DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Transportation Laboratory
5900 Folsom Blvd.
Sacramento, California 95819-4612

METHOD OF TEST FOR OBTAINING DEFLECTION MEASUREMENTS AND LAYER THICKNESS INFORMATION FOR REHABILITATION DESIGN OF PAVEMENTS USING MECHANISTIC-EMPIRICAL DESIGN AND ANALYSIS PROCEDURES

A. SCOPE

This test method presents the basic methodology for collecting deflection data by performing Falling Weight Deflectometer (FWD) testing and pavement coring as part of site investigations needed for rehabilitation design of existing pavements using the California Department of Transportation (Caltrans) Mechanistic-Empirical (ME) design procedures and design of dowel bar retrofit. For rehabilitation design with a flexible surface, the FWD and pavement layer thickness data are used for backcalculation of the pavement layer moduli in the existing flexible or rigid surfaced pavement using the Caltrans software *CalBack*. The Caltrans ME based design software *CalME* uses the backcalculated layers moduli for designing rehabilitation strategies when rehabilitating with a flexible surface. Where the existing pavement layers will not be substantially used in the new pavement, deflection testing is not warranted except where potential locations of poor subgrade support need to be investigated. For rehabilitation design of dowel bar retrofit (DBR) for jointed plain concrete surfaced pavement, deflection data are used for evaluation of load transfer efficiency (LTE) of joints. Deflection testing is not warranted where rigid-surfaced lanes will be replaced with a new rigid-surfaced pavement, or where existing flexible-surfaced pavement will be resurfaced with a rigid-surfaced pavement, except to identify locations of poor support from the subgrade or from other underlying layers if they will be used in the new structure. The Site Investigation Guide for Mechanistic-Empirical Design of California Pavements[1] (also referred to as the site investigation guide in this test method) provides guidance for site investigations.

[1] Link to Site Investigation Guide: https://dot.ca.gov/programs/maintenance/pavement

B. EQUIPMENT

FWD Equipment

The FWD is commercially available in both vehicle and trailer mounted models. FWD models vary amongst manufacturers, both in terms of the magnitude and duration of the load pulse as well as the manner and accuracy of the deflection measurement system. All FWD models operate on an impulse loading principle while stationary. An FWD provides an impulse load that can be varied depending on the drop height and mass used. The kinetic energy is transferred to the pavement with a load pulse in approximately a half-sine wave form of 20 to 60 milliseconds duration through a plate that establishes a known load contact area. The deflection sensors are placed at the center of the loading plate and at radial distances from the center to measure the motion induced in the pavement. The pavement surface peak deflections and load are displayed on a computer screen located in the vehicle and stored in a data file. Peak pavement deflections at each measured location resulting from the force pulse are recorded in micrometers, millimeters, mils, or inches, as appropriate.

FWD Setup

The FWD must be set up with at least eight sensors spaced as shown in Table 1. An additional sensor(s) can be placed at a 72 in. distance, or at other distances if required by the Engineer. The FWD should also be equipped with a 12 in. loading plate. Caltrans also employs sensor 9 at minus 12 in., and sensor 10 at minus 8 in. from the center of the load plate (these settings are used in the calculation of load transfer efficiency for DBR rehabilitation on jointed plain concrete pavement). This is the sensor spacing recommended in the Federal Highway Administration (FHWA) FWD manual[2].

Caltrans recommends that the FWD operating system software be capable of saving the time history for at least one drop per test point. Time histories can be valuable in the analysis of the pavement.

If feasible, equip the FWD with a Differential Global Positioning System (DGPS) to record the coordinates for every FWD test point (latitude, longitude and elevation). Caltrans requires that the following instrumentation be incorporated

[2] LTPP Manual for Falling Weight Deflectometer Measurements. Operational Field Guidelines. Version 3.1, August 2000. https://www.fhwa.dot.gov/publications/research/infrastructure/pavements/ltpp/fwdman/fwdman1.pdf

in the FWD operating system software, with the instrument data included in test data files:

1. Distance Measurement Instrument (DMI) that records distances from known reference points to the test location, and distance between test locations.

2. Ambient air temperature sensor that records air temperatures for the test data set.

3. Pavement temperature sensor (infrared) that records pavement temperature at each test location.

4. Downward facing camera, connected to a monitor visible to the operator, that shows the load plate and the 2nd and 3rd deflection sensors.

Table 1.

Typical FWD sensor positions measured from the center of the load plate

Deflection Sensor Number	Distance from Center of the Loading Plate (inches)
1	0
2	8
3	12
4	18
5	24
6	36
7	48
8	60

FWD Calibration

1. The FWD must be reference-calibrated at least once a year at one of the American Association of State Highway and Transportation Officials (AASHTO) re:source-approved calibration centers[3]. Two AASHTO approved calibration centers are located in California at the University of California Pavement Research Center, in Davis, CA and at Foundation Mechanics, Inc. in El Segundo, CA. Some FWD manufacturers offer on-site calibration. Consult with the FWD manufacturer for more details.

