



**NAPA**  
NATIONAL ASPHALT  
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# EPDs, Benchmarking, and Low Carbon Procurement

**April 10, 2024**

Joseph Shacat  
Director of Sustainable  
Pavements


[jshacat@asphaltpavement.org](mailto:jshacat@asphaltpavement.org)

# Background

# What is an EPD?


- **Environmental Product Declaration**
  - **Standardized LCA report** designed to enable **comparisons** between products fulfilling the **same function\***
- Reports multiple **environmental impact categories**
- **Independently verified**





## An Environmental Product Declaration (EPD) for Asphalt Mixtures


**Company Information**  
Test Organization 2 is an asphalt mixture producer.  
Test Plant X, a stationary asphalt plant at  
219 Commercial Drive Buda, TX 78610 USA



**Product Description**  
This EPD reports the potential environmental impacts and additional environmental information for an asphalt mixture, which falls under the United Nations Standard Products and Services Code 30111509. Asphalt mixtures are typically incorporated as part of the structure of a roadway, parking lot, driveway, airfield, bike lane, pedestrian path, railroad track bed, or recreational surface.  
Mix Name: Test Mix  
Specification Entity: State DOT  
Specification: Mix Type A  
Gradation Type: dense  
Mix Design Method: superpave  
Nominal Maximum Aggregate Size: 12.5 mm  
Performance Grade of Asphalt Binder: PG 76-16  
Customer [Project/Contract] Number: Not Reported

This mix producer categorizes this product as a Warm Mix Asphalt (WMA) asphalt mixture produced using chemical additive. This asphalt mixture was produced within a temperature range of 132 to 141°C (270.0 to 285.0°F). Energy and environmental impacts are based on a plant's average performance over a 12-month period and are not adjusted for mix-specific production temperatures.

**Data Completeness Statement:** Upstream data for one or more of the ingredients representing less than 1% (individually) or 5% (total) of the total mass of this asphalt mixture is not available. The upstream environmental impacts associated with manufacturing these ingredients are not accounted for in this EPD. See Table 1 for more information.



This declaration is an EPD in accordance with ISO 14025:2006<sup>1</sup> and ISO 21930:2017<sup>2</sup>. The PCR is *Product Category Rules for Asphalt Mixtures*<sup>3,4</sup>. This EPD transparently describes the potential environmental impacts associated with the identified life cycle stages of the described product.  
**Declaration Number:** 1.92.439 v11      **Software Version:** 2.0.1  
**Date of Issue:** Sept. 12, 2023      **Period of Validity:** March 31, 2027

This EPD is valid for asphalt mixtures produced at the location indicated on this page. Data used to inform this EPD reflect plant operations from a 12-month period beginning on April 4, 2021.

This EPD can be found at <https://staging.asphaltcpd.org/epd/d/rQUzZx/>  
LCA performed by: Ben Ciavola, PhD

\*Source: ISO 14025:2006. EPDs from different Product Categories should NOT be compared to each other.

