



SAFERUP!
Thinking Beyond the Pavement



This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 765057

EIDEIC

22th of May 2020

ESR-10 Anik Gupta – UNICAN

Resilient and sustainable Permeable Pavements For
urban Flood Mitigation
(RePP4FM)



Introduction



CRRI, New Delhi, India

SaferUp Team, Bologna,
Italy



Objectives

Sustainable and Resilient Porous asphalt mixtures made with novel raw materials.

1

2

Optimization of materials used in porous asphalt mixtures

Influence of additives on ageing of porous asphalt mixtures.

3

4

Mapping of flood prone regions using GIS

Development of a decision GIS-based support tool to facilitate the suitable locations and selection of different types of sustainable PPSs in urban regions.

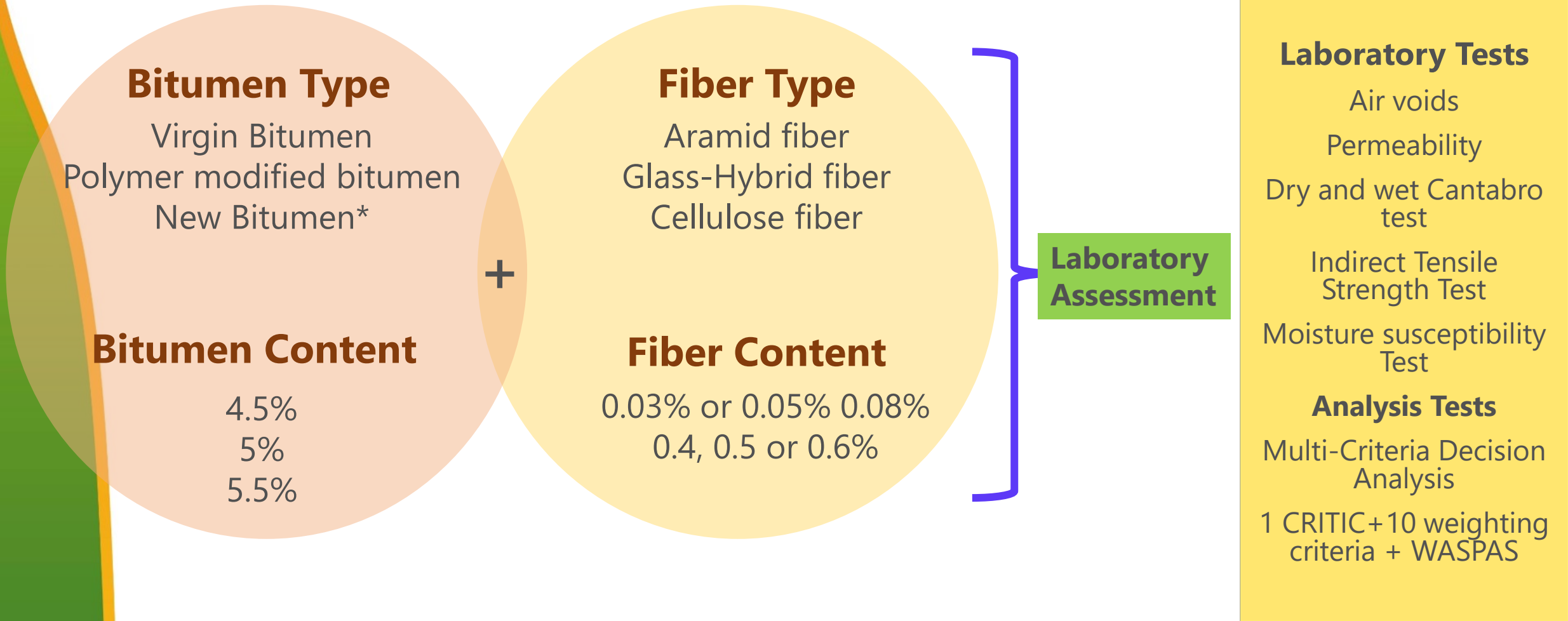
5

Tasks 1 and 2 are fulfilled, 3 and 4 are in process and 5 is pending

Methodology

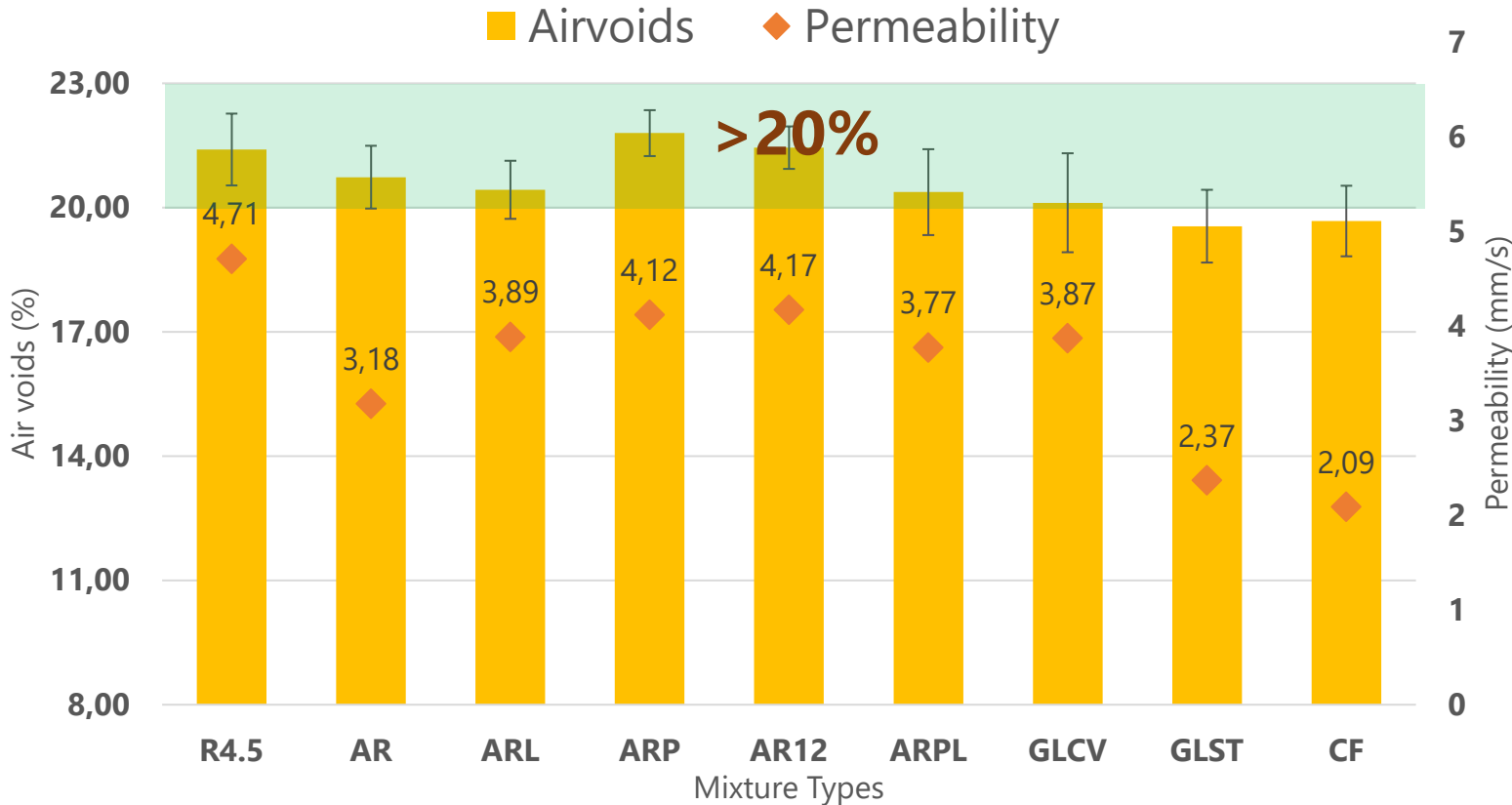


Optimization of Materials