2. Perform FWD relative calibration in accordance with LTPP Publication FHWA-HRT-07-040 (Oct, 2011) titled: Falling Weight Deflectometer Calibration Center and Operational Improvements: Redevelopment of the Calibration Protocol and Equipment, at least once every 42 operational days. A relative calibration is a technique used to check the quality and adjust the response of each of the deflection sensors so that equivalent measurements are obtained when the sensors are subjected to the same displacement. If the FWD is in continuous and regular use, relative calibration must be performed on a nominal monthly interval. Relative calibration is not performed during periods when the FWD is idle.

3. If a major component such as a deflection sensor, multi-signal cable, or an electronic board is replaced, the FWD should undergo reference calibration before continuing to collect data, regardless of the interval since the previous reference calibration.

4. Ensure that the Distance Measuring Instrument (DMI) is calibrated. Check that the temperature sensors are operational in accordance with the manufacturer's specifications. Perform calibrations or send the temperature sensors back to the manufacturer for repair/calibration if the temperatures are not within the specified calibration limits.

Pavement Coring Rig Setup

1. The Pavement Coring Rig must be set up for the diameter of cores that are required by the Engineer. In addition to layer thickness, cores may also be required by the Engineer to provide samples for material property assessment, for test specimens, and for access to sample base, subbase and/or subgrade materials. The coring rig should be equipped with a

[3] http://www.aashtoresource.org/fwd/certified-operators

Distance Measurement Instrument (DMI), a digital camera, and a core-measurement tray to obtain pavement core information.

2. Caltrans Districts have wastewater recovery requirements in place. The coring rig must also be capable of recovering wastewater, and have the necessary spill prevention supplies to contain wastewater.

C. PRELIMINARY SITE INVESTIGATION AND SELECTION OF TESTING LEVEL

Consult the Site Investigation Guide for Mechanistic-Empirical Design of California Pavements for information regarding the steps in the preliminary site investigation. Determine the required types and intensity of testing (Existing1, Existing2, or Existing3) following instructions in the Guide in consultation with the District Materials Engineer or the Project Engineer.

Caltrans staff need to work with District Maintenance to arrange and schedule the required personnel and equipment to perform traffic control, coring, and deflection testing, as well as any other pavement/materials investigations that may be called for such as ground penetrating radar (GPR).

Determine Method of Testing

There are two methods of collecting deflection data: (1) Continuous Method and (2) Representative Section Method. In the Continuous Method, deflection testing is started at the beginning of the test section and continued at equal intervals to the end of the test section. In the Representative Section Method, a test section of a certain length (e.g., 1,000 ft., one-quarter mile, or one-half mile) is identified in each lane-mile to represent the entire lane-mile, and testing is only done in the representative test section. The Continuous Method is the preferred method that should be used on any project. However, local conditions, sight distance, traffic control safety considerations, and the type of facility may not allow the use of this method. In this case, the Representative Section Method must be used. Additionally, the Representative Section Method should be used for all road segments less than 1.0 lane-mile in length. Once field conditions improve for the next lane-mile segment, the Continuous Method should be resumed. The two testing methods are further described below.

Continuous Method

With the Continuous Method, there are three levels of testing varying in the testing intensity that may be used. Use this method for all road segments greater than 1.0 lane-mile in length (unless conditions dictate otherwise). Testing requirements for the three testing levels, the surface type (flexible or rigid) and the purpose of the testing (rehabilitation with a flexible surface, dowel bar retrofit) are described below.

Deflection Testing

The final testing level will be determined by the Engineer based on the default information for the testing level shown below and any adjustment made by the Engineer.

1. Flexible Surfaced Pavement to be Rehabilitated with Flexible Surface.

   Begin testing at one Post Mile limit of the project and proceed toward the other Post Mile limit using the test interval limit listed for each level below. Discuss wheel track or center of lane testing with the Engineer. If the project is shorter than 1.0 lane-mile, or for any given roadway segment where the Continuous Method cannot be done, use the Representative Section Method discussed below. [Safety note: For multilane divided facility outside lanes, the right wheel track should be tested, and the left wheel track should be tested for the inside lanes. This should help keep personnel and equipment away from live traffic].

   Level A Deflection Testing

   For all lanes considered for rehabilitation, measure deflections at 105 ft. intervals in the safest wheel track to obtain 50 deflection measurements per 1.0 lane-mile. Longitudinally stagger the testing pattern and core locations between adjacent lanes by 50 ft. as shown in Figure 1 or Figure 2 (two-lane or multi-lane in one direction).

   Level B Deflection Testing

   For all lanes considered for rehabilitation, measure deflections at 175 ft. intervals in the safest wheel track to obtain 30 deflection measurements per 1.0 lane-mile. Longitudinally stagger the testing pattern and core locations between adjacent lanes by 85 ft. as shown in Figure 1 or Figure 2.

   Level C Deflection Testing

   For all lanes considered for rehabilitation, measure deflections at 250 ft. intervals in the safest wheel track to obtain 21 deflection measurements per 1.0 lane-mile. Longitudinally stagger the testing pattern and core locations between adjacent lanes by 125 ft. as shown in Figure 1 or Figure 2.

