

3550000 VALUE ADDED CONCRETE
COMMENTS FROM INDUSTRY REVIEW

Stacy Scott
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Comments: 355-4.1 change sentence that states: For evaluation purposes, the project will be subdivided into sections LOTs of 0.1 mile per lane. When the segment is less than 0.1 mile, the segment will be called a partial LOT. change to: To determine rideability thresholds, the project will be subdivided into sections LOTs of 0.1 mile per lane. When the segment is less than 0.1 mile, the segment will be called a partial LOT. This is being suggested because this is the only distress indicator that uses the Lot /Partial Lot method.

Response: Agree. Changes made.

In 355-4.1 change sentence that states: The final survey, if determined by the Engineer to be necessary, will be conducted no later than 180 calendar days before the end of the warranty period. change to: The final survey, if determined by the Engineer to be necessary, will be conducted no later than 45 calendar days before the end of the warranty period. This is being suggested because requiring the final survey to be completed 180 days before the end of the warranty period shortens the warranty period excessively.

Response: Agree. The change has been removed and the 45 days has been deleted.

Chris Sweitzer
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Comments:

355-4.1 - New proposed second sentence: If it remains as-is, a period should be added after "...at any time.". As written there are no restrictions on when the Department could require remedial action. I suggest revising the sentence to read "The Department will monitor the pavement and may require remedial action at any time when any threshold values in Table 355-1 are exceeded." or some similar language.

Response: Agree.

Later in the section, what is contained in an LOT is defined. The abbreviation LOT is not defined in this section and no use is proposed for these LOT's...why define what they consist of and then not use them?

Response: The term lots and the usage of lots has been clarified.

At the end of the first paragraph, suggest adding language to make it clear that the Department is only responsible for the Department's costs associated with these surveys, not the Contractor's or those of any other party.

Response: No change needed.

355-5: On the issue of beginning emergency work within 4 hours of written notification, later portions of this section contain language that may or would prevent the Contractor from beginning work this quickly. The next to last paragraph states that the lane closure restrictions in

the "original" contract will apply and also states that the Contractor needs to request lane closures in writing 48 hours in advance. Suggest adding language that these requirements do not apply in an emergency situation.

Response: Agree. Revised

The reference to the contract as the "original" contract is not required as this work is part of the contract and no new contract is being awarded/implemented.

Response: Leave as is. No changes made.

355-6: At the end of the first paragraph, strike the "s" in "occurs:" As written, this section forces the Contractor to refer any requests to the Disputes Review Board even if the Contractor agrees the work needs to be performed to prevent their being found in violation of item 1. Suggest rewording to state that item 1 applies only if the Contractor intends to dispute the Department's findings/request for remedial work.

Response: This article not being revised at this time.

Ken Zinck
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Comments:

Amy Scales: On Value Added Concrete - The final survey is to be no later than 6 months before the warranty runs out. Why so far out?

Response: Agree. The change has been removed and the 45 days has been deleted.

Conrad Campbell
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Comments:

Section 355-4.1 States the following: 355-4.1 General: ...The final survey, if determined by the Engineer to be necessary, will be conducted no later than 45 180 calendar days before the end of the warranty period. The Department will be responsible for all costs associated with the surveys. The Responsible Party will be advised if/when the Department believes remedial action is required... Question/Suggestion #1: I suggest the following change: ...The final survey, if determined by the Engineer to be necessary, will be conducted before the end of the warranty period. The Department will be responsible for all costs associated with the surveys. Prior to the end of the warranty period, the Responsible Party will be advised if/when the Department believes remedial action is required... I suggest these changes for the following reasons: 1. The direction creates confusion if it is determined that another (final) survey is necessary due to the observation of pavement distress occurring after the 180 days but prior to the expiration of the warranty period. The modified language is much clearer, covers these concerns while still providing timely notification. 2. 180 day constraint will cause a heightened awareness to review the project >6 months in advance of the warranty expiration – that is over 1/6th of the entire warranty period. Doing this deemphasizes the need to monitor the warranty through the entire (including the last 6 months) period. 3. This 180 day constraint places an unnecessary

requirement on the Department. If the Department elects to do this as a common internal practice then include this direction in CPAM and not in the specifications. 4. The addition of “Prior to the end of the warranty period” insures the contractor that the Department will conduct and provide notification of the final survey results prior to the end of the warranty period – eliminating the need for the more complicated 180 day requirement.

Response: Agree. The change has been removed and the 45 days has been deleted.