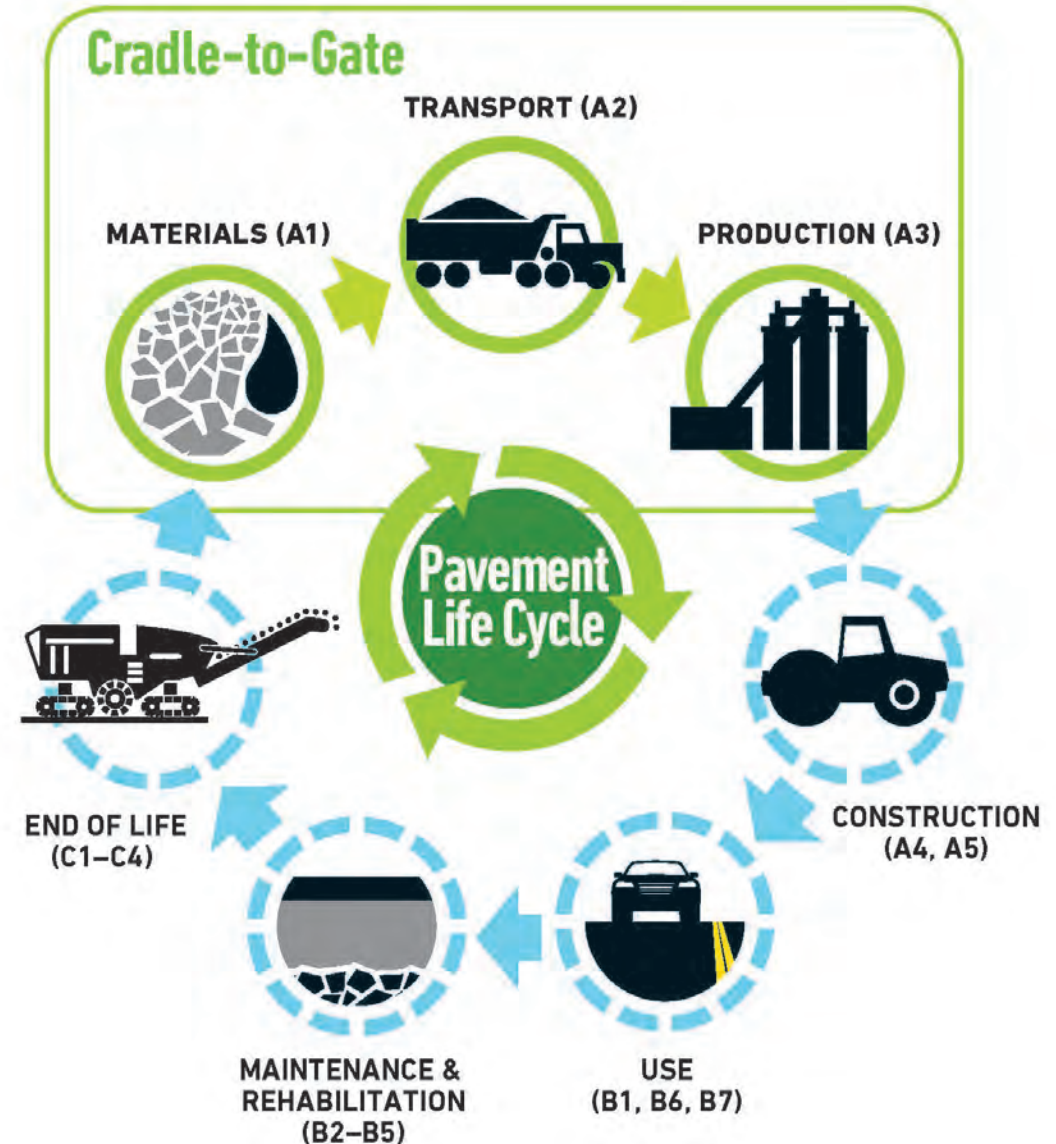
# Life Cycle Framework – LCA and EPDs

Cradle-To-Grave LCA

LCA  PAVE

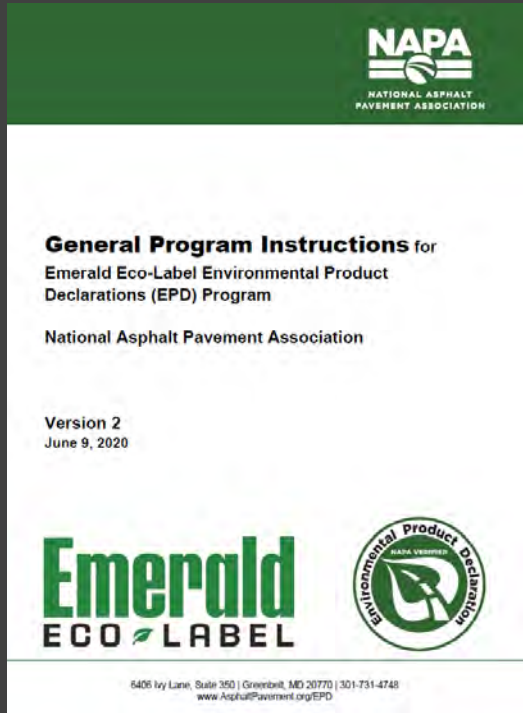
EPDs

**Emerald**  
ECO LABEL

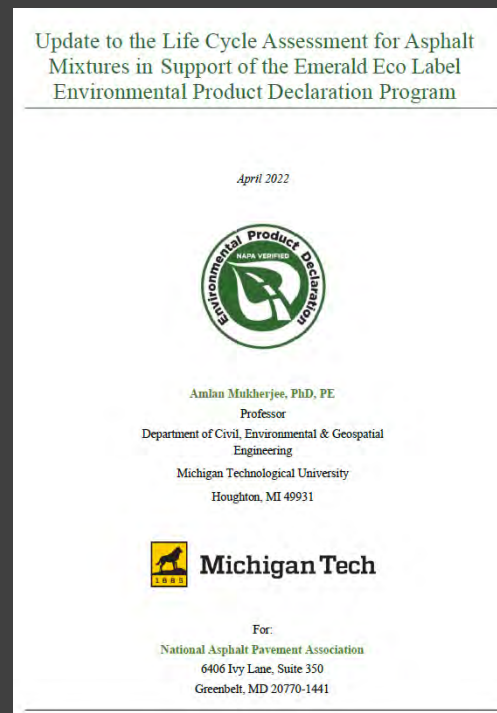


# Key Components of NAPA's EPD Program

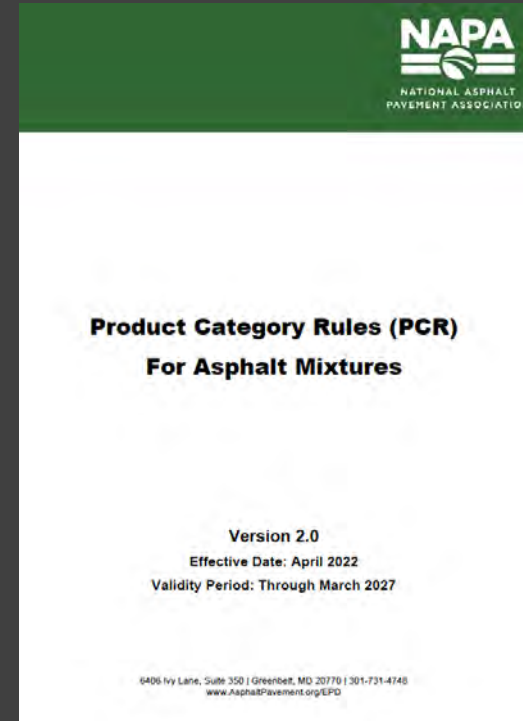
## General Program Instructions



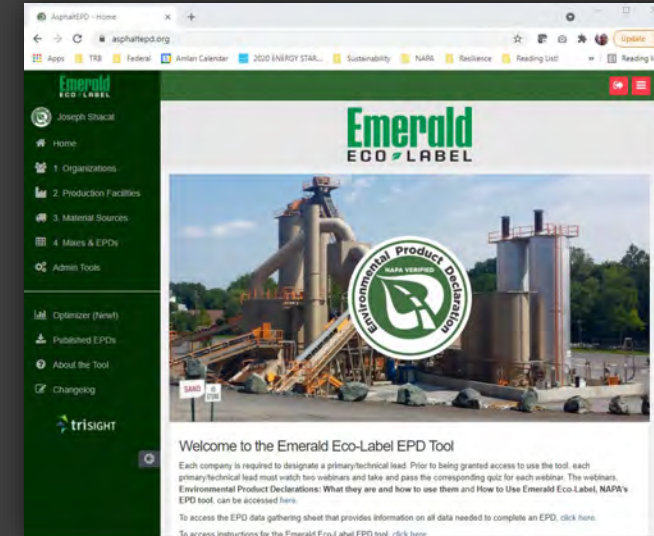
## Underlying Life Cycle Assessment



## Product Category Rules (PCR)



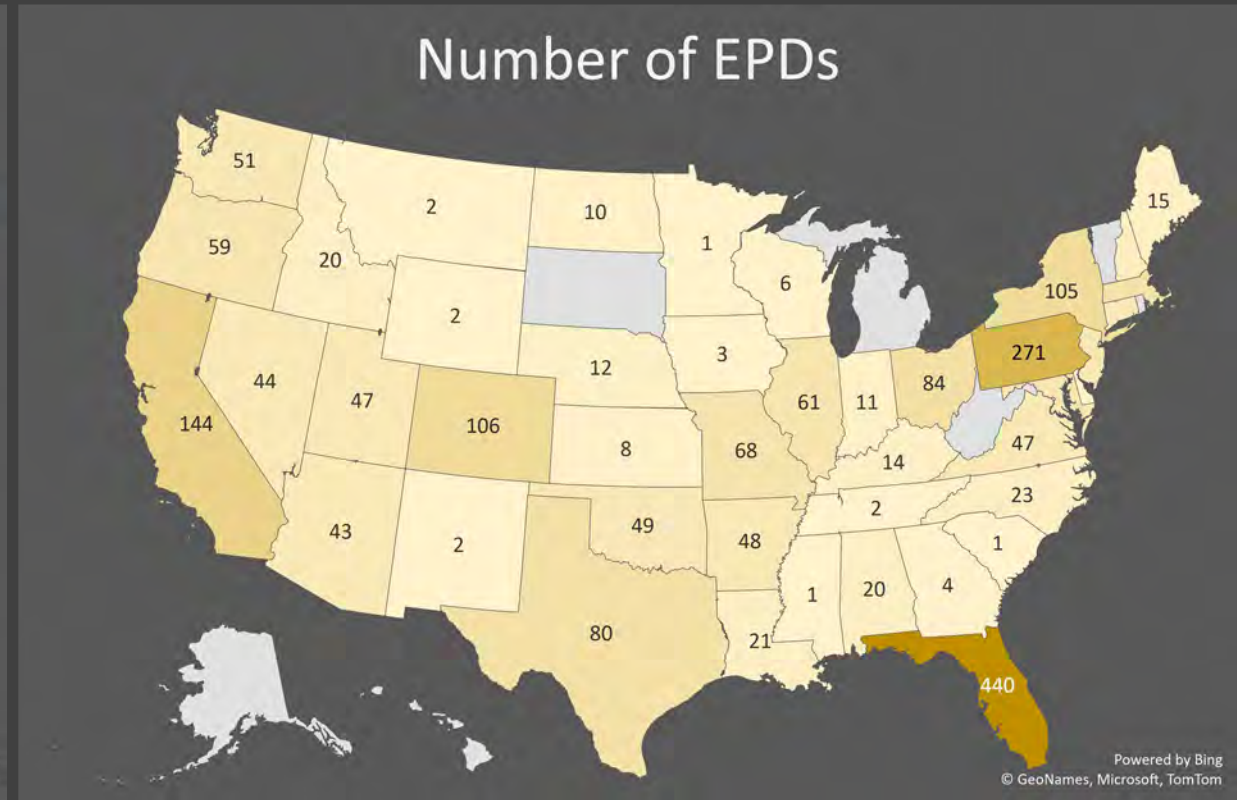
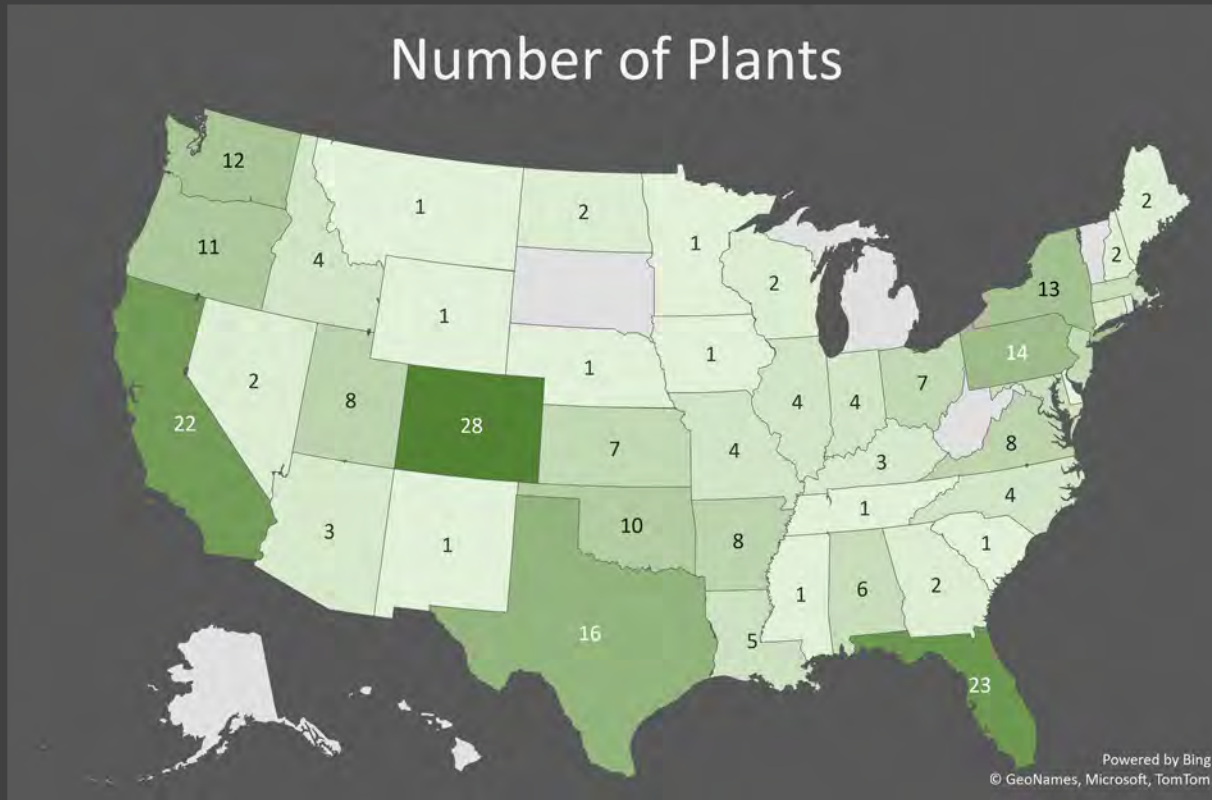
## EPD Software



