

July 29, 2002

MEMORANDUM
99 -08

TO: District Directors
District Construction Engineers
District Area Engineers
District Materials and Tests Engineers
Project Engineers/Supervisors

FROM: Timothy D. Bertram, Chief *Timothy D. Bertram*
Contracts and Construction Division

RE: Random Transverse Midpanel Cracking of Portland Cement Concrete Pavement

Over the past three or four years the department has been experiencing premature random transverse cracking in concrete pavements. Most of the random transverse cracks were in short concrete sections such as bridge approaches and underpasses. However, some cracks have shown up occasionally at mainline locations.

Early in 1998 the D-1 contraction joint spacing was reduced for all Portland cement concrete pavements and the depth of saw cuts for transverse joints was increased at short concrete sections (less than 300 meters/984 ft.).

An investigation of the random transverse cracking problem revealed that some of the random cracks could have been caused by various construction practices. Based upon this, the following construction areas should be given attention:

1. Subgrade should be proof rolled as per specifications.
2. No. 2 aggregate should not be used to stabilize subgrade unless done under the proper design.
3. Confirm that the proper subbase, with functioning underdrains and outlets, are placed under all concrete pavement to allow drainage.
4. Ensure that the joint sawcut is the proper depth.
5. The sawcut should extend all the way across the slab even if the forms must be removed.
6. New construction joints should line up with existing joints and/or isolated structure castings.
7. Confirm proper consolidation of the plastic concrete.
8. The concrete mix design should be reviewed for compatibility and to insure that all components are approved materials.
9. Ensure that the quality control plan is followed for QC/QA Portland cement concrete.
10. Ensure that trial batch demonstrations are conducted when required.
11. Ensure that proper documentation for trial batch demonstrations, mix designs, source of components, and plastic concrete characteristics is done and retained in the contract records.
12. Do not allow traffic on the pavement until strength and/or time requirements are met.
13. Ensure proper measures are taken to prevent the flow of cementitious material into sawed joints when placing concrete pavement, shoulder or barrier wall adjacent to previously placed and sawn concrete pavement. (Memo 95-08)
14. Ensure proper curing is performed to reduce accelerated loss of moisture from the pavement, including edges of slabs if forms are removed.
15. Ensure proper bond breaking method used between concrete pavement shoulder and concrete median barrier.
16. Ensure that casting are completely surrounded by preformed joint material in accordance with specifications (720.14).

TDB:pl