Jim Mack
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Comments:

1. I believe that the proposed specification is too harsh with its Remedial Work recommendations for pavement distresses. The specification is recommending full Depth Slab Replacement for spalls and cracking when partial depth patching and/or dowel bar retrofit would work. These repairs can be about 1/10th the cost of a Full Slab replacement. I also do not believe that the descriptions provided give enough information as to recommend other more appropriate repairs. As such, I suggest replacing Table 355-1 with the following: Table 355-1 VACP Threshold Values and Remedial Work Type of Distress Threshold Values Remedial Work Rideability Ride Number < 3.70 Grind all deficient sections in accordance with Section 352. Spalling that is less than 1/2 the slab depth (D/2) Four areas in any Lane Mile exceeding 3 inches in width and 12 inches in length. Partial Depth Slab Repair for a minimum of 3 inches beyond the spalled area and to a maximum depth of D/2 in accordance with Section XXX. Spalling that is greater than 1/2 the slab depth Any single area exceeding 3 inches in width and 12 inches in length. Full depth slab replacement for a minimum of 6 feet in length and the full width of the slab in accordance with Section 353. Partial Depth Cracking Do nothing Full Depth Transverse Cracking Four Cracks in any Lane Mile with width exceeding 1/4 inch that are further than 4 feet from any Transverse joint If pavement is doweled, Dowel Bar Retrofit and seal crack (3 dowels/wheelpath. If pavement is undoweled, seal crack. Full Depth Transverse Cracking Four Cracks in any Lane Mile with width exceeding 1/4 inch that are within 4 feet from any Transverse joint Full depth slab replacement for a minimum of 6 feet in length and the full width of the slab in accordance with Section 353. Full Depth Longitudinal Cracking Four Crack slabs in any Lane Mile with width exceeding 1/4 inch that are further than 6 feet from the pavement edge Longitudinal Cross stitch the crack and seal. Full Depth Longitudinal Cracking Four Crack slabs in any Lane Mile with width exceeding 1/4 inch that are within 6 feet from the pavement edge Full depth slab replacement for the length and the full width of the slab in accordance with Section 353. Shattered Slab Cracking patterns that divide the slab into three or more segments Full slab replacement in accordance with Section 353. Additional comments to Table 355-1 I. Spalling less than 3-in width is classified as low severity by the SHRP Highway Distress Manual and will have negligible impact on ride. As such, anything less than 3” width should be left alone. II. Why start repairing spalling when the level reaches 4 areas in a mile? The ACPA recommends to start looking at repairing spalls when the spalling level is at: a. 1.5% of joints (5 joints) for high traffic (ADT>10,000) b. 2% of joints (7 joints) for medium traffic (3,000>ADT>10,000) c. 2.5% of joints (9 joints) for low traffic (ADT<3,000) III. A sawed joint has a width that is 1/4-in wide. Why does a crack that is less than this width need repaired? Anything less than 1/4-in wide should just be sealed and have subject to performance at final

survey. For additional information on repairing spalled and cracked concrete pavements, see the following American Concrete Pavement Association Publications: • Guidelines for Full-Depth Repair, TB002P • Guidelines for Partial-Depth Repair, TB003P • Joint and Crack Sealing and Repair for Concrete Pavements, TB012P • Early Cracking of Concrete Pavement - Causes and Repairs, TB016P • The Concrete Pavement Restoration Guide, TB020P Note: I have a copy of the Table in Word Format and If you would like it, I will email it to you

I believe that the proposed specification is too harsh with its Remedial Work recommendations for pavement distresses. The specification is recommending full Depth Slab Replacement for spalls and cracking when partial depth patching and/or dowel bar retrofit would work. These repairs can be about 1/10th the cost of a Full Slab replacement. I also do not believe that the descriptions provided give enough information as to recommend other more appropriate repairs.

As such, I suggest replacing Table 355-1 with the following:

Table 355-1 VACP Threshold Values and Remedial Work		
Type of Distress	Threshold Values	Remedial Work
Rideability	Ride Number < 3.70	Grind all deficient sections in accordance with Section 352.
Spalling that is less than 1/2 the slab depth (D/2)	Four areas in any Lane Mile exceeding 3 inches in width and 12 inches in length. ¹	Partial Depth Slab Repair for a minimum of 3 inches beyond the spalled area and to a maximum depth of D/2 in accordance with Section XXX .
Spalling that is greater than 1/2 the slab depth	Any single area exceeding 3 inches in width and 12 inches in length.	Full depth slab replacement for a minimum of 6 feet in length and the full width of the slab in accordance with Section 353.
Partial Depth Cracking		Do nothing
Full Depth Transverse Cracking	Four Cracks in any Lane Mile with width exceeding 1/4 inch that are further than 4 feet from any Transverse joint	If pavement is doweled, Dowel Bar Retrofit and seal crack (3 dowels/wheelpath) If pavement is undoweled, seal crack.
	Four Cracks in any Lane Mile with width exceeding 1/4 inch that are within 4 feet from any Transverse joint	Full depth slab replacement for a minimum of 6 feet in length and the full width of the slab in accordance with Section 353.

Full Depth Longitudinal Cracking	Four Crack slabs in any Lane Mile with width exceeding 1/4 inch that are further than 6 feet from the pavement edge	Longitudinal Cross stitch the crack and seal.
	Four Crack slabs in any Lane Mile with width exceeding 1/4 inch that are within 6 feet from the pavement edge	Full depth slab replacement for the length and the full width of the slab in accordance with Section 353.
Shattered Slab	Cracking patterns that divide the slab into three or more segments	Full slab replacement in accordance with Section 353.