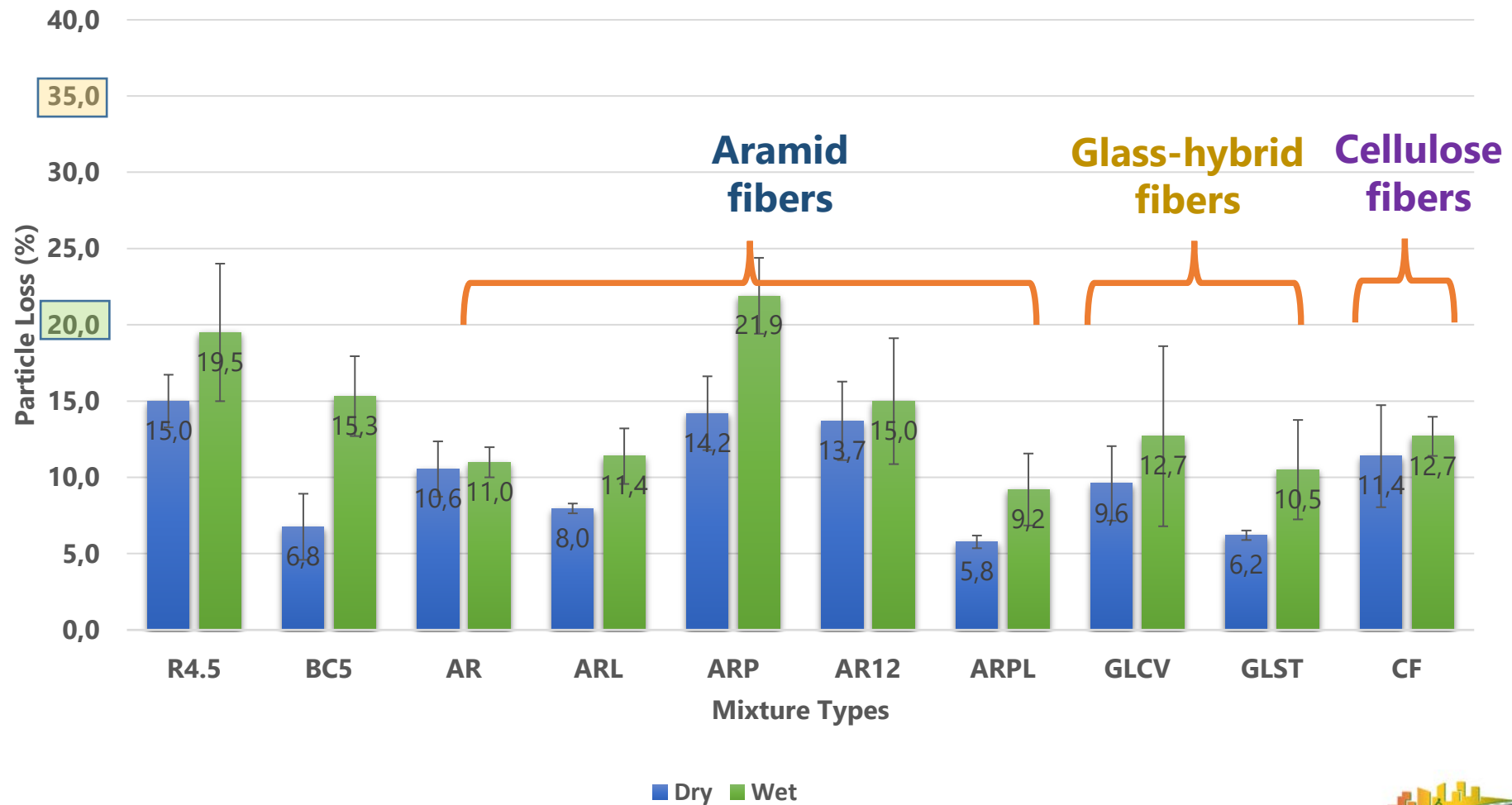


New Bitumen*: Manufactured in the lab of CEPSA, Alcala de Henares, Madrid

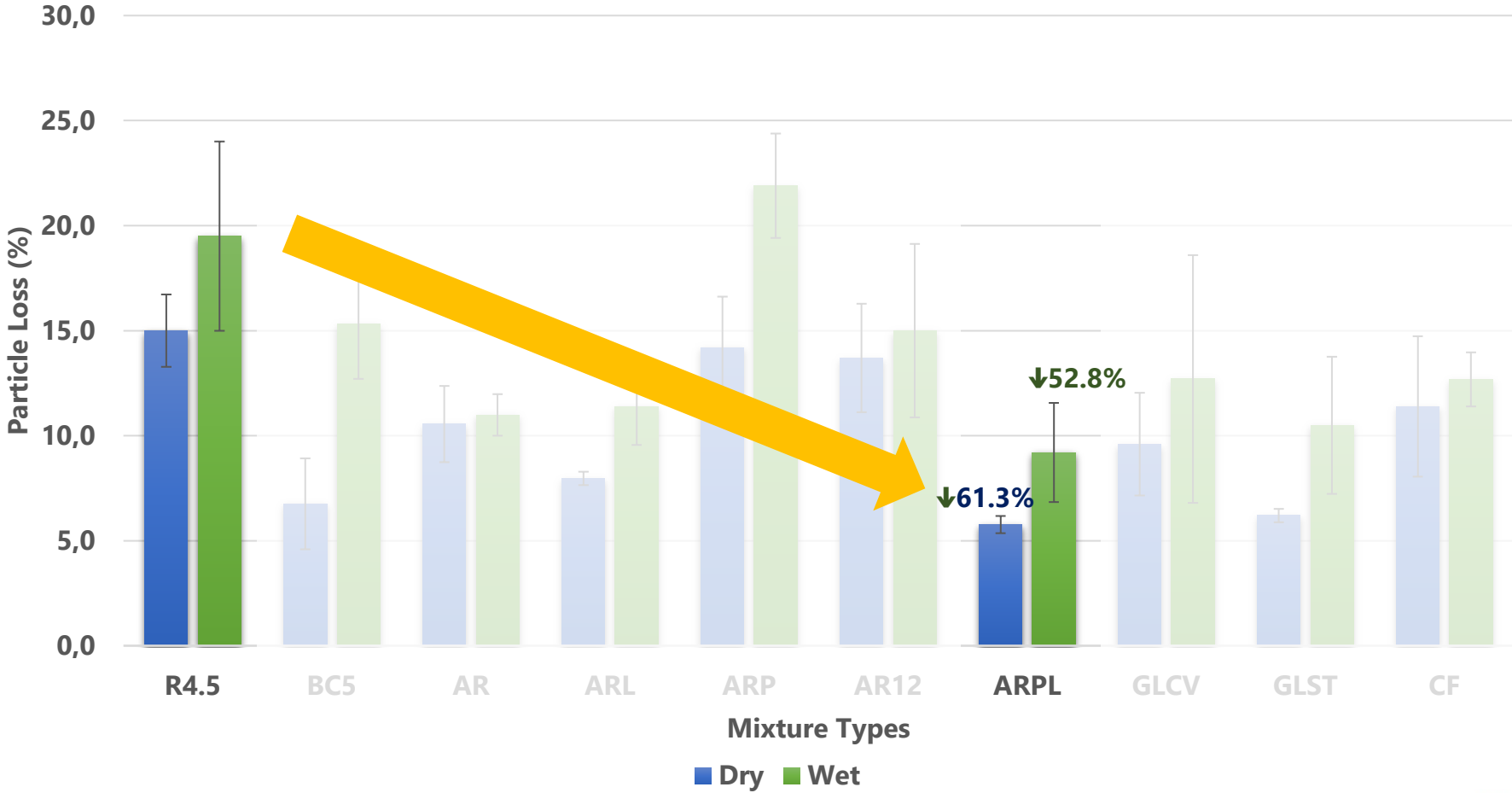
Abrasion Resistance



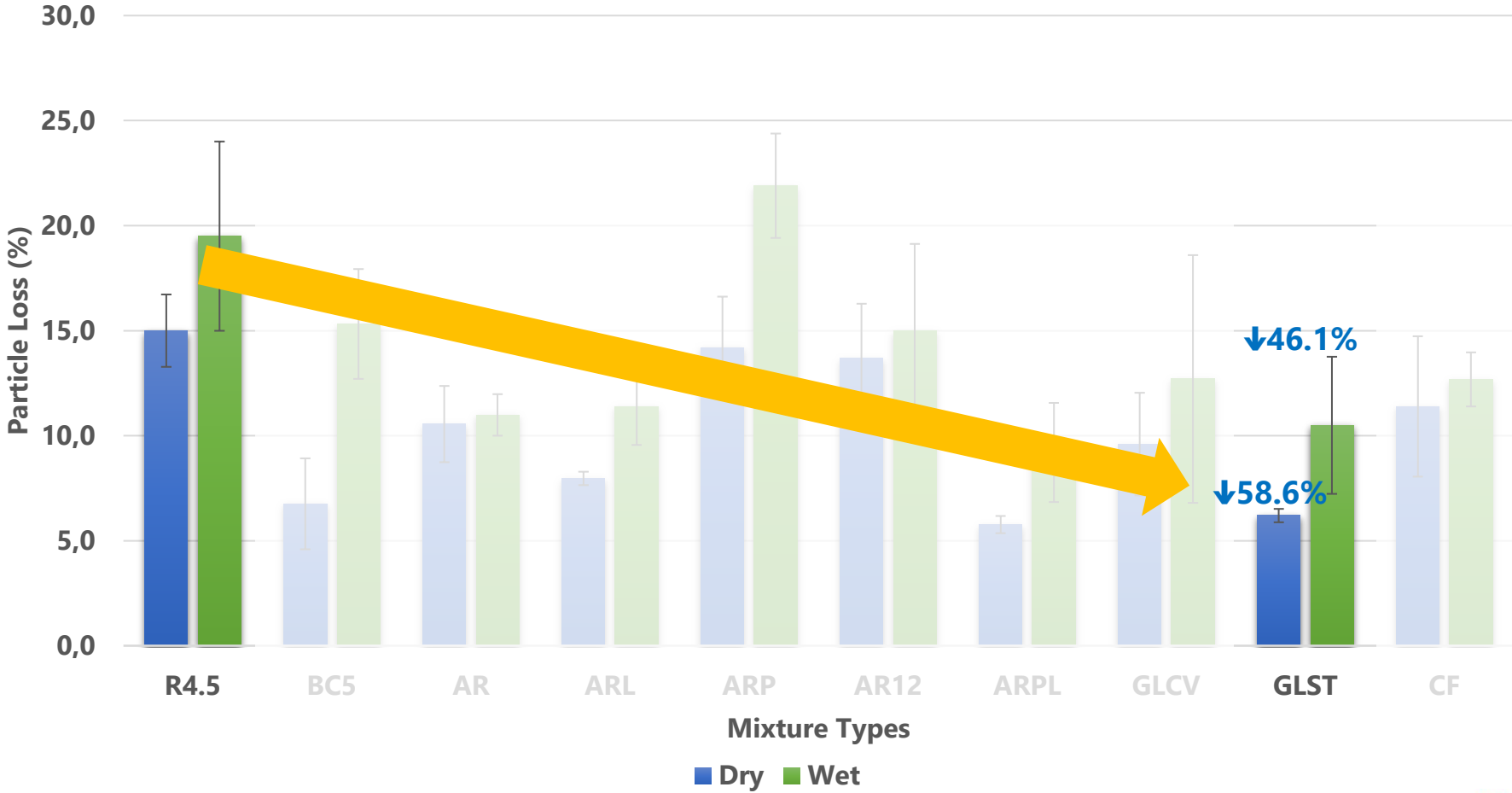
Abrasion Resistance



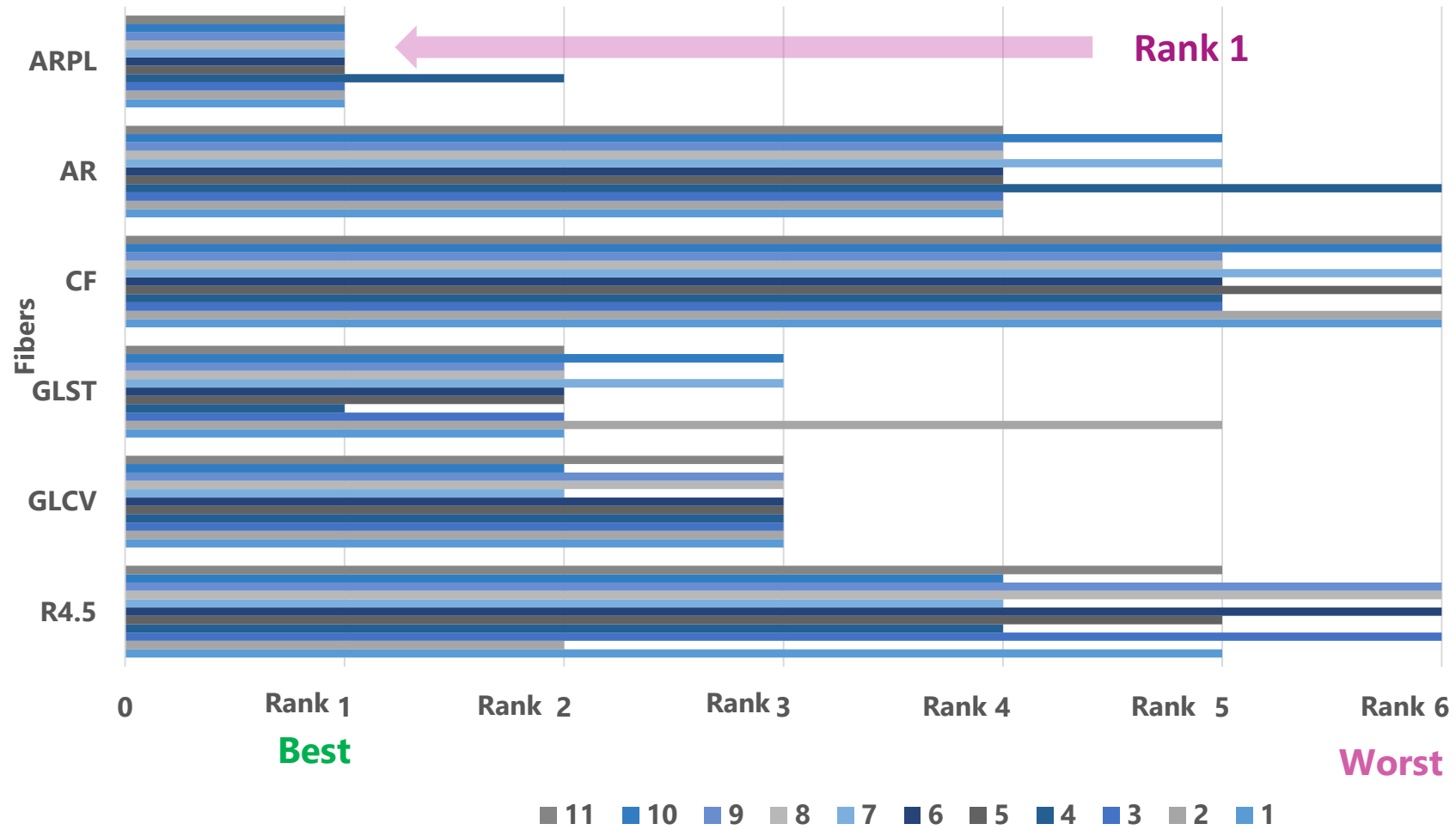
Abrasion Resistance