Learn more at [www.asphalt pavement.org/epd](http://www.asphalt pavement.org/epd)

# Published EPDs in March 2024

- 269 plants with 2,193 EPDs across 43 states
  - Up from 18 plants with 44 published EPDs in 6 states in March 2022

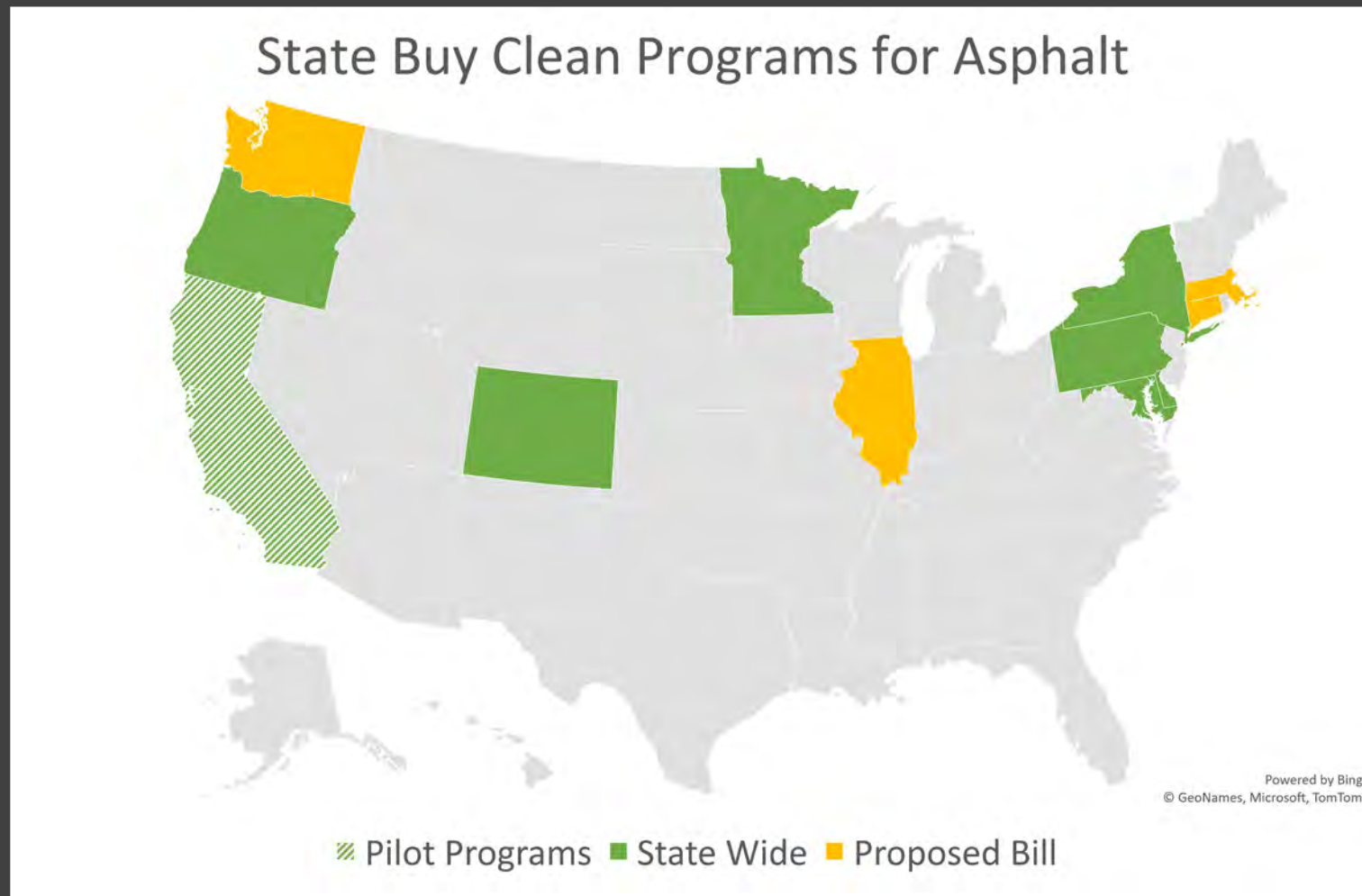


# The Rapidly Changing Policy Environment

# State Buy Clean Policies

## General Policy Structure:

- Contractor submits EPDs to agency
- Agency develops global warming potential (GWP) limits for each mix type
- Policy options:
  - Go/No-Go
  - Incentives
  - Data collection only



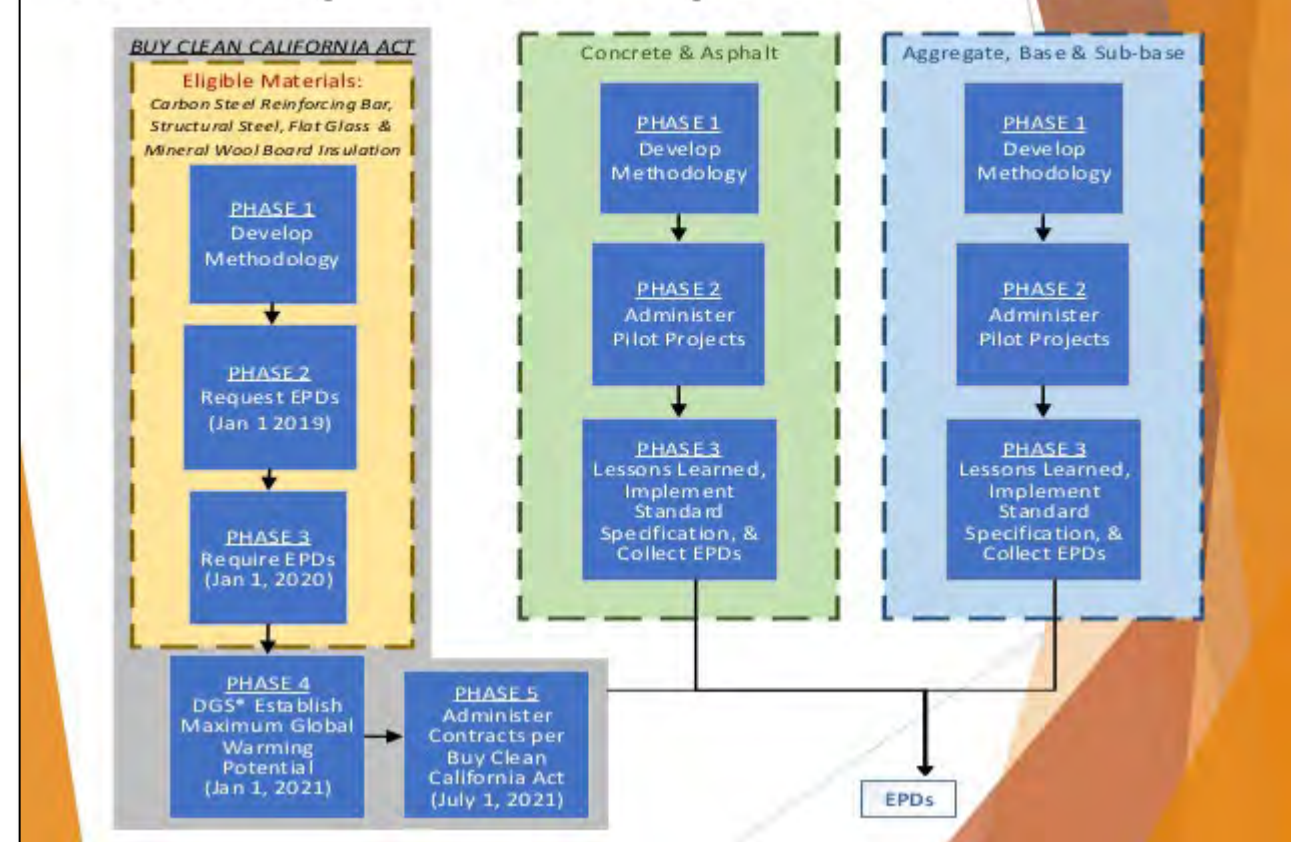


# Caltrans EPD Policy



- Policy decision by Caltrans to **get ahead of legislation**
- Contractors must submit EPDs for Concrete, **Asphalt**, and Aggregates
- Started with **7 projects** in 2019
- Targeted **20 projects** in 2021

