

# Caltrans/UCPRC RHMA/RWMA Study Update

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WMA TWG Meeting, Oklahoma City  
28 October, 2010



# Workplan Summary

- Phase 1 (DGAC rutting)
- Phase 2 (DGAC moisture sensitivity)
- Phase 3, R-WMA-G
  - Advera® WMA.
  - Astec Double Barrel® Green.
  - Cecabase RT®.
  - Evotherm DAT™.
  - Gencor Ultrafoam GX™.
  - Rediset™ WMX.
  - Sasobit®



# Workplan Summary

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- Lab studies
  - Rutting & fatigue performance
  - Moisture sensitivity
  - Other
    - Aging
    - Emissions
    - Stability
- Accelerated Pavement Testing
  - Rutting
  - Moisture sensitivity
  - Fatigue/reflective cracking?
- Field studies
  - Constructability
  - Performance



# ATIRC - December 2009



# Phase 3: R-WMA-G Summary

- Project 1
  - Technologies
    - Control
    - Gencor Ultrafoam GX
    - Evotherm
    - Cecabase
  - Binder content - 7.3%
  - Rubber content - 18%
  - Haul time - 60 mins
  - Paving air temp - 10°C-15°C (+ chill factor)



# Phase 3: R-WMA-G Summary

- Project 2
  - Technologies
    - Control
    - Sasobit
    - Advera
    - Astec DBG
    - Rediset
  - Binder content - 8.3%
  - Rubber content - 19%
  - Haul time - 120 mins
  - Paving air temp - 10°C-15°C (+ chill factor)



# Phase 3: Track Layout

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<del>Control 2</del>	Astec DBG	Rediset
Cecabase	<del>Sasobit</del>	Advera
<del>Control 1</del>	<del>Gencor Ultrafoam</del>	<del>Evotherm DAT</del>

# Phase 3: Construction - QC

Parameter	Control	Gencor	Evotherm	Cecabase
Binder content (%) <sup>*</sup>	7.7	7.9	7.7	7.7
Prod Temp (°C - °F)	160 (320)	140 (284)	125 (237)	130 (266)
Pave Temp <sup>**</sup> (°C - °F)	154 (309)	128 (262)	120 (248)	128 (262)
Air voids (%)	9.5	11.2	11.7	10.9
Hveem Stability	27	28	27	27

\* Target 7.3%    \*\* Behind screed    \*\*\* Immediate, No curing





# Phase 3: Construction QC

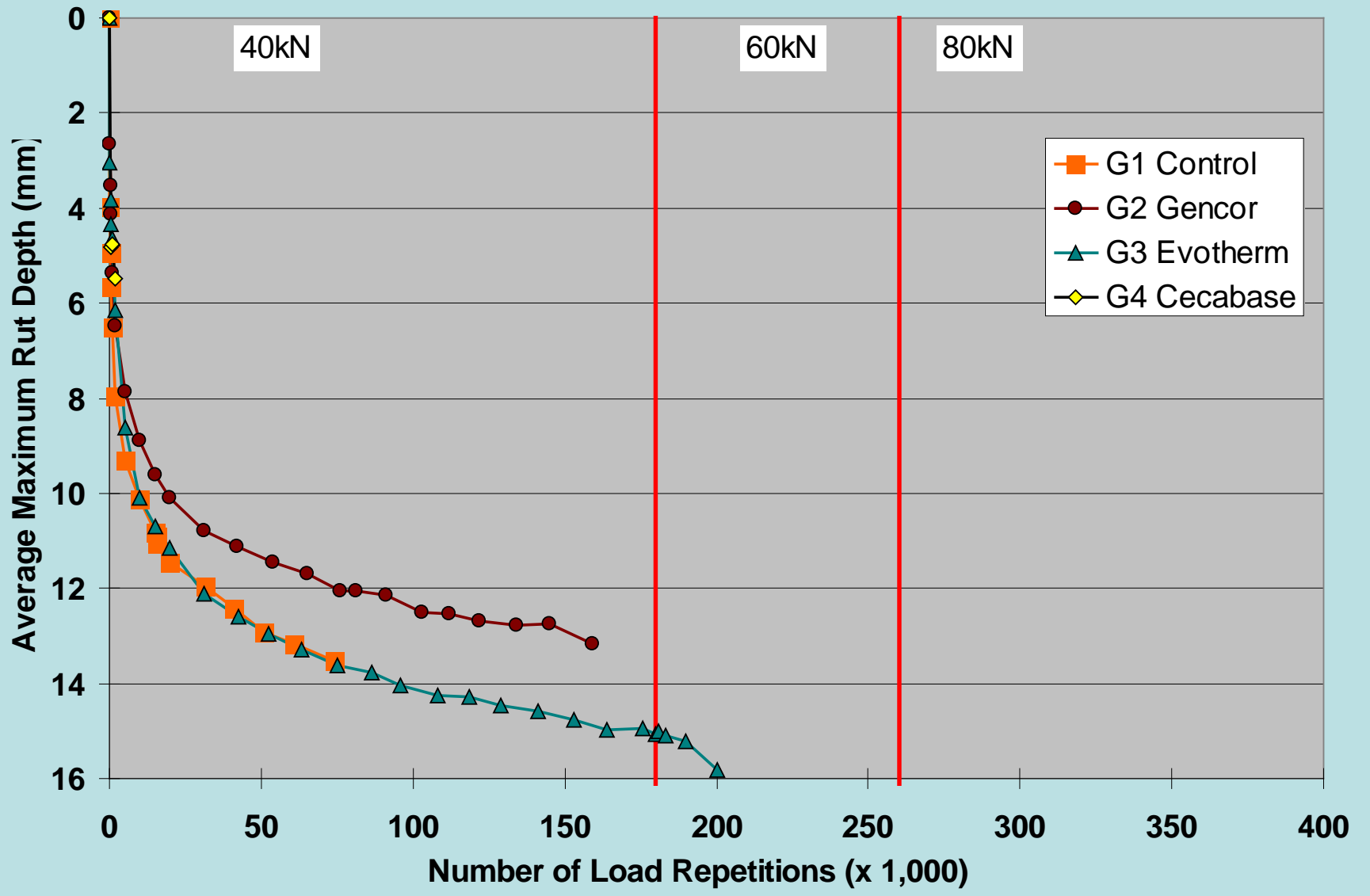
Parameter	Control	Sasobit	Advera	Astec	Rediset
Binder content (%)*	7.7	8.0	7.6	8.4	10.0
Prod Temp (°C - °F)	166 (335)	149 (300)	145 (295)	145 (295)	140 (285)
Pave Temp** (°C - °F)	137 (279)	137 (279)	130 (266)	125 (257)	126 (258)
Air voids (%)	14.2	13.1	14.4	14.0	13.2
* Target 8.3%			** Behind screed		