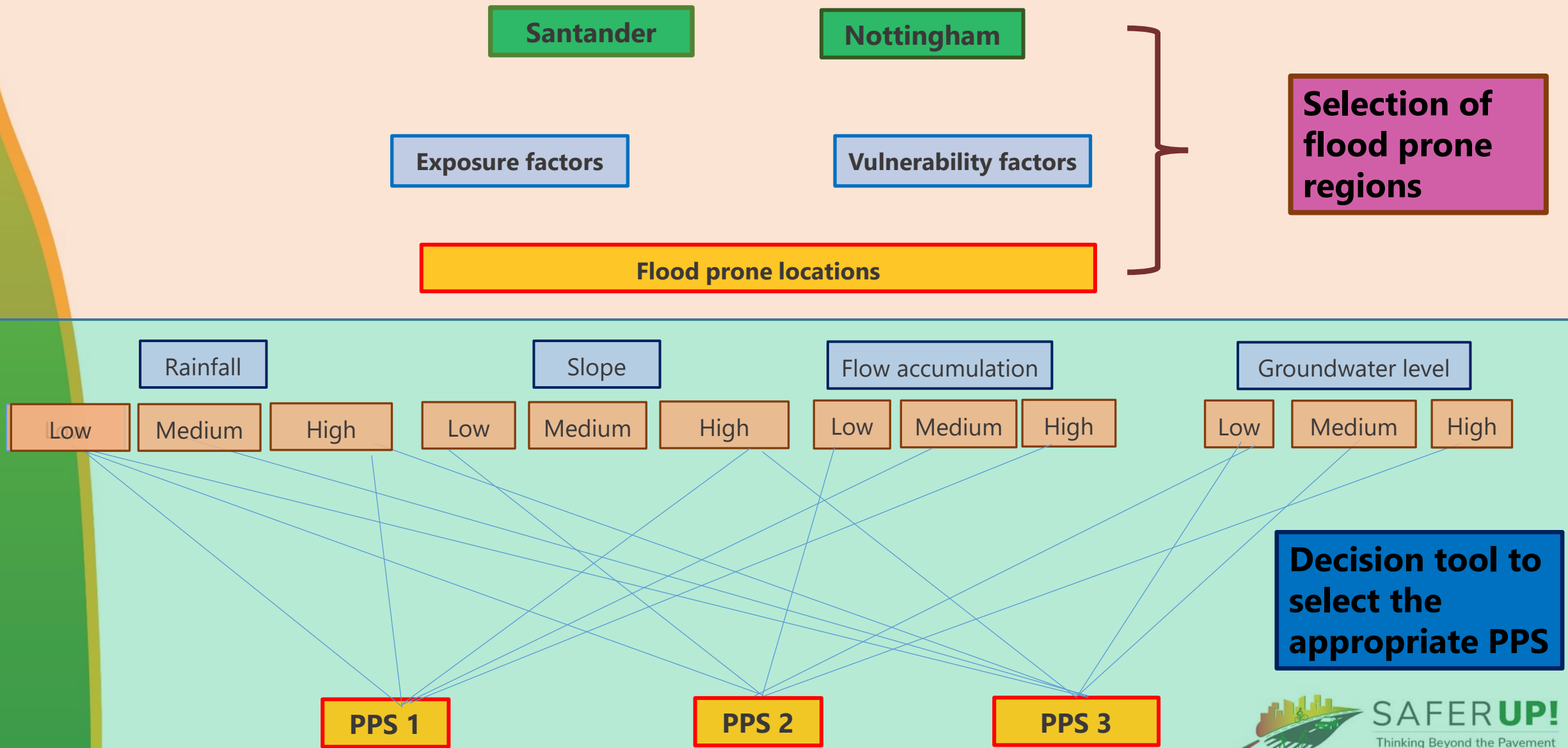
Abrasion Resistance



MCDA Results

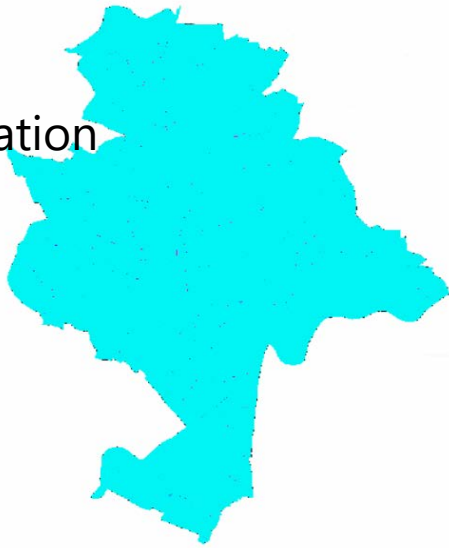


Implementation of Permeable Pavement System

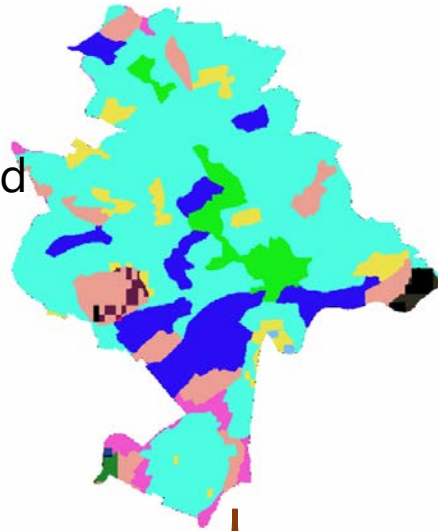


GIS Results

Flow Accumulation



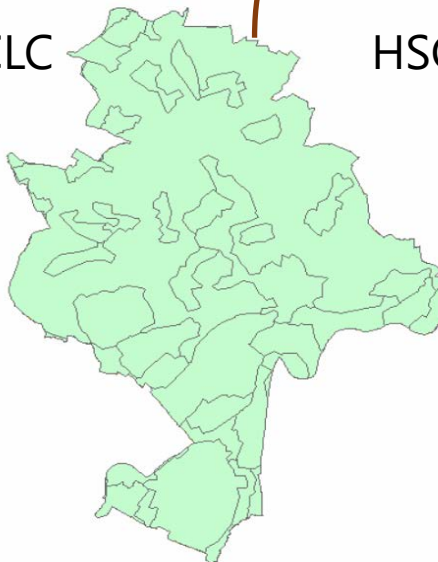
Runoff Threshold



