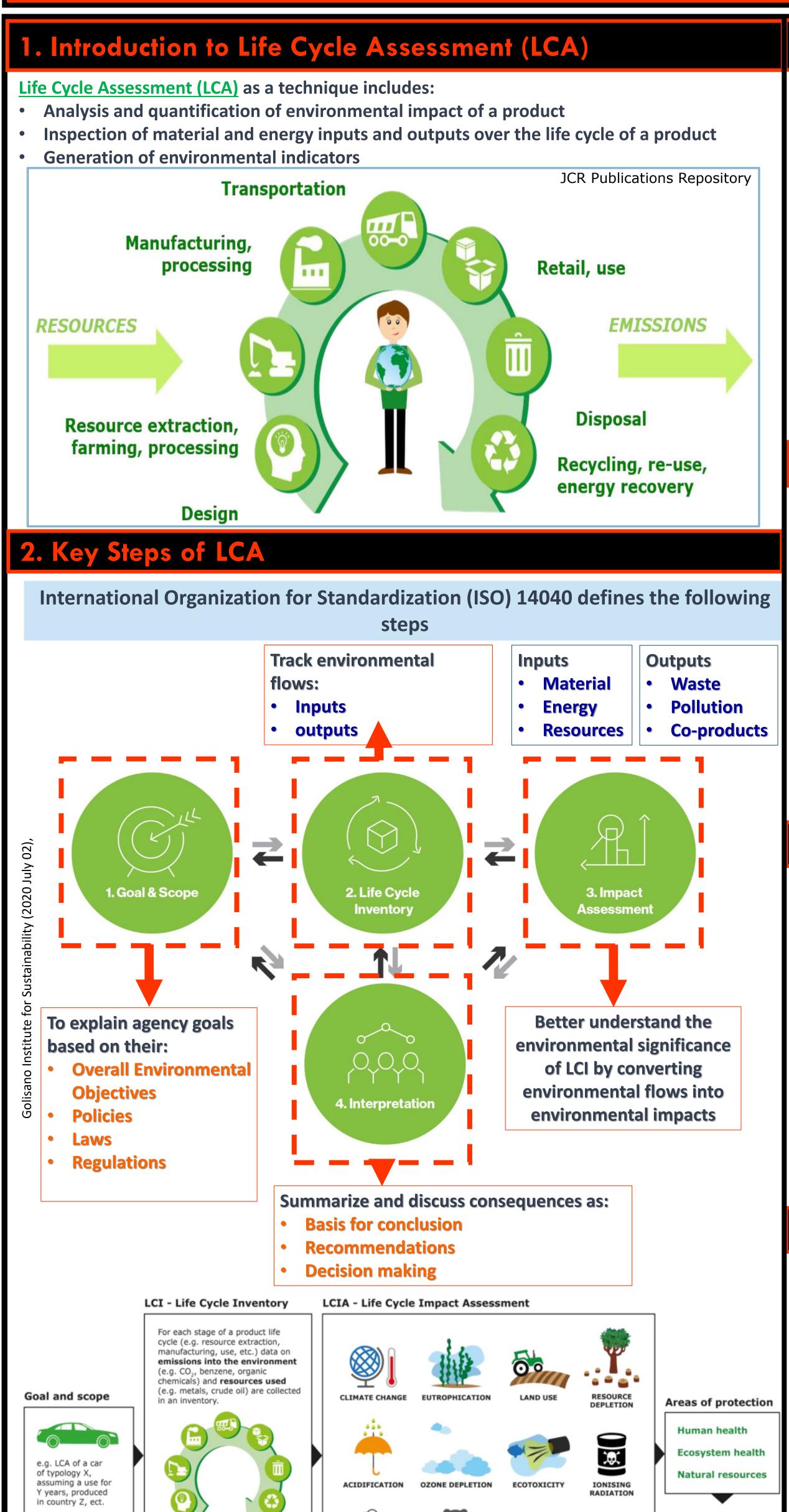


Life Cycle Assessment of Asphalt Mixtures and Pavements

Research Assistants: Manouchehr Zeidi, Aisan Ranjbar Moshfeghi and Adeoluwa Gbolade Pls: Deb Mishra and Mary Foltz







