AUSTRALIAN ASPHALT PAVEMENT ASSOCIATION

WMA

WARM MIX ASPHALT
VALIDATION PROJECT

The introduction of Warm Mix Asphalt (WMA) to the Australian road network took a leap forward during April 2010 on a segment of the Hume Highway in Northern Melbourne

The collaborative project of AAPA members in conjunction with Austroads, offers an opportunity for testing and comparative investigation between WMA and conventional Hot Mix Asphalt (HMA).

It is expected that outcomes of the project will allow WMA to be systematically and uniformly specified throughout Australia.

WMA, OFFERING A BETTER SOLUTION FOR AUSTRALIAN ROADS

WMA offers significant benefits in comparison to conventional HMA road surfacing methods. With less environmental impact, a safer work environment, and more efficient application, it is no surprise that many EU countries and the USA use WMA as the road surfacing of choice.

- Sustainable by reducing greenhouse gas as WMA is made at a lower temperature than Hot Mix Asphalt and uses reduced energy consumption during asphalt manufacture
- Climate impact reductions achieved through reduced greenhouse gas generation
- Improved safety benefits and better workplace outcomes during application due to significantly lower temperatures of WMA compared to conventional HMA applications
- Increased productivity with more efficient application of WMA allowing for quicker traffic access onto road surfaces
- Better outcomes for industry and commuters by reduced time for roads under repair
- Extended paving seasons and longer haul distances achieved with WMA providing improved productivity
- WMA technology is widely used in the EU and the US and is expected to become standard practice for asphalt production worldwide

AUSTRALIAN ASPHALT PAVEMENT ASSOCIATION

WMA

WARM MIX ASPHALT
VALIDATION PROJECT

VALIDATION PROJECT

The WMA Validation Project provides a comparative investigation for WMA and HMA. To demonstrate a high quality product for Australian road networks, the project includes extensive laboratory testing and field testing for performance.

The project consists of several WMA and HMA types placed in a grid pattern on the Hume Highway in Melbourne. In addition, specific variations within WMA are being tested with both new aggregates and variations from 10%-50% reclaimed asphalt pavement (RAP) are also being tested.

The project aims to demonstrate the field performance of WMA in a difficult environment: a wearing course asphalt on a multiple lane urban highway with heavy traffic (refer Figure 1).

The site was provided by VicRoads (Metropolitan North West Region) with Boral Asphalt, Downer EDI Works and Fulton Hogan providing the different asphalt products. The field site carries about 24,000 vehicles per day in three lanes and all works were completed at night.

VicRoads MNW and the Downer EDI Works asphalt crew rose to the challenge of the arrival of twenty-one different asphalts over the course of the works.

FIGURE 1.

The WMA project site prior to the commencement of works.

FIGURE 2.

An asphalt truck delivers WMA to the project site.

AUSTRALIAN ASPHALT PAVEMENT ASSOCIATION

WMA

WARM MIX ASPHALT VALIDATION PROJECT

TECHNICAL OUTCOMES: LABORATORY AND FIELD TESTING

The laboratory testing and field testing for the project is being undertaken in accordance with Austroads WMA Evaluation Protocol that was drafted and supported by the Asphalt Research Reference Group (ARRG).

The laboratory testing for the project includes almost 30 different tests and represents research testing that far exceeds normal asphalt testing. Since no single laboratory would be able to resource the testing for the entire project, each of Boral Asphalt, Downer EDI Works and Fulton Hogan, completed testing in accordance with NATA accreditations.

AAPA, ARRB and VicRoads will monitor the field site over the next few years. The site will be monitored and reported for roughness, rutting, texture, deflection, cracking, traffic volumes, and compaction.

ROAD AGENCY OBSERVERS AND SUPPORT

Austroads members provided a range of observers during the asphalt placement process and preparation of asphalt samples. We are particularly grateful to ARRB, DTEI, QTMR, the RTA and VicRoads for their support during the project.

MAJOR PROJECT

The project is a major effort by AAPA members, VicRoads and Austroads to provide an opportunity to validate HMA and WMA under real traffic conditions. The project will be reported as an Austroads project and is worth an estimated $800,000.

FIGURE 3.

Rolling commences on the WMA.

If you would like more information on this project, contact Cassandra Simpson at AAPA, or Kieran Sharp at ARRB.