack must be removed and replaced.

Cracks within 12" of control or expansion joints must be removed and replaced.

Cracks with a difference in elevation (e.g. surface deflection or joint fault) greater than 1/8" must be removed and replaced.

Spalled concrete pavement must be removed and replaced.

### **Concrete Removal and Replacement**

Minimum pavement removal area will be minimum 6-feet long and the full-lane width in accordance with Harris County Item 361 - Full Depth Repair of Concrete Pavement which states;

*The minimum dimensions for full depth concrete pavement repair are one lane-width, and not less than 6 feet long. Repair areas smaller than the minimum will show excessive "rocking" against the adjoining concrete pavement sections. Likewise, the minimum remainder of the slab shall be at least 6 feet (to the end of slab or next repair area).*

### **Evaluation of Subgrade**

After pavement removal and before placement of concrete, the subgrade and the material beneath the subgrade must be evaluated by a certified testing laboratory to determine the material is suitably stable. Provide lab report for density, moisture, lime depth, and other related analysis of subgrade to FBC. Lab reports shall be sealed by a Texas licensed Professional Engineer and include recommendations for over-excavation of subgrade material, subgrade treatment, or other mitigation needed to address pavement cracking issues.

If the lab analysis recommends the subgrade be removed, new subgrade shall be Cement Stabilized Sand (2 sack/cy, compacted) or as recommended by the lab report, whichever is more stringent.

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### **Concrete Slump, Temperature and Placement Time**

Harris County Item 360 - Concrete Pavement, states;

*Unless otherwise permitted, the concrete mix design shall be proportioned to provide a slump between 1 and 6 inches.*

Any slump in excess of 6” will require the entire load of concrete (typically 10 yards) to be removed and replaced. A 10 cubic yard truck is equivalent to 60 square yards (SY) of 6” thick pavement, 52 SY of 7” thick pavement, or 45 SY of 8” thick pavement.

Harris County Item 360.6 states, “*A slump test will be made for each sample of concrete obtained, or when slumps appear to be outside specification requirements.*” Therefore, when a slump is in excess of 6”, the CMT technician must perform a slump test on every subsequent truck until the slump is within specification.

Concrete temperature and placement time must be in accordance with the project specifications. Concrete temperature in excess of 100°F shall be rejected. Concrete discharged more than 90 minutes after batch time shall be rejected.

**Concrete not meeting these specifications must be removed and replaced. If the pavement is otherwise undamaged (no cracking), the contractor has the option to reimburse Fort Bend County 25% of the cost of removal and replacement. The cost will be determined using the current FBC on-call contract unit prices. Funds will be placed in a Road & Bridge account to fund concrete repair contracts.**

Mix designs containing admixtures which may modify the slump, temperature and/or placement time must be submitted and approved by FBC prior to use. For example, Harris County Item 421.6 states, “*If High Range Water-Reducing admixture is used, maximum acceptable placement slump shall be 9 inches.*”

## **Bird Baths**

The following images are of bird baths that would require correction. Correction may be pavement removal and replacement, light grinding, lifting, or removal of obstruction (i.e. joint sealant). The extent of pavement removal will be determined in the field with FBC Engineering staff based on location of bird bath, joints, cracks, inlets, or other items.

Light grinding may be done within 6 inches of the curb and no more than 1/2 inch in depth. Grind must be “feathered” so as not to create an edge.



Image 1 - Bird bath extends into driving lane; corrective measures required.



Image 2 - Bird bath has significant length and depth. Lifting, light grinding, or removal of joint sealant obstruction may be acceptable based on field conditions. Grinding shall be limited to 15' either side of the expansion joint.



Image 3 - Bird bath has significant length, width, and depth. Lifting or pavement replacement is required. If the lifted pavement cracks then use Concrete Pavement Cracking Evaluation Criteria included in this document.



Image 4 - Bird baths which are relatively small in length, width, and depth do not require pavement replacement or lifting. Allowable width is approximately 12 inches.

## **Construction Practices That Contribute To Pavement Failure**

The information below is to assist developers, engineers, contractors, and inspectors on identifying conditions that may lead to inadequate pavement structures and costly pavement replacement upon construction completion.



Image 5 - Subgrade is too dry.



Image 6 - Subgrade is too dry.



Image 7 - Possible deficiencies in subgrade and base include: Inadequate proof rolling or improper mixing of lime for subgrade, not extending lime mixture to edges of proposed limits of the stabilized subgrade, calculating lime for a 6 inch subgrade and mixing it 8 or more inches deep.



Image 8 - Concrete under headers at expansion joints does not allow expansion to occur correctly.



Image 9 - Misaligned dowels may cause spalling near the joint.



Image 10 - Misaligned dowels may cause spalling near the joint.





Image 11 - Membrane curing compound not applied to pavement



Image 12 - Inadequate curing compound



Image 13 - Silt fence or irrigation is placed directly behind curb cuts through subgrade and impacts lateral support.



Image 14 - Excavation under or near pavement



Image 15 - Not saw cutting within specified time (photo shows 4 day old concrete with no sawcuts)



Image 16 - Equipment operating on pavement with inadequate cure time.



Image 17 - Driveway cut with water sitting weakens the subgrade



Image 18 – Private utility excavation beneath pavement