2. Rigid-Surfaced Pavement to be Rehabilitated with Flexible Surface.

This method is also to be used where deflection testing is used to identify areas of weak subgrade and/or other supporting layers on rigid-surfaced pavement to be rehabilitated as flexible-surfaced pavement.

On jointed plain concrete pavement: begin testing at one Post Mile limit of the project and proceed toward the other Post Mile limit using the slab test intervals listed for each level below. Measure deflections at the longitudinal mid-point (load plate placed halfway along the slab length in the direction of travel) at the slab intervals listed for each level below. Do not test on slabs where testing at the longitudinal mid-point on the slab will result in a crack occurring between any of the deflection sensors. If that occurs, move to the next slab where that does not occur. Discuss wheel track or center of lane testing with the Engineer, center slab is preferred where safe. If the project is shorter than 1.0 lane-mile, use the Representative Section Method discussed below. [Safety note: Where it is safe, test in the centerline of the slabs. For multilane divided facility outside lanes, the right wheel track should usually be tested, and the left wheel track should usually be tested for the inside lanes. This should help keep personnel and equipment away from live traffic].

On continuously reinforced concrete pavement: follow the instructions for flexible-surfaced pavement. Note that an alternative backcalculation method other than *CalBack* will be required to produce reasonable modulus results, such as the method by Zhang and Roesler[4]. Consult with the Office of Concrete Pavements.

Level A Deflection Testing

For all lanes considered for rehabilitation, test on every 7th slab in the safest wheel track to obtain approximately 50 deflection measurements per 1.0 lane-mile. Longitudinally stagger the testing pattern and core locations between adjacent lanes by 4 slabs as shown in Figure 3 or Figure 4 (two-lane or multi-lane in one direction).

[4] Zhang, Y. and J. Roesler. 2018. Improved Backcalculation Procedure for Continuously Reinforced Concrete Pavement. Transportation Research Record, Vol 2672. https://doi.org/10.1177/0361198118758010

Level B Deflection Testing

For all lanes considered for rehabilitation, test on every 15th slab in the safest wheel track to obtain approximately 24 deflection measurements per 1.0 lane-mile. Longitudinally stagger the testing pattern and core locations between adjacent lanes by 7 slabs as shown in Figure 3 or Figure 4.

Level C Deflection Testing

For all lanes considered for rehabilitation, test on every 30th slab in the safest wheel track to obtain approximately 12 deflection measurements per 1.0 lane-mile. Longitudinally stagger the testing pattern and core locations between adjacent lanes by 15 slabs as shown in Figure 3 or Figure 4.

3. Jointed Rigid-Surfaced Pavement to be Rehabilitated with Dowel Bar Retrofit.

Begin testing at one Post Mile limit of the project and proceed toward the other Post Mile limit using the joint test intervals listed for each level below. Use the downward camera to position the transverse joint halfway between the 2nd (8 in.) and 3rd (12 in.) sensors before measuring deflections. Deflection testing for dowel bar retrofit should only be done when the air temperature is 75°F or less and is preferably done when temperatures are representative of those during the coldest times of the year. Testing at hotter temperatures will produce load transfer efficiency results that are higher than those occurring during the critical times of the year. If the project is shorter than 1.0 lane-mile, use the Representative Section Method discussed below. [Safety note: For multilane divided facility outside lanes, the right wheel track should be tested, and the left wheel track should be tested for the inside lanes. This should help keep personnel and equipment away from live traffic].

Level A Deflection Testing

For all lanes carrying truck traffic considered for rehabilitation, test on every 15th transverse joint in the safest wheel track to obtain approximately 25 joint deflection measurements per 1.0 lane-mile.

Longitudinally stagger the testing pattern and core locations between adjacent lanes by 7 joints as shown in Figure 5.

Level B Deflection Testing

For all lanes carrying truck traffic considered for rehabilitation, test on every 30th transverse joint in the safest wheel track to obtain approximately 12 joint deflection measurements per 1.0 lane-mile. Longitudinally stagger the testing pattern and core locations between adjacent lanes by 15 joints as shown in Figure 5.

Level C Deflection Testing

For all lanes carrying truck traffic considered for rehabilitation, test on every 60th transverse joint in the safest wheel track to obtain approximately 6 joint deflection measurements per 1.0 lane-mile. Longitudinally stagger the testing pattern and core locations between adjacent lanes by 30 joints as shown in Figure 5.

Coring, Dynamic Cone Penetrometer, Ground Penetrating Radar, and Soil Augering

Coring (Figure 6), Dynamic Cone Penetrometer (DCP), Ground Penetrating Radar (GPR), and/or soil sampling may be required and may be most efficiently done during traffic closures for deflection testing. The Engineer will determine coring, DCP, GPR and soil sampling following the site investigation guide. Methods for performing these tasks and recording the information are included in the site investigation guide.

Representative Section Method

1. With the Representative Section Method, the same three levels of testing intensity apply (along with their respective design life and truck traffic data requirements). However, this method is used only when the Continuous Method is not feasible.

2. For each lane considered for rehabilitation, select one of the possible test intervals as given in Table 2, Table 3 or Table 4 (depending on the surface type and purpose of the testing) as "representative" of every 1.0 lane-mile of roadway, or portion thereof if under 1.0 lane-mile.