Additional comments to Table 355-1

Spalling less than 3-in width is classified as low severity by the SHRP Highway Distress Manual and will have negligible impact on ride. As such, anything less than 3” width should be left alone.

Why start repairing spalling when the level reaches 4 areas in a mile? The ACPA recommends to start looking at repairing spalls when the spalling level is at:

1.5% of joints (5 joints) for high traffic (ADT>10,000)

2% of joints (7 joints) for medium traffic (3,000>ADT>10,000)

2.5% of joints (9 joints) for low traffic (ADT<3,000)

A sawed joint has a width that is 1/4-in wide. Why does a crack that is less than this width need repaired? Anything less than 1/4-in wide should just be sealed and have subject to performance at final survey.

For additional information on repairing spalled and cracked concrete pavements, see the following American Concrete Pavement Association Publications:

Guidelines for Full-Depth Repair, TB002P

Guidelines for Partial-Depth Repair, TB003P

Joint and Crack Sealing and Repair for Concrete Pavements, TB012P

Early Cracking of Concrete Pavement - Causes and Repairs, TB016P

The Concrete Pavement Restoration Guide, TB020P

Response: There are three aspects that are essential to foundation of this specification. First, the specification was developed based on the performance of concrete pavements in Florida after five years of service, which are for all practical purposes are defect free. Next, the average service life (time to first rehabilitation of the pavement) averages 20 years for concrete pavements. And finally experience in Florida has shown that partial depth repairs have not performed well and therefore are not used in our concrete pavement rehabilitation. If the pavement was at the end of its service life the thresholds values and rehabilitation strategies proposed might be appropriate. However, if the distress does occur within five years the rehabilitation has been established such that the pavement will to last for an additional 15 years. No changes made.

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Comments:

The third paragraph of the proposed change, Article 355-1, includes a lengthy five-line sentence. I recommend replacing the lengthy sentence with a few shorter sentences and phrases. I recommend the following: Perform all the associated work specified in this Section in accordance with 5-11. The associated work will be continued for a period of five years after final acceptance of the Contract and it work includes the following: (1) The remedial work associated with pavement distresses exceeding threshold values, determined in accordance with this Section. (2) Any deficiencies discovered by the Department and as to which notice is provided to Responsible Party. (3) The pre-existing deficiencies.

Response: No changes made.

Greg Schiess
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Comments:

In 355-4.1, delete the 180 calendar days. The last two sentences should read, "The final survey, if determined by the Engineer to be necessary, will be conducted before the end of the warranty period and the Department will advise the Responsible Party within 60 calendar days of the end of the warranty period of any remedial action the Department believes is required. The Department will be responsible for all costs associated with the surveys.

Response: Agree. The change has been removed and the 45 days has been deleted.

Dan Hurtado
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Comment:

355-1, last sentence: "...*contract items*" should be "...*Contract items*".

Response: Agree. Change made.

Christopher Wood
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Comments:

I have received the following comments from the D2 Construction Residencies for the above mentioned Specification:

We should not lock the final survey down to 180 days. We have had cases where a deficiency was noticed within 30 days of the warranty expiring and have had SMO perform a survey. There needs to be an option to allow for a survey at any point during the Warranty Period. The Contractor is liable for any deficiencies up to 11:59pm on the date of expiration. Thus if something is found and testing required, then regardless whether we are within the 180 days or not the Contractor is still liable.

Response: Agree. The change has been removed and the 45 days has been deleted.

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Comments:

First sentence of second paragraph of 355-4.1, change “Responsible Party” to “Contractor” or define Responsible Party like in 338.

Response: Agree. Changes made.

Question: In Table 335-1, what is the section (LOT?) length for the rideability threshold of 3.7? Is it the entire project length, 0.1 mile (like HMA), 0.01 mile? What is the minimum section length that should be corrected for failing rideability? Probably should be tied to LOT length used to evaluate the ride. I would suggest defining a section length and adding something similar to Note 3 in Table 338-1.

Response: Definition for lots and partial lots added and 3.7 changed to 3.5.

Other comments: In the second paragraph of 355-5, replace “...following conditions is found...” with “...following conditions are found...”.

Response: Current language is correct. No change made.

In 355-5 in the paragraph detailing the Contractor’s options regarding performing remedial work in an immediate danger situation, is it realistic for the Responsible Party to begin remedial work within 4 hours of written notification? What constitutes beginning remedial work – planning or personnel and equipment on the project? What starts that 4 hour clock – Department personnel delivering the notice in person, certified mail?

Response: Agree. Changes made.

Amy D. Scales, P.E.
D5 Interstate Resident Engineer

Comments:

Section 355-5.a: This section needs to be reworded to say 'unless a design build project'.

Response: Agree. Changes made.