Each emission in the environment and resource used are then

characterised in term of potential

PHOTOCHEMICAL

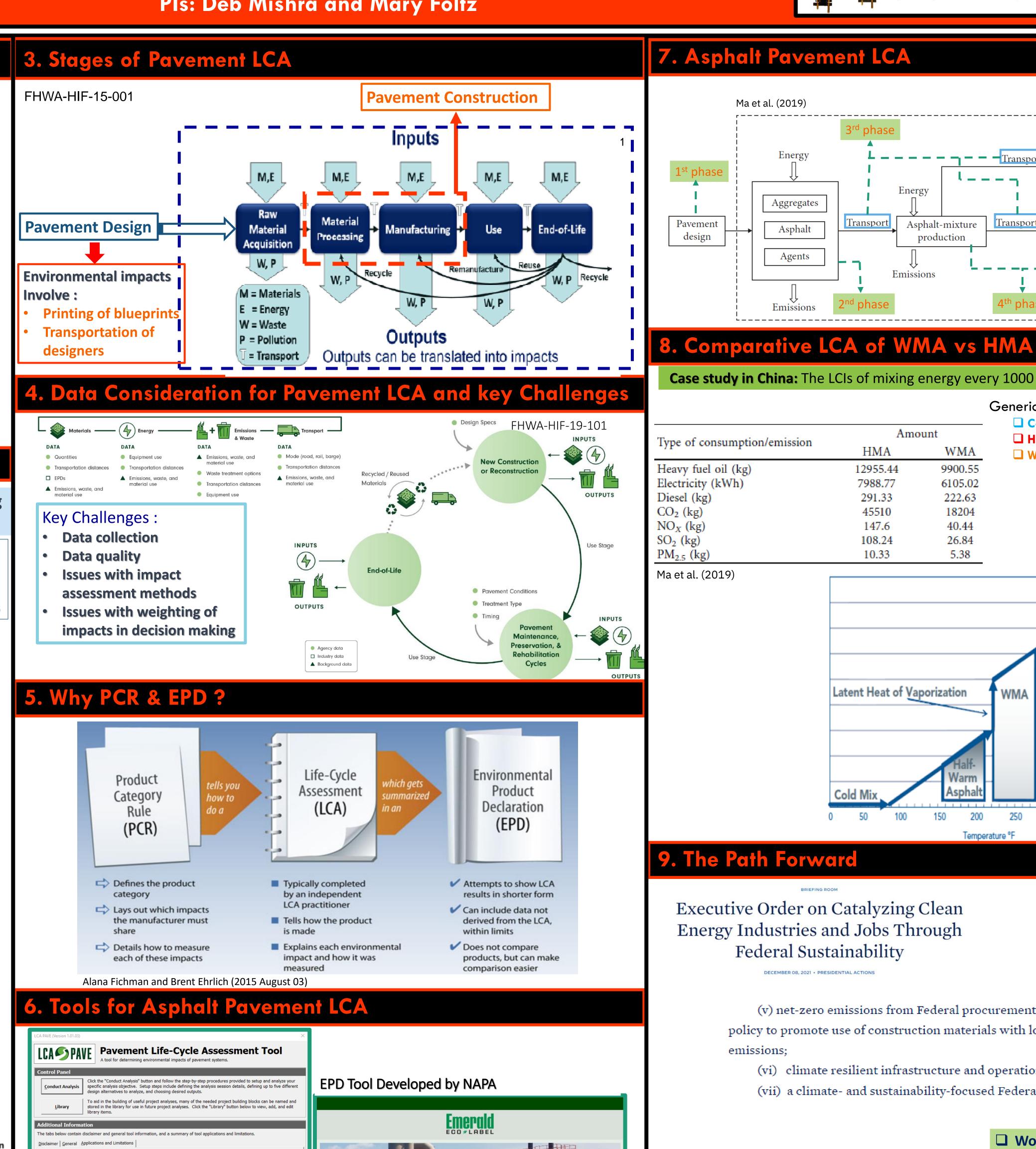
OZONE FORMATION

DEPLETION

https://epica.jrc.ec.europa.eu/lifecycleassessment.html

impact in the LCIA, covering

a number of impact categories.



