

# Smooth and Quality Asphalt Concrete Pavement

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**a** National Quality Initiative survey indicated that pavement smoothness is the most significant aspect of how the motorist judge the quality of our highways. Pavement smoothness directly relates to driver comfort as well as pavement life expectancy. Driving on a smooth road is more economical for the motorist in fuel and vehicle maintenance expense. Longer pavement life will result in decreased road repairs and in less traffic disruptions for Hawaii motorists.

The Hawaii Department of Transportation (HDOT) in partnership with our local industries, counties and Federal Highways Administration (FHWA) is committed to improving the smoothness and quality of asphalt pavements in our highway system.

To promote smoother pavements, workshops on "Smooth and Quality Asphalt Concrete Pavements" were held in November of 1998 and May 1999. (A workshop video and publications are available at Hawaii LTAP, call 808-956-9006). Participants included members from the state, counties, paving contractors, suppliers and private consultants. Discussion highlighted principles of laying a smooth pavement. These principles are:

1. Do not let the truck bump the paver.
2. Keep a constant head of hot mix material in front of the screed.
3. Do not stop the paver.
4. The hot mix material should be uniform without segregation.
5. Construct traverse joints properly.

To improve the ride quality of our highways, the Materials Testing and Research Branch with assistance from FHWA, developed a ride quality specification with incentives and disincentives.

The Whitmore Avenue resurfacing project was chosen as a pilot project for the new ride quality in the specifications. This project was awarded to Hawaiian Bitumuls & Paving Company (HB). Paving was completed in June 1999 with very good results. The Contractor received an incentive payment of \$4,767.

Presently several asphalt concrete paving projects include ride quality in the contract specifications. The contractor has an opportunity to receive an incentive when the roughness is less than the minimum roughness allowed or pay a disincentive when the roughness of the pavement exceeds the maximum roughness specified. Projects awarded with the ride quality requirement are:

- ♦ **H-1 Resurfacing**, Punchbowl to Kapiolani Interchange (HB)
- ♦ **H-1 Resurfacing**, Kunia Interchange to Waialeale Stream Bridge (Grace Pacific)
- ♦ **H-3 Resurfacing**, Halekou Interchange to Kaneohe Marine Corps Base (HB)
- ♦ **Kalaniana'ole Highway Resurfacing**, Ainakoa Avenue to West Hind Drive (Grace Pacific)

The current specification requires the contractors to use a material transfer vehicle (MTV) during paving. This allows for nonstop paving and eliminates contact between the trucks and paver. The MTV will remix the asphalt concrete to assure a uniformly consistent mix behind the paver and minimize material and temperature segregation. The MTV will perform a key role in producing a long-lasting smooth pavement with consistent density.

To measure roughness of the pavement surface, the contractors are using a lightweight profiler. The vehicle is similar to a golf cart and is equipped to measure the profile of the pavement surface. The data collected is used to calculate a profile index to rate the surface roughness.

Smoother pavements result in benefits and cost savings to both users and taxpayers.

## Enjoy the Ride.



This vehicle is used to measure the smoothness of the pavement surface.