3. Select test sections for each change in structural section or a change in overall surface distress condition. Obtain 2 cores in the tested wheel track within the representative section, with one core taken at each end. Figure 7 shows a schematic of this testing method. Discuss wheel track or center of lane testing with the Engineer. Note: Multiple test sections per lane-mile are possible.

Table 2. Typical Test Sections and Testing Intervals for Representative Section Method on Flexible Surfaced Pavement

Test Section Length (mile)	Test Section Length (ft.)	Testing Interval (ft.) on Flexible Surfaced Pavement Level A	Testing Interval (ft.) on Flexible Surfaced Pavement Level B	Testing Interval (ft.) on Flexible Surfaced Pavement Level C
Less than ¼ mile	1,000 ft.	20	30	50
¼ mile	1,320 ft.	25	45	65
½ mile	2,640 ft.	50	90	125
¾ mile	3,960 ft.	80	130	185
Others	Measure	Calculate interval for 50 tests*	Calculate interval for 30 tests*	Calculate interval for 21 tests*

* Note: Round interval to nearest 5 ft.

Table 3. Typical Test Sections and Testing Intervals for Representative Section Method on Rigid Surfaced Pavement to be Rehabilitated with Flexible Surface

Test Section Length (mile)	Test Section Length (ft.)	Interval (slabs) on Rigid Surfaced Pavement Level A	Interval (slabs) on Rigid Surfaced Pavement Level B	Interval (slabs) on Rigid Surfaced Pavement Level C
Less than ¼ mile	1,000 ft.	Every slab	Every 2nd slab	Every 3rd slab
¼ mile	1,320 ft.	Every 2nd slab	Every 3rd slab	Every 4th slab
½ mile	2,640 ft.	Every 4th slab	Every 6th slab	Every 8th slab
¾ mile	3,960 ft.	Every 6th slab	Every 9th slab	Every 12th slab
Others	Measure	Calculate interval for 50 tests*	Calculate interval for 30 tests*	Calculate interval for 21 tests*

* Note: Round interval to nearest slab.

Table 4. Typical Test Sections and Testing Intervals for Representative Section Method on Rigid Surfaced Pavement to be Rehabilitated with Dowel Bar Retrofit

Test Section Length (mile)	Test Section Length (ft.)	Interval (slabs) on Rigid Surfaced Pavement Level A	Interval (slabs) on Rigid Surfaced Pavement Level B	Interval (slabs) on Rigid Surfaced Pavement Level C
Less than ¼ mile	1,000 ft.	Every 2nd slab	Every 4th slab	Every 8th slab
¼ mile	1,320 ft.	Every 4th slab	Every 6th slab	Every 12th slab
½ mile	2,640 ft.	Every 8th slab	Every 12th slab	Every 24th slab
¾ mile	3,960 ft.	Every 12th slab	Every 18th slab	Every 36th slab
Others	Measure	Calculate interval for 25 tests*	Calculate interval for 15 tests*	Calculate interval for 7 tests*

* Note: Round interval to nearest slab.

D. DEFLECTION TESTING AND CORING FIELD WORK

General

1. Reference each test section to a known Post Mile as identified on the Traffic Accident Surveillance and Analysis System (TASAS) (e.g., structures, intersections, etc.).

2. For safety considerations, discuss the test sections with traffic control personnel to include sufficient sight distance in both directions. Set up traffic control limits to avoid hazardous situations, but also to maintain logical test sections.

3. Obtain representative photographs of each test section and all areas of major localized distress, drainage problems, cracking types and extents, presence of rutting (flexible surface), pumping, faulting (rigid surface). Identify the project, lane, direction, Post Miles, and date the photographs were taken. Information from the visual assessment should be recorded on Form 5 (flexible-surfaced pavement) or Form 6 (rigid-surfaced pavement) in the site investigation guide. [Safety note: Should deflection testing and other work occur during night work, traffic control may need to be arranged for visual assessment during the day].

4. Review all data for the test section's direction, lane number, and completeness before leaving the project site, and correct as necessary.

Deflection Data Collection

1. Prepare the FWD equipment for deflection testing. Set up the test file with the appropriate information: project, lane, direction, Post Mile, date, etc.

2. Warm up the hydraulic system at the beginning of the shift following the manufacturer's recommended procedures.

3. Bring the FWD to a stopped position at the beginning of the test section, centered on the appropriate wheel track, and take a measurement. The test location shall be as clean as possible of rocks and debris to ensure that the loading plate will be properly seated. Gravel or soil surfaces shall be as smooth as possible, and all loose material removed. Apply the loads using the following sequence:

a. One seating drop to ensure proper contact, usually 6 kips ± 10 %. This drop is not recorded.

b. Three drops with an applied load of 9 kips ± 10 %. [Note to Engineer: Drop sequence load should be increased to 12 kips or 15 kips when deflections recorded are insignificant with the 9 kips load. All three drops are recorded].