## Roadmap to EPD Implementation



# HB 21-1303 – Buy Clean Colorado Act Implementation Timelines



## Two Separate Policies



### Vertical Construction Projects

- **2024** – State Architect established a **maximum GWP limit** for each type of material based on EPD
- **2026** – Review and revise maximum GWP limits

### Roads and Highways

- **2022** – EPDs must be submitted to CDOT
- **2025** – CDOT establishes policy to **reduce GHG emissions**
- **2027** – CDOT policy reviewed and revised

# Oregon EPD Bill (HB 4139)

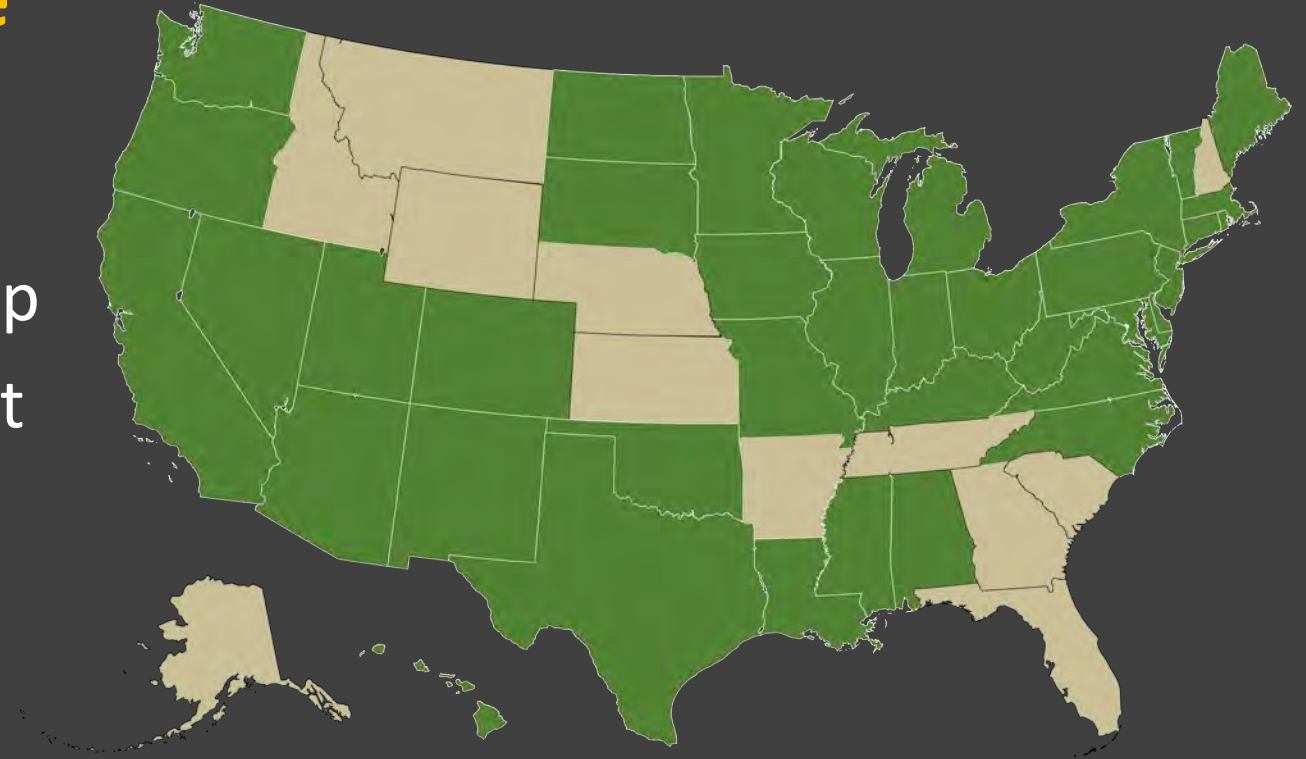
- **Collect and analyze EPDs**
- **Conduct LCAs**
- **Devise strategies to reduce GHG**
- **Identify challenges & limitations**
- **All in coordination with a Technical Advisory Committee**



# State Participation in Federal Programs

**39 states are involved with one or more of the following programs:**

- Federal-State Buy Clean Partnership
- EDC-7, EPDs for Sustainable Project Delivery
- FHWA Climate Challenge



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# The White House Council on Environmental Quality

## Buy Clean Task Force

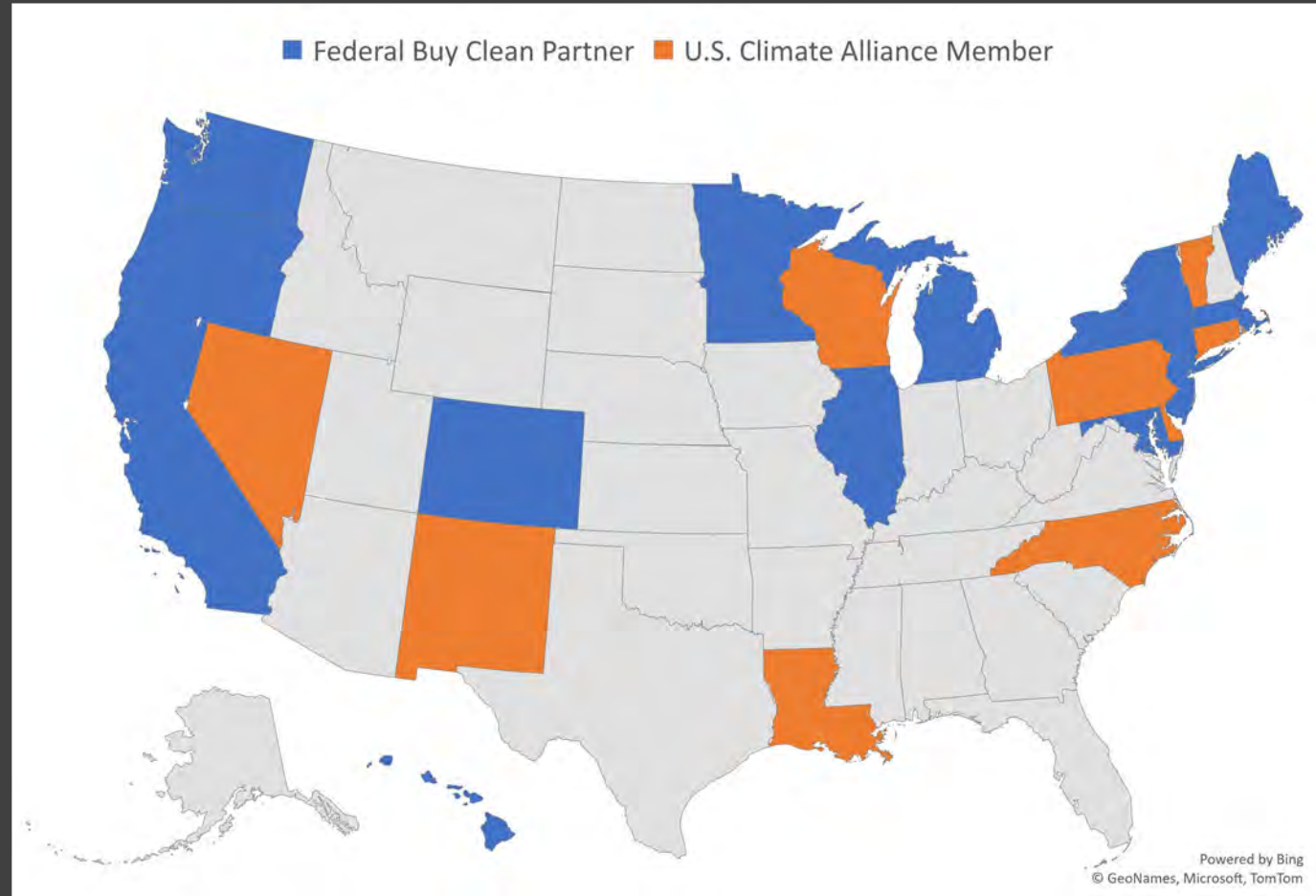
- Coordinating across 17 Federal agencies
  - 90% of federally financed and purchased construction materials
- U.S. DOT Buy Clean Policy Statement
  - Explore the use of EPDs
  - Develop a Buy Clean Policy based on EPDs



