Memorandum

Serious drought.
Help save water!

To: DISTRICT DIRECTORS

From: STEVE TAKIGAWA
Deputy Director
Maintenance and Operations

KARLA SUTLIFF
Deputy Director
Project Delivery

Date: August 15, 2016
File: Pavement Smoothness

Subject: **PROVIDING PAVEMENT PROFILE SMOOTHNESS DATA**

To the traveling public, smoothness is one of the most important pavement features. Pavement profile smoothness for pavement rehabilitation, maintenance, and preservation projects needs to be addressed early during the project design stage to ensure improvement in the pavement profile smoothness.

Starting in February 2013, the California Department of Transportation (Caltrans) transitioned to using a high-speed inertial profiler (IP) for measuring pavement profile smoothness. The IP provides accurate pavement profile smoothness measurements at highway speeds, collects profile measurements of both wheel paths at the same time, eliminates the need for lane closures, and reduces employee exposure to traffic. The IP measures pavement profile smoothness using the International Roughness Index (IRI), which is the same index Caltrans uses to report annual network level pavement smoothness. Data collected by the IP is analyzed using the Federal Highway Administration's ProVAL software.

To ensure all bidders have the same basis for bidding on hot-mix asphalt and concrete pavement projects, the districts will now provide to bidders the existing pavement profile smoothness data taken within six months of the project's ready-to-list (RTL) milestone. The existing pavement profile smoothness data provided must comply with the requirements in the attached "Guidelines for Providing Electronic Pavement Profile Smoothness Data Files in Project Information Handouts." The data also must be listed as supplemental project information in section 2–1.06B of the project special provisions and provided in the project information handout. These requirements will be mandatory for projects with an RTL milestone after September 15, 2016.

If you have any questions about pavement smoothness, please contact Sri Balasubramanian, chief of the Office of Asphalt Pavement in the Division of Maintenance—Pavement Program, at (916) 274-6194 or by e-mail sent to <balasubramanian@dot.ca.gov> or Ken Darby, chief of the Office of Concrete Pavements at (916) 227-5845 or by e-mail sent to <ken.darby@dot.ca.gov>.

Attachment

c: Director Malcolm Dougherty
   Chief Deputy Director Kome Ajise
   Tony Tavares, Chief, Division of Maintenance
   Rachel Falsetti, Chief, Division of Construction
   Tom Pyle, Acting State Pavement Engineer,
       Division of Maintenance—Pavement Program
   Sri Balasubramanian, Chief, Office of Asphalt Pavement,
       Division of Maintenance—Pavement Program
   Chuck Suszko, Chief, Office of Construction Engineering,
       Division of Construction

ATTACHMENT

GUIDELINES FOR PROVIDING ELECTRONIC PAVEMENT PROFILE SMOOTHNESS DATA FILES IN PROJECT INFORMATION HANDOUTS

DATA COLLECTION

- Ensure inertial profile operator and equipment are certified as of the date of data acquisition.
- Operate the inertial profiler under the manufacturer's instructions and AASHTO R 57 at 1-inch recording intervals. For concrete pavement, use a minimum 4-inch line laser sensor.
- Collect profile data under AASHTO R 56.
- Provide semipermanent markings on the pavement at the starting and ending stations of the profiles.
- Include 200 feet run-on and 200 feet run-off lengths that extend beyond the limits of construction, where practical.
- Identify the beginning and ending of significant events including:
  - Bridge approach slabs.
  - Bridges.
  - Culverts visible on the roadway surface.
  - At-grade intersections.

DATA FILES

- Provide individual files for each existing traffic lane within the project limits that captures both left and right wheel paths. A traffic lane is any lane more than 1,000 feet in length, including ramps, turn lanes, and acceleration and deceleration lanes. All lanes where work is to be performed within the project limits must be profiled. Provide pavement profiles for existing adjacent lanes that may affect construction operations directly or indirectly, such as concrete pavement widening that requires grinding of the existing adjacent lane.
- Identify in the data files leave-outs such as bridges.
- Follow the file naming convention identified in section 36–3, "Pavement Smoothness," of the 2015 *Standard Specifications*; that is, "YYYYMMDD_TTCCCRRR_EA_D_L_W_B_E_X_PT.PPF," where:
  - YYYY = year
  - MM = month, leading zero
  - DD = day of month, leading zero
  - TT = district, leading zero
  - CCC = county, 2- or 3-letter abbreviation as shown in section 1–1.08
  - RRR = route number, no leading zeroes
  - EA = contract number, excluding the district identification number, expressed as 6 characters
  - D = traffic direction, *NB*, *SB*, *WB*, or *EB*
  - L = lane number from left to right in the direction of travel
  - W = wheel path, *L* for left, *R* for right, or *B* for both
  - B = beginning station to the nearest foot, such as 10+20, or beginning post mile to the nearest hundredth, such as 25.06, no leading zero
  - E = ending station to the nearest foot, such as 14+20, or ending post mile to the nearest hundredth, such as 28.06, no leading zero
  - X = profile operation, *EXIST* for existing pavement, *INTER* for after prepaving smoothness correction, *PAVE* for after paving, and *CORR* for after final surface pavement correction
  - PT = type of HMA or concrete pavement, such as Type A HMA, RHMA–G, JPCP, or CRCP
- Provide profile data in an <u>unfiltered</u> electronic pavement profile file format (.PPF).