4. Ensure that deflections are recorded from all sensors.

5. After each measurement, move the FWD forward to the next measurement point using the DMI or slab count. On jointed concrete pavement use the DMI to locate testing locations instead of counting slabs, observe the pattern of slab lengths to calculate the average slab length and testing distance interval, or use an assumed average slab length of 15 ft. Use the downward facing camera to ensure that the load is positioned at the mid-point of the slab in the longitudinal direction.

6. Make sure that the deflections are being transferred electronically from all sensors. Record the surface distress type in the vicinity of the test point, the ambient air and pavement surface temperatures during testing, the test location description, the equipment identification, and the date and time of testing.

Coring

Prepare the coring rig for pavement coring. Obtain information regarding the minimum number of cores to be taken and instructions for taking and documenting cores from the Engineer. Discuss with the Engineer if the required number of cores cannot be obtained. Discuss core hole backfill requirements with the District Maintenance crew prior to coring, and to determine whether or not they will be backfilling the core holes. [Coring Rig Operator note: Discuss core recovery and cataloging with the Engineer, and plan core custody and responsibilities]. Backfill the core holes as required by the District Maintenance crew if they are not doing it themselves.

WARNING: DO NOT TEST OR CORE ON STRUCTURES

E. DOCUMENTATION AND CALCULATION

1. Compile all data produced as required by the site investigation guide using the forms in that guide. Organize the collected data. Create electronic files (spreadsheets, documents, photo presentations, etc.) for

the project. Submit all data files to the rehabilitation pavement design and analysis engineer.

2. Calculations to determine layer moduli using the Caltrans software *CalBack* and rehabilitation design using Caltrans ME design software *CalME* are performed by the pavement design and analysis engineer. Dowel bar retrofit design is performed by the pavement design and analysis engineer.

F. HEALTH AND SAFETY

It is the responsibility of the user of this test method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use. Prior to handling, testing or disposing of any materials, testers must be knowledgeable about safe laboratory practices, hazards and exposure, chemical procurement and storage, and personal protective apparel and equipment.

The Caltrans Laboratory Safety Manual is available at:

https://dot.ca.gov/-/media/dot-media/programs/engineering/documents/mets/lab-safety-manual-a11y.pdf

End of Text
(California Test 357 contains 19 pages)

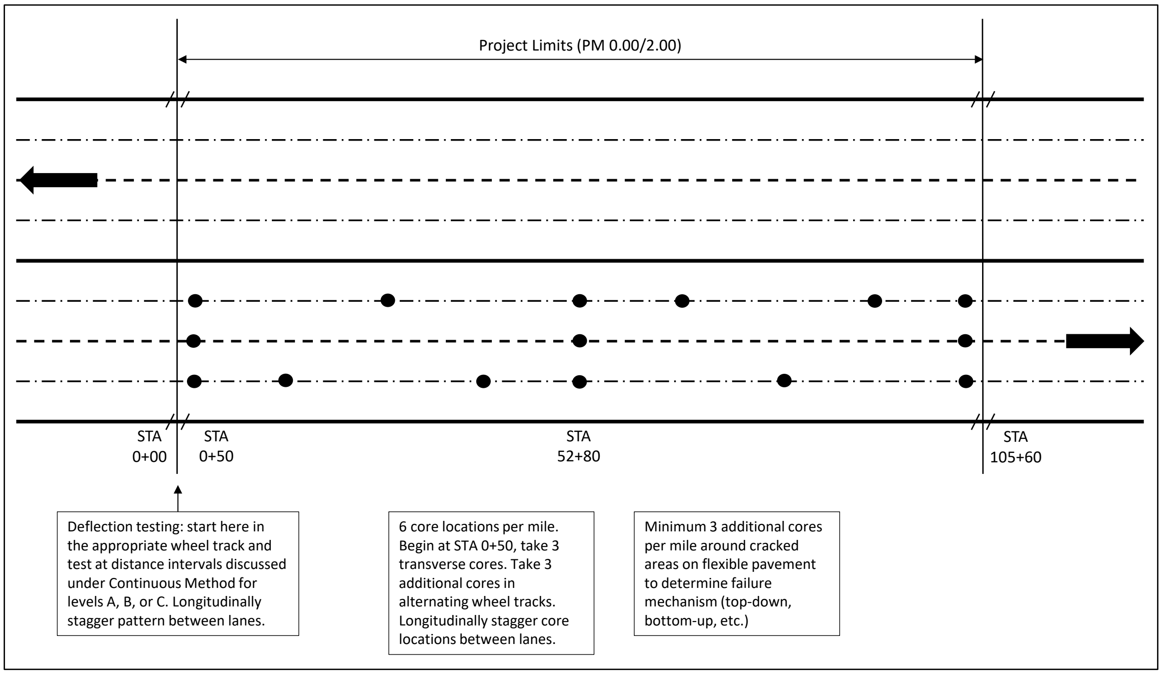

FIGURE 1. Continuous Method deflection testing and coring on flexible-surfaced pavement on two-lane road to be rehabilitated with flexible surface.