# The White House Council on Environmental Quality

## Federal-State Buy Clean Partnership

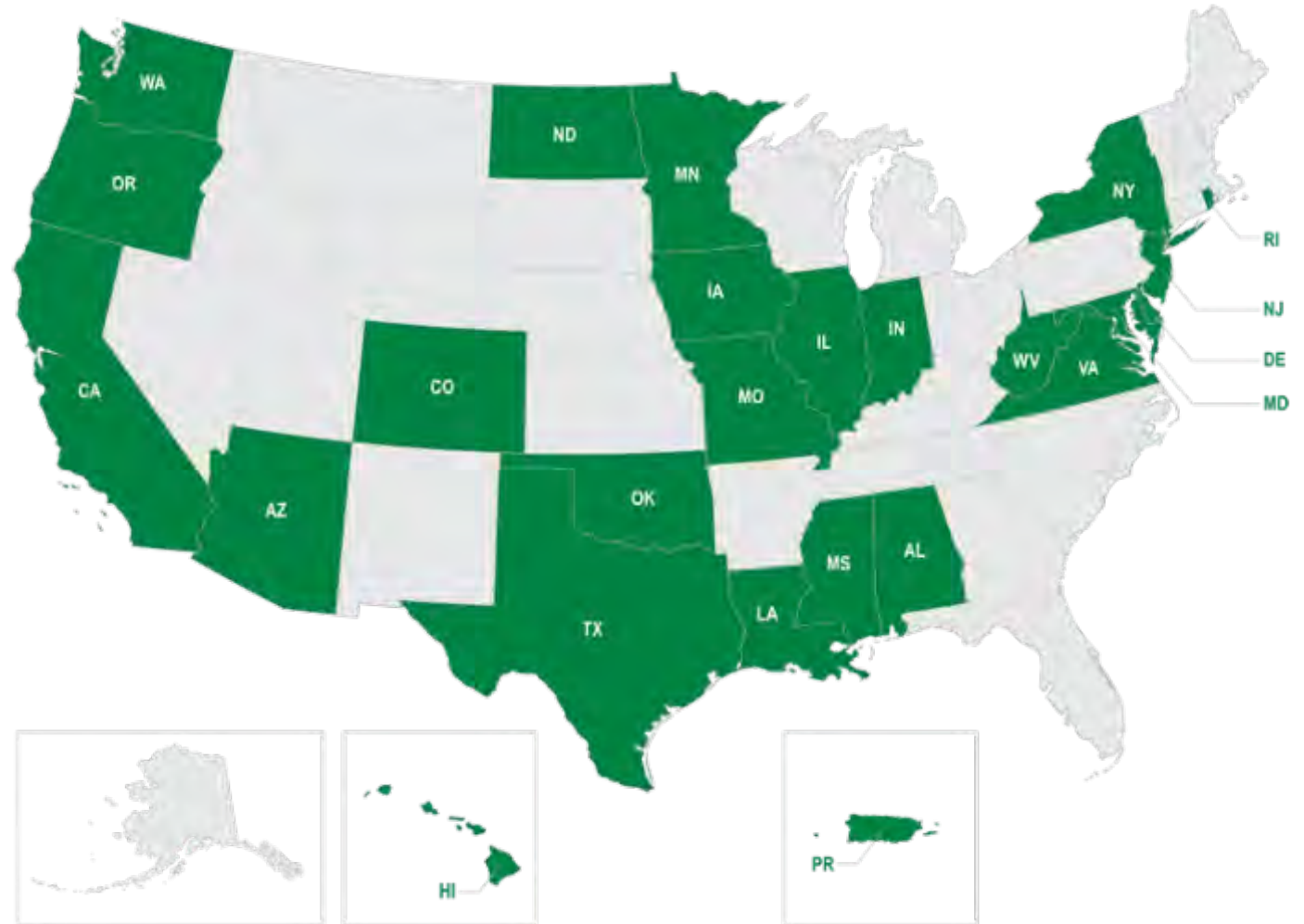
- 13 Partner States
  - Support procurement of low-carbon materials for state funded projects
- U.S. Climate Alliance
  - 10 additional states
  - Committed to significant GHG reductions in accordance with the Paris Agreement





# FHWA Climate Challenge

- **30+ proposals from 27 agencies (including 2 local agencies)**
  - Education, implementation, benchmarking, fundamental research projects
- **Providing technical and funding (\$7.1 million) assistance**

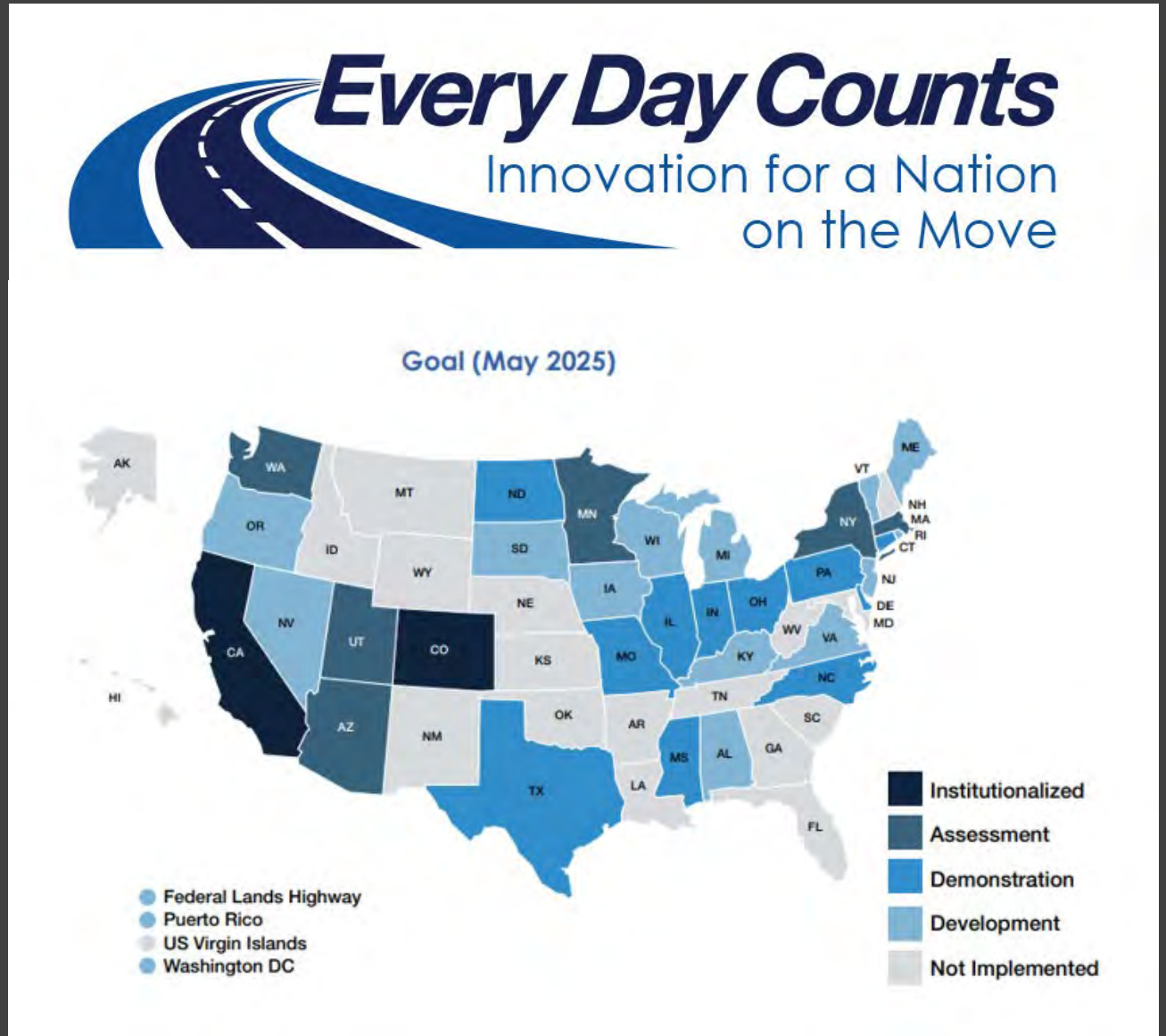




## EDC-7 (2023-2024)

- EPDs for Sustainable Project Delivery
- 35 states have enrolled

[https://www.fhwa.dot.gov/innovation/everydaycounts/edc\\_7/](https://www.fhwa.dot.gov/innovation/everydaycounts/edc_7/)





# The Inflation Reduction Act was a Game Changer



<https://vuphong.com/the-united-states-has-passed-a-new-on-energy-security-and-mitigate-climate-change/>



# Inflation Reduction Act

## EPA Interim Determination of Substantially Lower Embodied Carbon

- Published December 22, 2022

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460



DEPUTY ADMINISTRATOR

DEC 22, 2022

Mr. Andrew Wishnia  
Deputy Assistant Secretary for Climate Policy  
U.S. Department of Transportation  
1200 New Jersey Avenue, SE  
Washington, D.C. 20590

Mr. Kevin Kampschroer  
Chief Sustainability Officer and Director of the Office of Federal  
High-Performance Green Buildings  
U.S. General Services Administration  
GSA Building  
800 F Street, NW  
Washington, D.C. 20405

Dear Messrs. Wishnia and Kampschroer:

Under the Inflation Reduction Act Sections 60503 and 60506, the Department of Transportation Federal Highway Administration and the General Services Administration are appropriated funds to spend on materials and products “that have substantially lower levels of embodied greenhouse-gas emissions associated with all relevant stages of production, use and disposal as compared to estimated industry averages of similar materials or products, as determined by the Administrator of the U.S. Environmental Protection Agency.”

