

# Seating Old Pavements with Heavy Pneumatic-Tired Rollers Before Resurfacing

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• AFTER REVIEWING the specification requiring the use of a 50- to 60-ton rubber-tired compactor for breaking down panels of old portland cement concrete pavements before resurfacing, it has been concluded that in some cases the compactor is not entirely effective as a means for seating slabs that are bridging over subsided areas in subbases. Instead of specifying a 50- to 60-ton compactor when this type of improvement is contemplated, it has been tentatively decided by the Materials and Construction Divisions that each project should be judged on its own merits. In some cases, the 50-ton compactor is expected to seat the old pavement thoroughly. In other cases, it may take a heavily loaded earth-moving two-axle type of wagon (turn-a-pull type) pulled by a crawler-type tractor and the use of higher speeds to be effective.

During the past two years there have only been two projects using this method because the budget called for constructing highways on new locations and Interstate highway sections. On one project a two-axle, 25-cu yd wagon pulled by a cat D-8 tractor successfully seated the pavement. The vibration of the tractor and the bouncing of the two-axle wagon seated pavement sections that resisted being broken by the compactor unit. A 60-ton compactor was satisfactory for the second.

It is contemplated the unit for breaking the old pavement slabs will be specified and hourly rental rates used as a pay item in the contract. If this is not effective, another type will be negotiated with the contractor.

It has also been concluded that the breaking down of the slabs for seating of an old portland cement concrete pavement is only part of the benefits to be derived from this type of improvement, which is designed to eliminate future subsided areas and prevent reflection cracks coming through the asphalt concrete resurfacing pavement.

The second important part of this type of construction is the placing of a blanket of aggregate over the old pavement with a minimum thickness of 4 in. over the high points. To fill in the deeper subsided areas, 1½-in. minus base course is usually used with a minimum layer of ¾-in. minus top course. These layers are processed over the old pavement by blading back and forth when in a damp condition and it is believed the fines of the aggregate work down into the cracks of the old pavement and thus securely seat the broken slabs.

This Department has become convinced from an experimental section north of Spokane on PSH 3 that this layer of uncoated aggregate is necessary to prevent reflection cracks from again appearing on the surface. It has also been determined that this layer of untreated aggregate with which the subsided areas of the roadway are filled is much more economical than attempting to level up with a base course of asphaltic concrete. The processing and rolling of the untreated aggregate is beneficial in preventing small subsided areas again appearing for at least a period of five years since these experimental sections have been in use.

After closely inspecting on December 27, 1962, an approximate 5-mi section of highway which was resurfaced by seating the old concrete slabs with a 50- to 60-ton compactor, leveled up with an untreated aggregate and the placement of a wearing course of 3-in. asphaltic concrete, it was found that no reflection cracks have appeared since 1957 or a period of over five years. Inspection was made by walking and/or driving slowly over the pavement when it was in a half-dry, half-damp condition.

The description of this project was reported in Volume 38 of the 1959 Proceedings of

the Highway Research Board. Although no roughometer readings were made on this section, by visual inspection of the surface and as indicated by the centerline stripe there has been very little subsidence of any part of this pavement. The surface is in excellent condition at the present time.