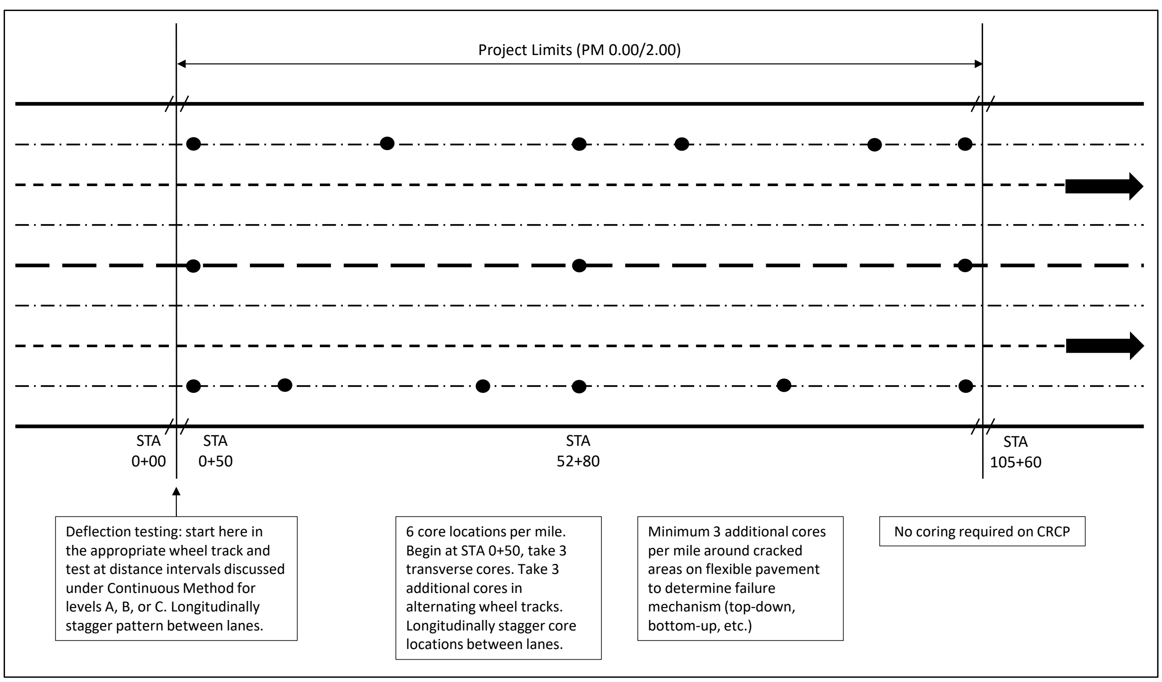

FIGURE 2. Continuous method deflection testing and coring on flexible-surfaced pavement on multi-lane highway to be rehabilitated with flexible surface.

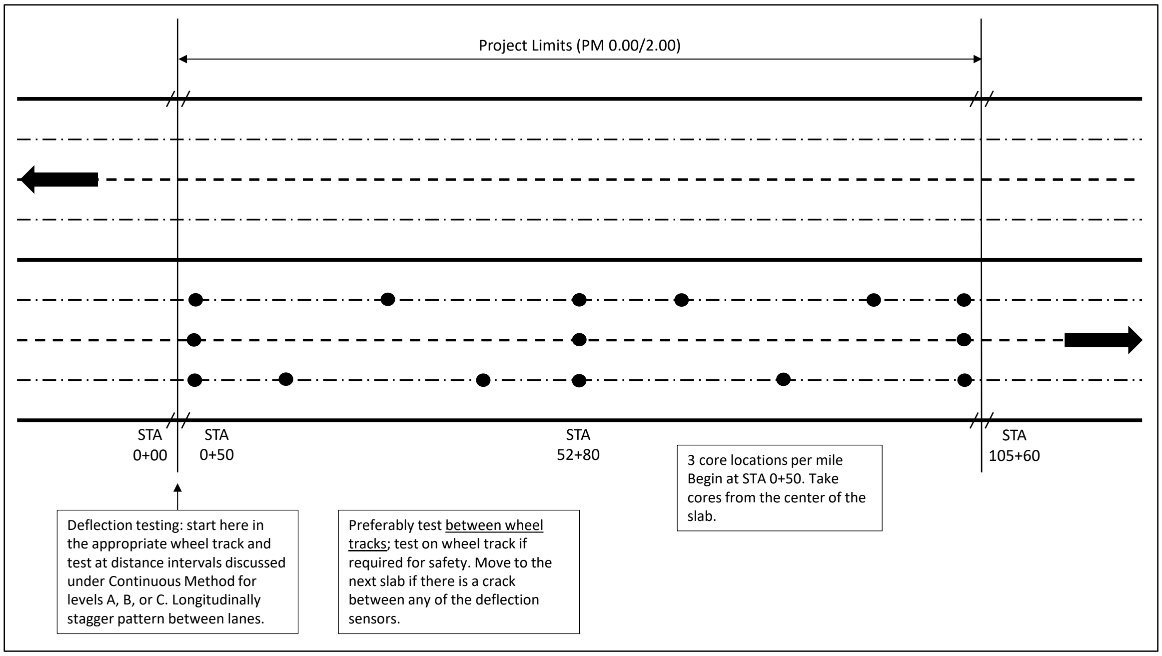

FIGURE 3. Continuous method deflection testing and coring on JPCP on two-lane road to be rehabilitated with flexible surface or with rigid surface and where deflections are used to identify weak underlying layers.