The EPA is issuing this interim determination<sup>1</sup> to provide your agencies with actionable determinations on selecting materials and products that meet the standards of Sections 60503 and 60506, which will reduce greenhouse-gas emissions of federally funded building, infrastructure and construction projects, with a particular emphasis on reducing major industrial emissions from production<sup>2</sup> of U.S. construction

<sup>1</sup> The EPA expects that its determination may evolve as the EPA gains a better understanding of the relevant industry averages and develops better methodologies for assessing what materials and products embody “substantially lower” greenhouse-gas emissions. At the same time, the EPA acknowledges that your agencies must enter binding contracts and anticipates that any revisions to this determination will apply only prospectively to contracts awarded after any new or revised determination is issued. This determination does not govern, bind or limit any potential future EPA standards or programs on low-embodied, greenhouse-gas materials or EPDs and should not be construed to direct subnational jurisdictions’ Buy Clean policies.

<sup>2</sup> In this determination the EPA is prioritizing materials/products that have the highest global-warming potential impact in the production stage. The EPA recognizes that the IRA also directs it to consider the embodied greenhouse-gas-emissions impacts related to the use and disposal stages and that there are significant climate mitigation opportunities in taking these stages into account. The EPA is prioritizing the production stage in this interim determination due to data availability in



# Inflation Reduction Act

## EPA Interim Determination of Substantially Lower Embodied Carbon

- **Best performing 20%** of similar materials/products
  - If not available locally, then best performing 40%
  - If not available locally, then better than estimated industry average
  - **GSA and FHWA will define these thresholds** based on published EPDs
- Also, report **ENERGY STAR** Energy Performance Score (currently under development for asphalt plants)

<https://www.epa.gov/inflation-reduction-act/inflation-reduction-act-programs-fight-climate-change-reducing-embodied>



# Low Carbon Material Program Draft Material Standards

- Draft issued January 25, 2023 for public comment
- One set of numbers (20<sup>th</sup>, 40<sup>th</sup>, and industry average) nation-wide
- Finalized in May 2023

*Pre-decisional discussion DRAFT -- January 25, 2023*

## GSA Inflation Reduction Act Low Embodied Carbon Material Standards

### Background:

- Section 60503 of the [Inflation Reduction Act of 2022](#) (IRA) appropriates funding to GSA for construction materials and products with “substantially lower levels of embodied greenhouse gas emissions [also known as ‘embodied carbon’] . . . as compared to estimated industry averages of similar materials or products, as determined by the Administrator of the Environmental Protection Agency” (EPA).
- EPA’s [Interim Determination](#) issued December 22, 2022 (“EPA’s Determination”) interprets “substantially lower” to mean that “materials/products qualify if their product-specific GWP [global warming potential] is in the best performing 20 percent (Top 20 percent or lowest 20 percent in embodied greenhouse gas [GHG] emissions), when compared to similar materials/products (for example, materials/products within the same product category that meet the same functional requirements).”<sup>1</sup>
  - GSA developed the following minimum requirements for IRA-funded purchases of materials and products with substantially lower embodied carbon based on, and in accordance with, EPA’s Determination. These standards list maximum embodied carbon limits for the best-performing 20% (“Top 20%”, or lowest 20% in embodied GHG emissions) materials in the same product category that meet the same functional requirements (e.g. strength class, longevity, or end use).
    - These standards also include Top 40% Limits, which may only be used where Top 20% materials are unavailable in a project’s location<sup>2</sup>, and industry Average or Better Limits, which may only be used where Top 20% and Top 40% materials are unavailable.
  - Where a material with a GWP that meets the Top 20% Limit is currently unavailable at project’s location, the project delivery team must submit a written explanation of how they researched materials<sup>3</sup> to determine that Top 40% or Average or Better was the best-available GWP level, and how the selected material was validated to meet applicable GSA IRA Limits.
    - Any unavailability documentation must be approved in writing by regional management (implementation team executive oversight, such as Project Executive) and central office (national technical subject matter experts in or supporting GSA’s IRA Program Management Office [PMO]).
- GSA’s goal is to procure materials and products available today and in the near future with the lowest levels of embodied carbon. GSA’s procurement actions and demand signals will help grow the United States market for even lower-carbon construction materials, and will spur ongoing industry innovation.

<sup>1</sup> EPA’s Determination also states “If materials/products in the Top 20 percent are not available in a project’s location, then a material/product qualifies per this determination if its GWP is in the Top 40 percent (lowest 40 percent in embodied greenhouse gas emissions). If materials/products in the Top 40 percent are not available in a project’s location, then a material/product qualifies per this determination if its GWP is better than the estimated industry average.”

# Low Carbon Asphalt Workshop

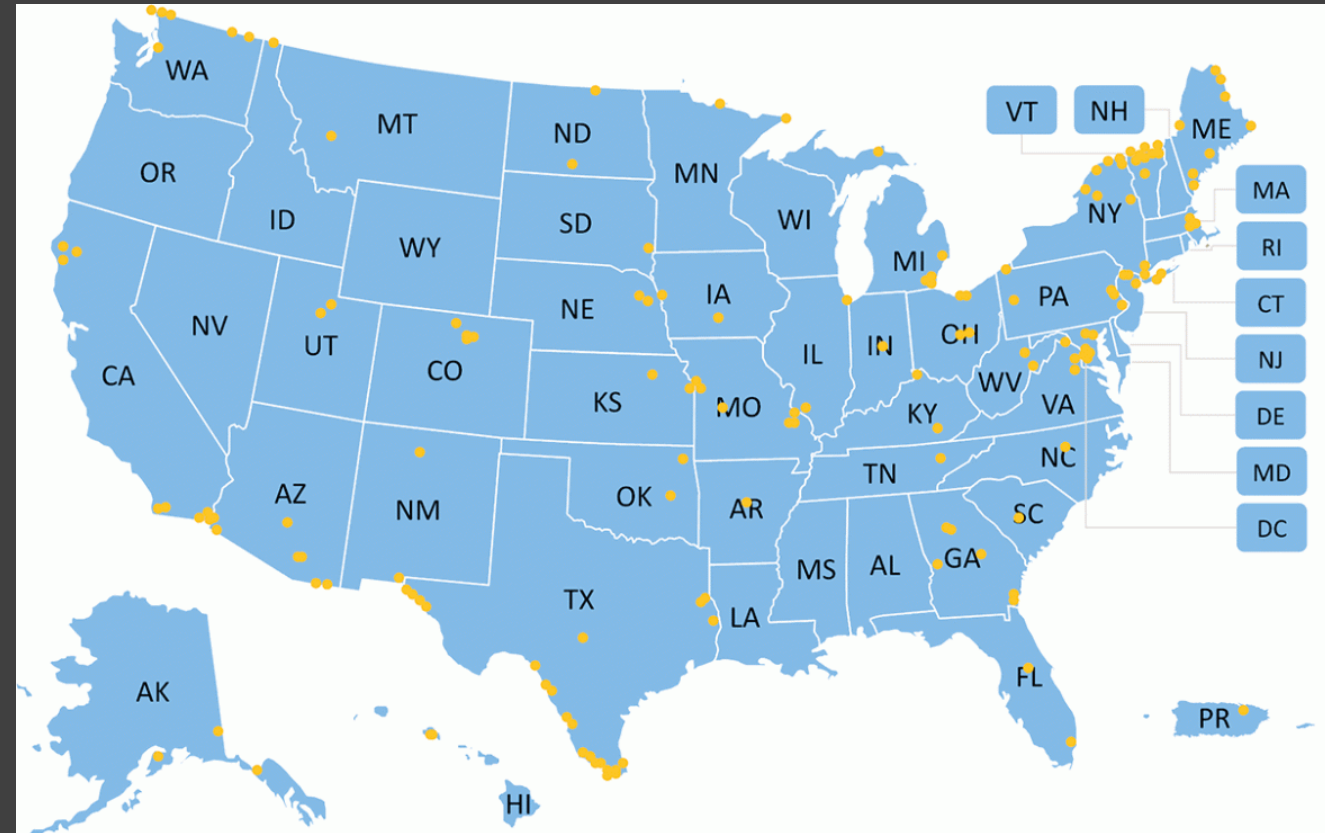
- February 22-23, 2023
- Participation:
  - NAPA members
  - EPA
  - FHWA
- Deep dive into asphalt EPDs
- Discuss benchmarking methodology