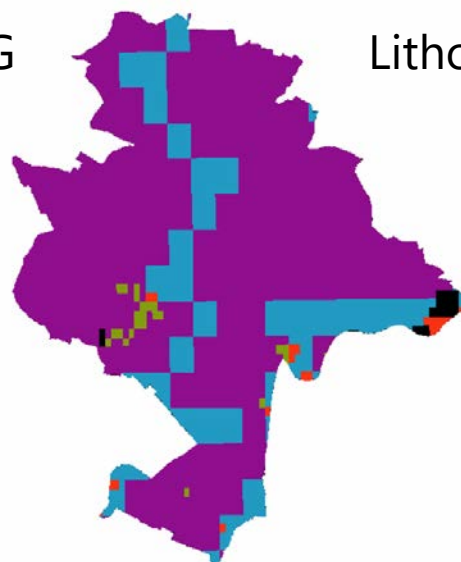
Slope



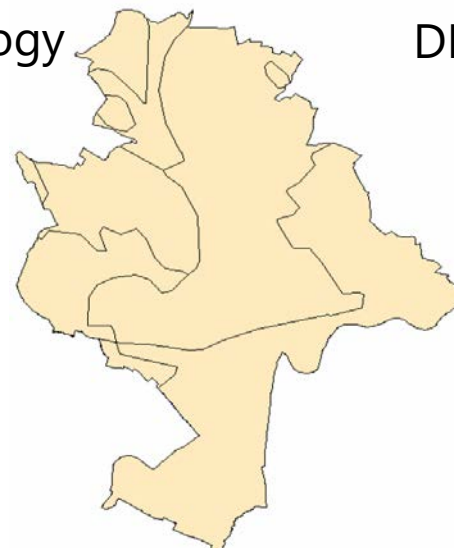
CLC



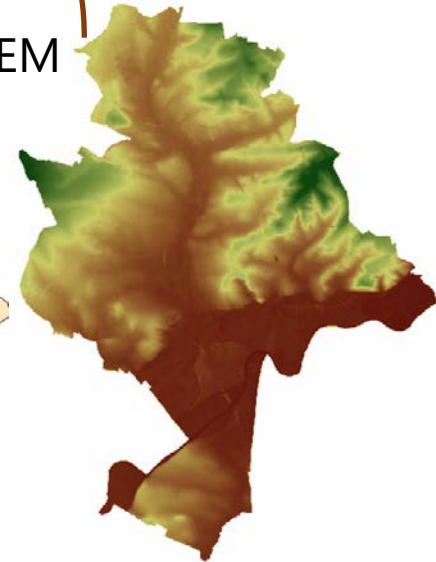
HSG



Lithology



DEM



Outcomes

| Journals/ Conferences | Title | Status |
|----------------------------|------------------------------------------------------------------------------------------------|-------------------|
| Materials | Incorporation of Additives and Fibers in Porous Asphalt Mixtures: A Review (as first author) | Published |
| TRA conference 2020 | Improving porous asphalt mixes by incorporation of additives (as first author) | Published |
| TRB conference 2020 | Study the effect of polyolefin-1 aramid fibers on PA mixture (as third author) | Published |
| | Selection of additives in porous asphalt mixtures by multi-criteria analysis (as first author) | In Process |

Expected submission date of PhD dissertation: December, 2021

Thank you...



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