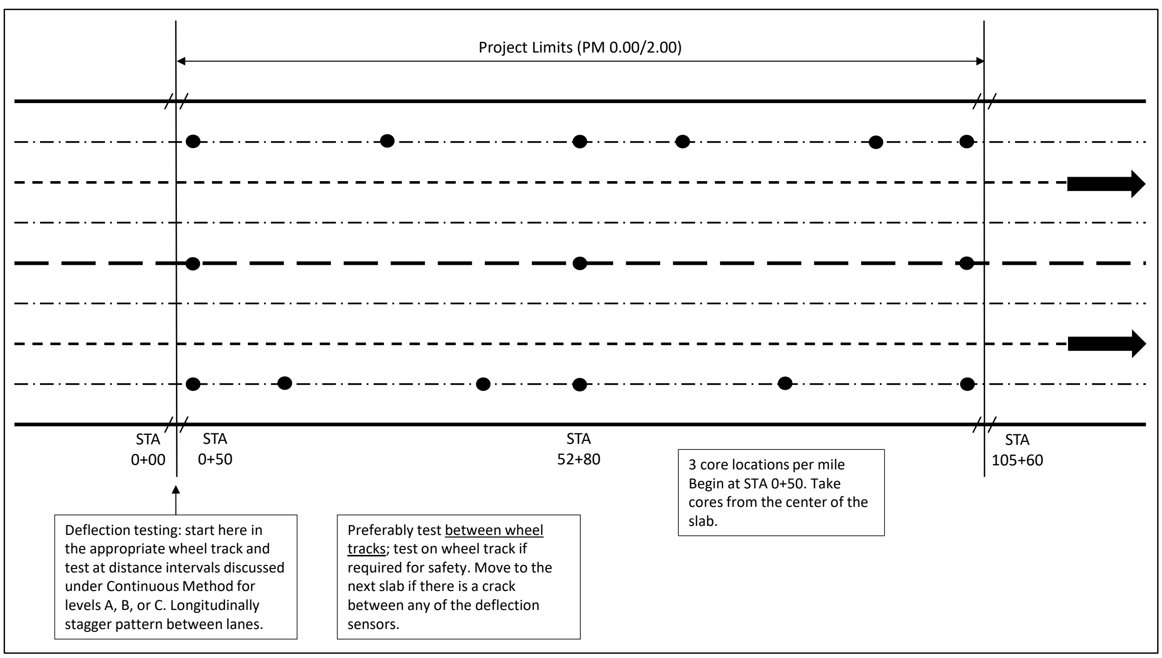

FIGURE 4. Continuous method deflection testing and coring on JPCP on multi-lane highway to be rehabilitated with flexible surface or with rigid surface and where deflections are used to identify weak underlying layers.

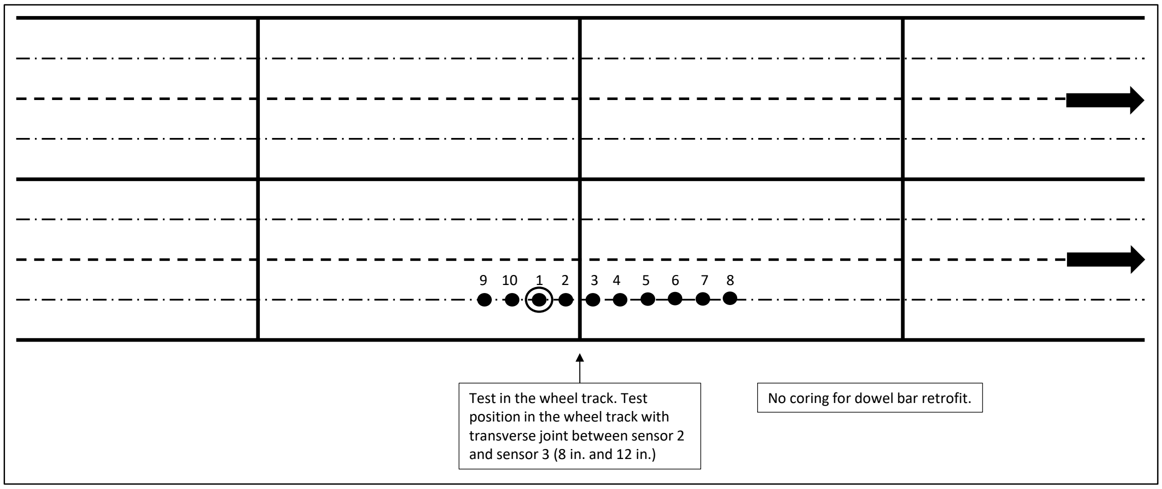

FIGURE 5. Sensor location for deflection testing on JPCP for dowel bar retrofit.

FIGURE 6. An example photograph of core sample.