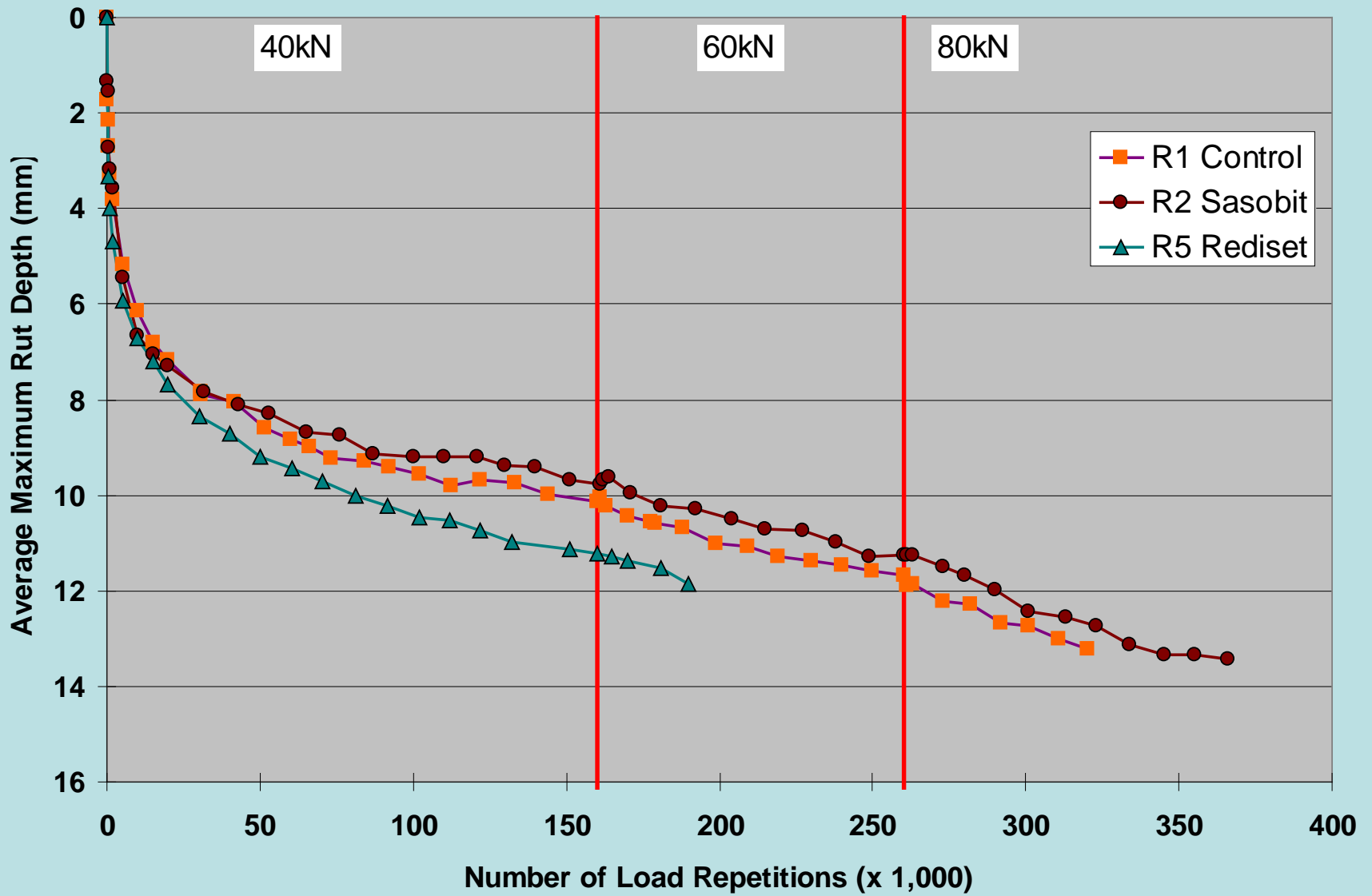


# Phase 3: HVS & Lab Testing

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- Phase 3 HVS
  - Standard rutting test
  - 5 of 9 sections tested
  - WMA sections are performing equal to or better than the Controls
- Lab tests
  - In progress





# Thank you!

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