Welcome to the Emerald Eco-Label EPD Tool

To access the EPD data gathering sheet that provides information on all data needed to complete an EPD, click here.

ccess instructions for the Emerald Eco-Label EPD tool, <u>click here.</u>

• The tool provides information on the environmental impacts associated with pavement material and design decisions, which may be

of consensus related to pavement use stage impacts. The following pavement use stage impacts are not included in the current version of the tool: workzone traffic-related impacts, pavement-vehicle interaction and related fuel use and emissions, ice and snow

• The tool allows users to model an incomplete life-cycle, an approach that may be appropriate for some situations (e.g., if the user is o

interested in comparing the environmental impacts associated with two different end-of-life strategies, such as on-site recycling and

· The tool excludes the consideration of equipment manufacturing and capital investments in construction-related production facilities.

complementary to existing engineering and economic considerations.

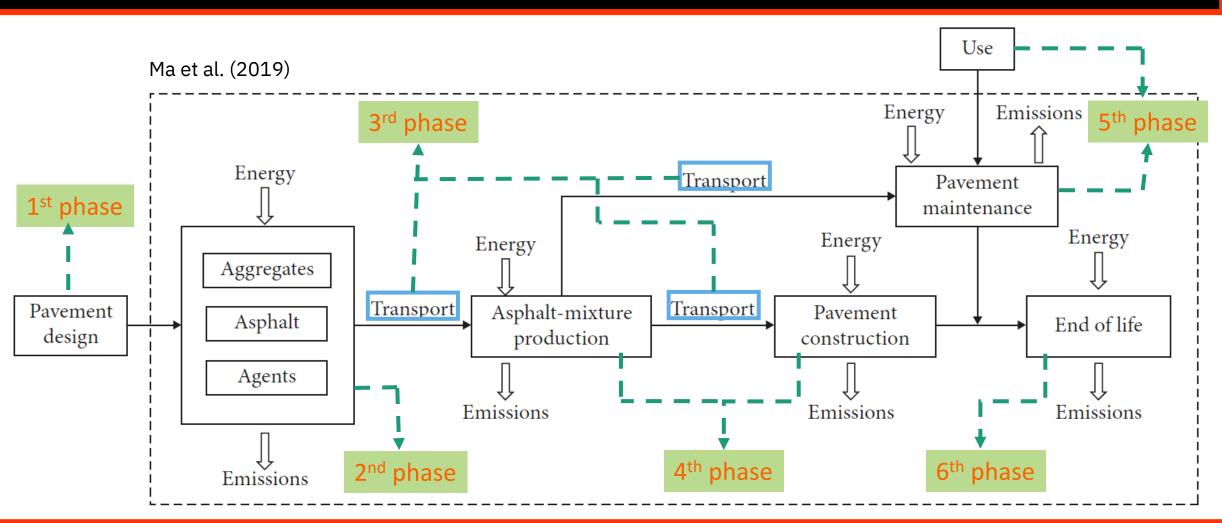
management, stormwater runoff, heat island impacts, and carbonation.

landfilling, then modeling a complete life-cycle may not be necessary).

Federal Highway Administration

U.S. Department of Transportation

Interpretation



Case study in China: The LCIs of mixing energy every 1000 m^3 HMA and WMA mixtures

WMA

6105.02

222.63

40.44

26.84

5.38

Asphal

Amount

HMA

12955.44

7988.77

291.33

45510

147.6

108.24

10.33

Generic Classification by Newcomb (2006)

☐ Cold Mix: 68 — 120 F ☐ Hot Mix: 280 – 340 F

☐ Warm Mix: 220 − 275 F 9900.55

> Classification of Mix Type

Latent Heat of Vaporization Vaporization Kuang, Y. (2012)

9. The Path Forward

Executive Order on Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability

for the Asphalt Pavement Industry

(v) net-zero emissions from Federal procurement, including a Buy Clean policy to promote use of construction materials with lower embodied emissions;

- (vi) climate resilient infrastructure and operations; and
- (vii) a climate- and sustainability-focused Federal workforce.

Sec. 208. Sustainable Acquisition and Procurement. (a) Agencies shall reduce emissions, promote environmental stewardship, support resilient supply chains, drive innovation, and incentivize markets for sustainable products and services by prioritizing products that can be reused, refurbished, or aximizing environmental benefits and cost savings through use of full lifecycle cost methodologies; purchasing products that contain recycled nent, are biobased, or are energy and water efficient, in accordance w purchasing sustainable products and services identified or recommended by the Environmental Protection Agency (EPA).

- **☐** Work with Oklahoma asphalt producers to develop mix EPDs
- ☐ Generate EPDs for Oklahoma mixtures incorporating WMA
- ☐ Develop a framework to incorporate LCA into the project selection process in Oklahoma