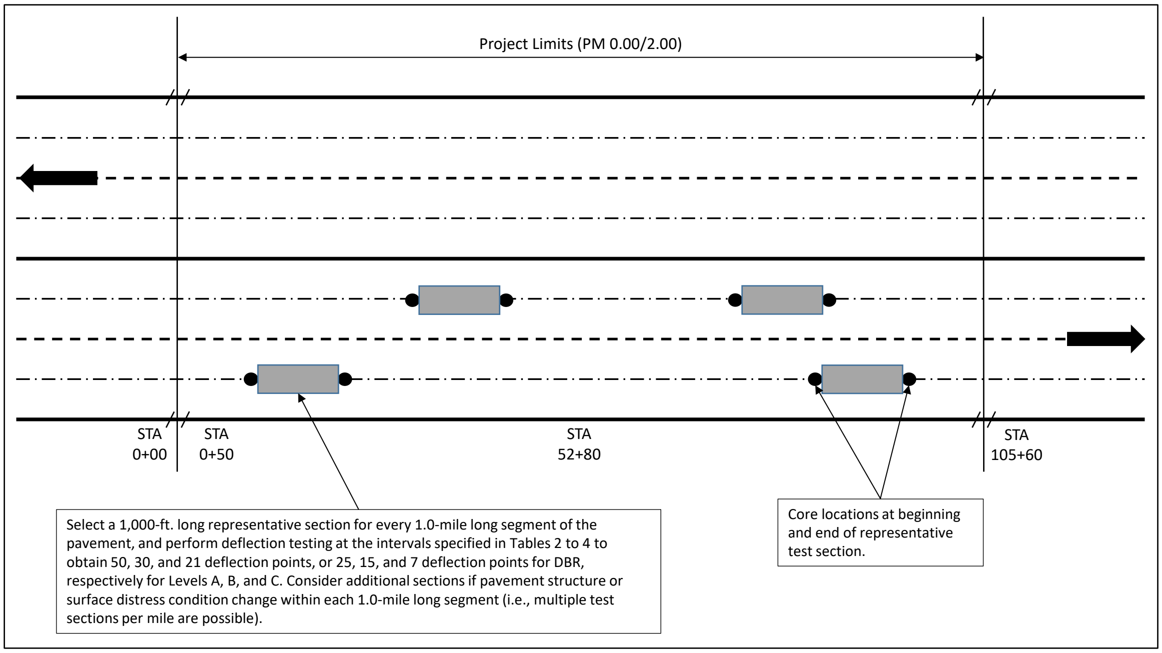

FIGURE 7. Schematic of Representative Section Method.

STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION
Division of Engineering Services
Materials Engineering and Testing Services

Sheet 1 of 1

District-County-Route-PM/PM: 08-SBD. RT.138 0.0-.5 AND 10.7 T0 14.
Expense Authorization (EA): 08-4697V1

LOG OF CORE HOLES

DeflecTrack Number:

Core Rig Operator: FRANCES CARSON D-08
Date of Coring: 1-20 TO 23-2004
Total Number of Cores: **14**

Deflection Test Operator: **G. PAYNTAR**
Date of Deflection Test: 1-20- TO 23-2004

Test Section	Core Hole Location (PM, Lane No., Direction)	Layer 1 (Seal Coat?)	Layer 2 (Struct. Sect.)	Layer 3 (Struct. Sect.)	Layer 4 (Struct. Sect.)	Layer 5 (Base Material)	Total Core Thickness	Remarks
1	PM. 0.80 LN. 1 WB			0.8	0.15	RM	0.95	AC + RM./ORG. GROUND
2	PM. 0.200 LN. 1 EB			0.53	0.2	RM	0.73	AC + RM./ORG. GROUND
3	PM. 1.150 LN. 1 EB			0.6		ORG. GROUND	0.6	
3	PM. 1.550 LN. 1 EB			0.6		ORG. GROUND	0.6	
4	PM. 1.800 LN. 1 WB			0.5	0.15	RM	0.65	AC + RM./ORG. GROUND
5	PM. 2.230 LN. 1 EB			0.6	0.25	RM		AC + RM./ORG. GROUND
6	PM. 2.500 LN. 1 WB			0.5	0.33	RM	0.83	AC + RM./ORG. GROUND
7	PM. 3.200 LN. 1 EB			0.6	0.25	RM	0.85	AC + RM./ORG. GROUND
8	PM. 3.850 LN. 1 WB			0.55	0.2	RM	0.75	AC + RM./ORG. GROUND
9	PM. 4.658 LN. 1 WB			0.65		ORG. GROUND	0.65	
10	PM. 4.140 LN. 1 EB			0.66		ORG. GROUND	0.66	
12	PM. 13.750 LN. 1 WB			0.2	0.25	RM	0.45	AC + RM./ORG. GROUND
13	PM. 13.440 LN. 1 WB			0.4	0.3	RM	0.7	AC + RM./ORG. GROUND SAMI AT .07
14	PM. 11.450 LN. 1 EB			0.45	0.35	RM	0.8	AC + RM. / ORG GROUND SAMI AT .15

Core Log Prepared By: GEORGE PAYNTAR 1-26-04

(Name and Date)

FORM 1. Example of Core Log