# Low-Embodied Carbon Projects

- 150 projects valued at \$2 billion
- Best value bidding
  - Low-carbon products get more points



<https://www.gsa.gov/real-estate/gsa-properties/inflation-reduction-act/lec-program-details/lowembodied-carbon-projects>



## Low-Carbon Transportation Materials Grants Program

- \$1.2 billion available to State DOTs
  - At least \$22 million per State
  - Additional \$800 million for local agencies expected soon
- Relies on **industry average benchmark data** for threshold setting
- Application Deadline for DOTs is **June 10, 2024**

<https://www.fhwa.dot.gov/lowcarbon/funding.cfm>

# ELIGIBLE ACTIVITIES FOR GRANTS

- Process Development
  - Data and policy development
  - Testing and specification development
  - Eligible project identification
- Use of Materials
  - Incremental cost or incentive amount
  - Quality assurance and acceptance



# Benchmarking and Industry Averages



# Low Carbon Material Pilot Program

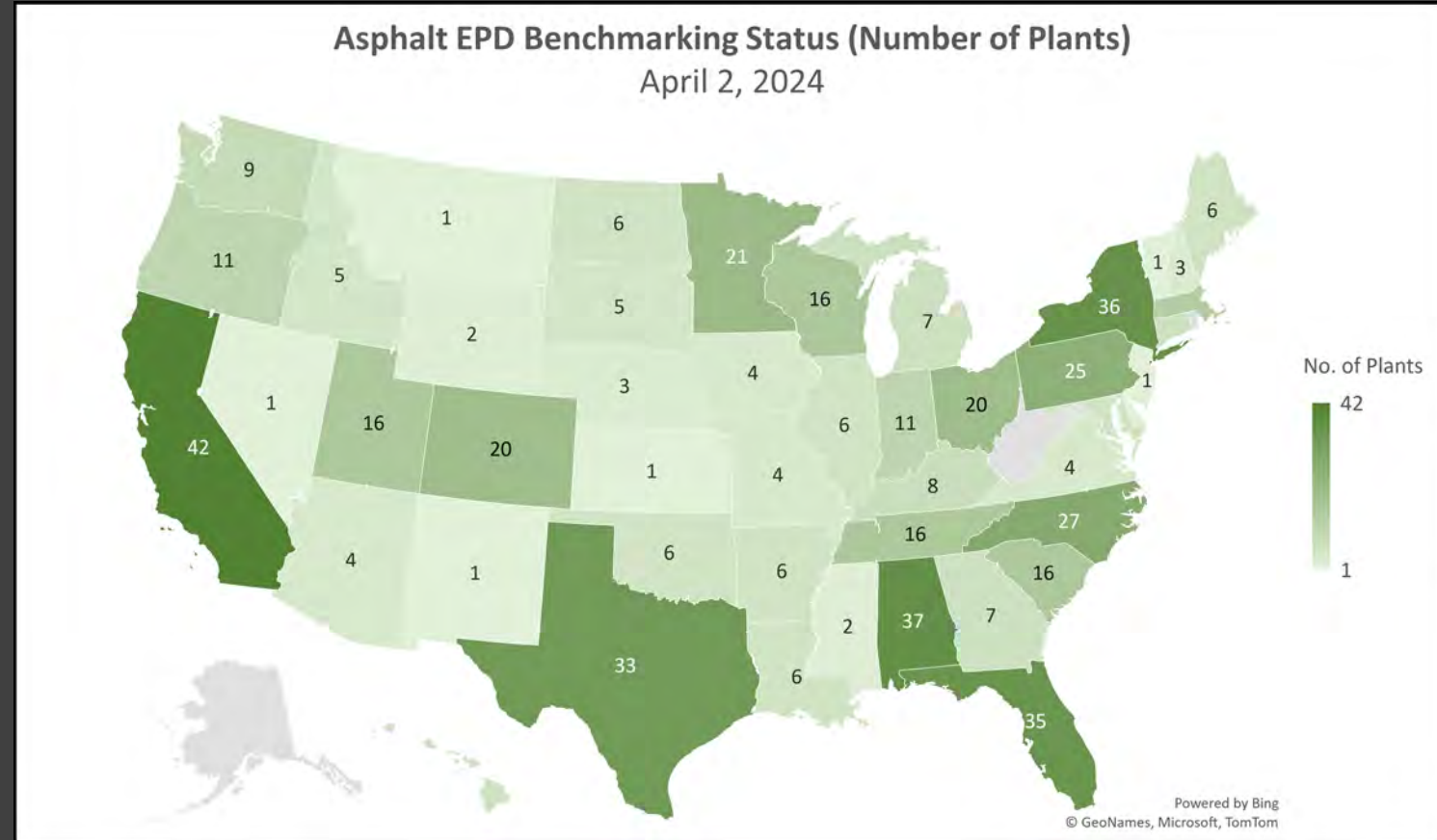
- Federal office buildings, courthouses, and land ports of entry

<b>GSA IRA Limits for Low Embodied Carbon Asphalt - May 16, 2023</b> (EPD-Reported GWPs, in kilograms of carbon dioxide equivalent per metric ton - kgCO <sub>2</sub> e/ t)		
<b>Top 20% Limit</b>	<b>Top 40% Limit</b>	<b>Better Than Average Limit</b>
<b>55.4</b>	<b>64.8</b>	<b>72.6</b>

<https://www.gsa.gov/about-us/newsroom/news-releases/gsa-pilots-buy-clean-inflation-reduction-act-requirements-for-low-embodied-carbon-construction-materials-05162023>

# NAPA EPD Benchmarking Initiative

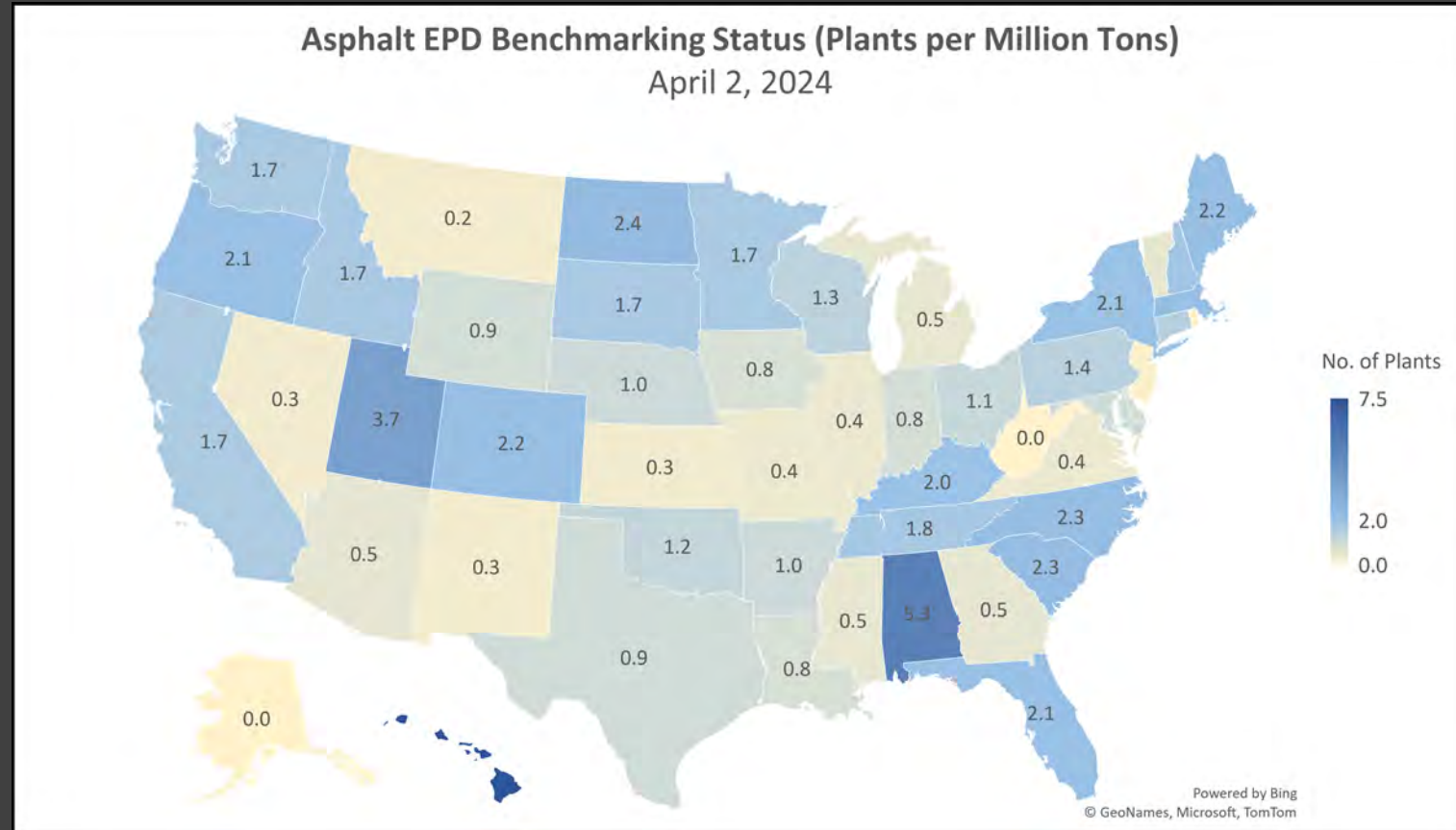
- No cost to participate
- Will enable agencies to develop reasonable estimates for industry averages based on:
  - local conditions
  - key parameters in their specifications
- 525 plants participated



Benchmarking data collection closed on **April 1**

# NAPA EPD Benchmarking Initiative

- No cost to participate
- Will enable agencies to develop reasonable estimates for industry averages based on:
  - local conditions
  - key parameters in their specifications
- 525 plants participated



Benchmarking data collection closed on **April 1**

# What is the benchmarking data used for?

- **Develop EPD Industry Averages**

- Will be the basis for identifying low carbon materials under FHWA's **\$2 billion** grant program



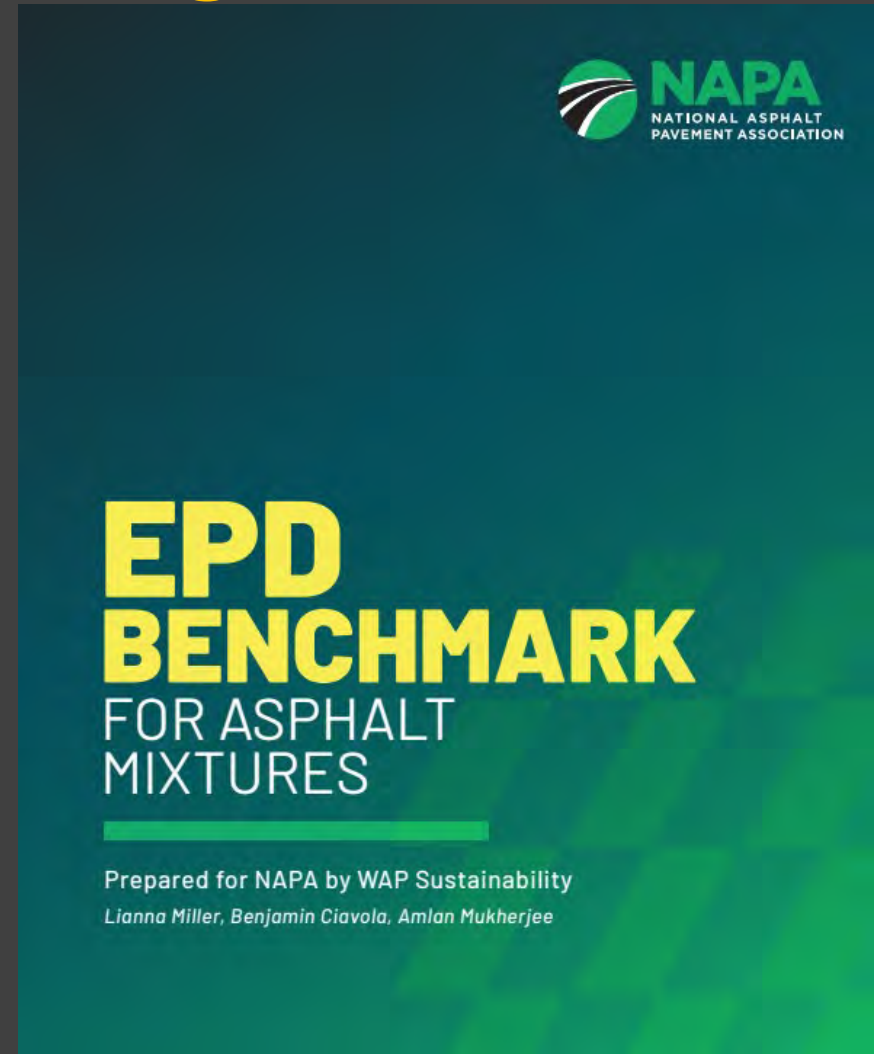
- **Develop ENERGY STAR Energy Performance Indicator (EPI) Tool**

- Will be the basis for ENERGY STAR Plant Certification

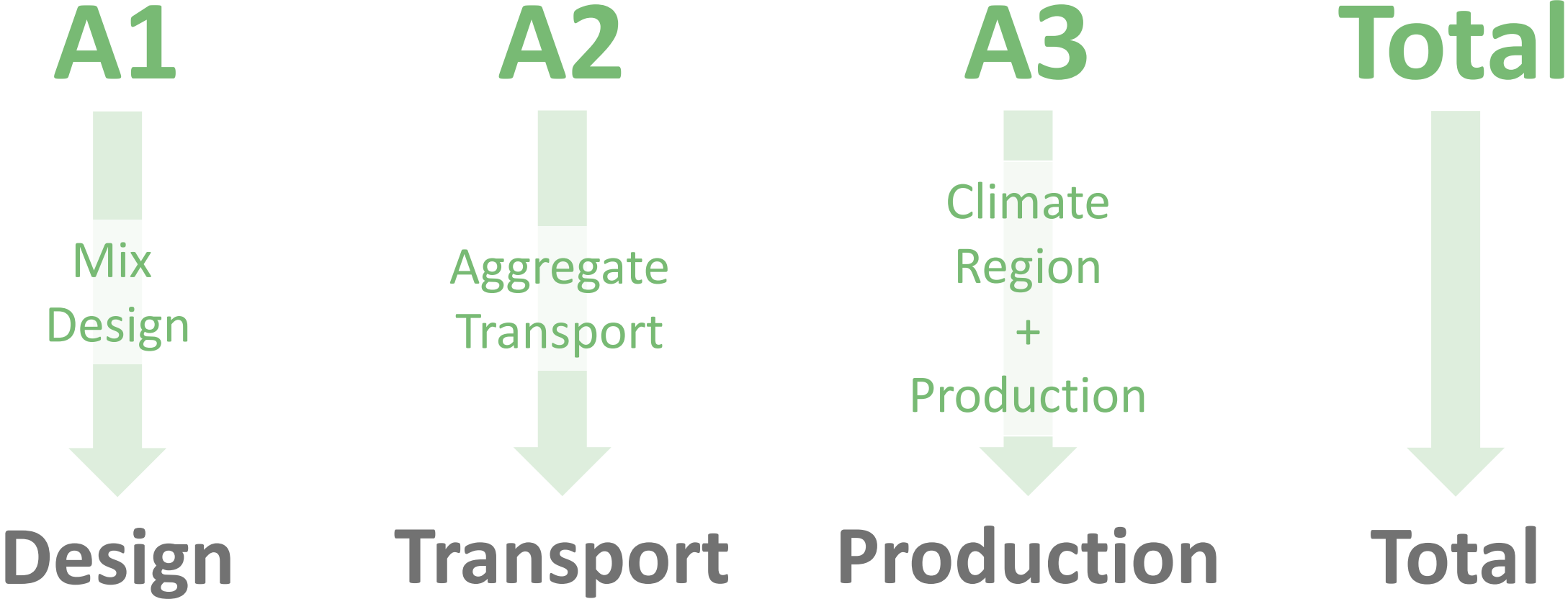


# Example Benchmarking Calculation

- Based on data submitted in May/June 2023
- Report was independently verified
- Subject to review by FHWA Expert Panel
- Will be updated summer 2024



# NAPA Approach: Deconstruct the Benchmark by Life Cycle Phase



# A1: Impact of Mix Design Parameters

- Option 1: Use the most appropriate “generic” mix type

	Aggregate (% mixture mass)	Neat Binder (% mixture mass)	Modified Binder (% mixture mass)	Lime (% mixture mass)	RAP (% mixture mass)	A1 GWP kg CO <sub>2</sub> e / tonne
Virgin	94.5	5.5	0	0	0	36.57
With RAP	73.83	4.3	0	0	21.87	28.74
With Lime	93.5	5.5	0	1	0	50.44
With Lime, RAP	72.83	4.3	0	1	21.87	42.61
With 3.5% SBS	94.5	0	5.5	0	0	43.56
With SBS, RAP	73.83	0	4.3	0	21.87	34.21
With 3.5% SBS, Lime	93.5	0	5.5	1	0	57.43
With SBS, Lime, RAP	72.83	0	4.3	1	21.87	48.07



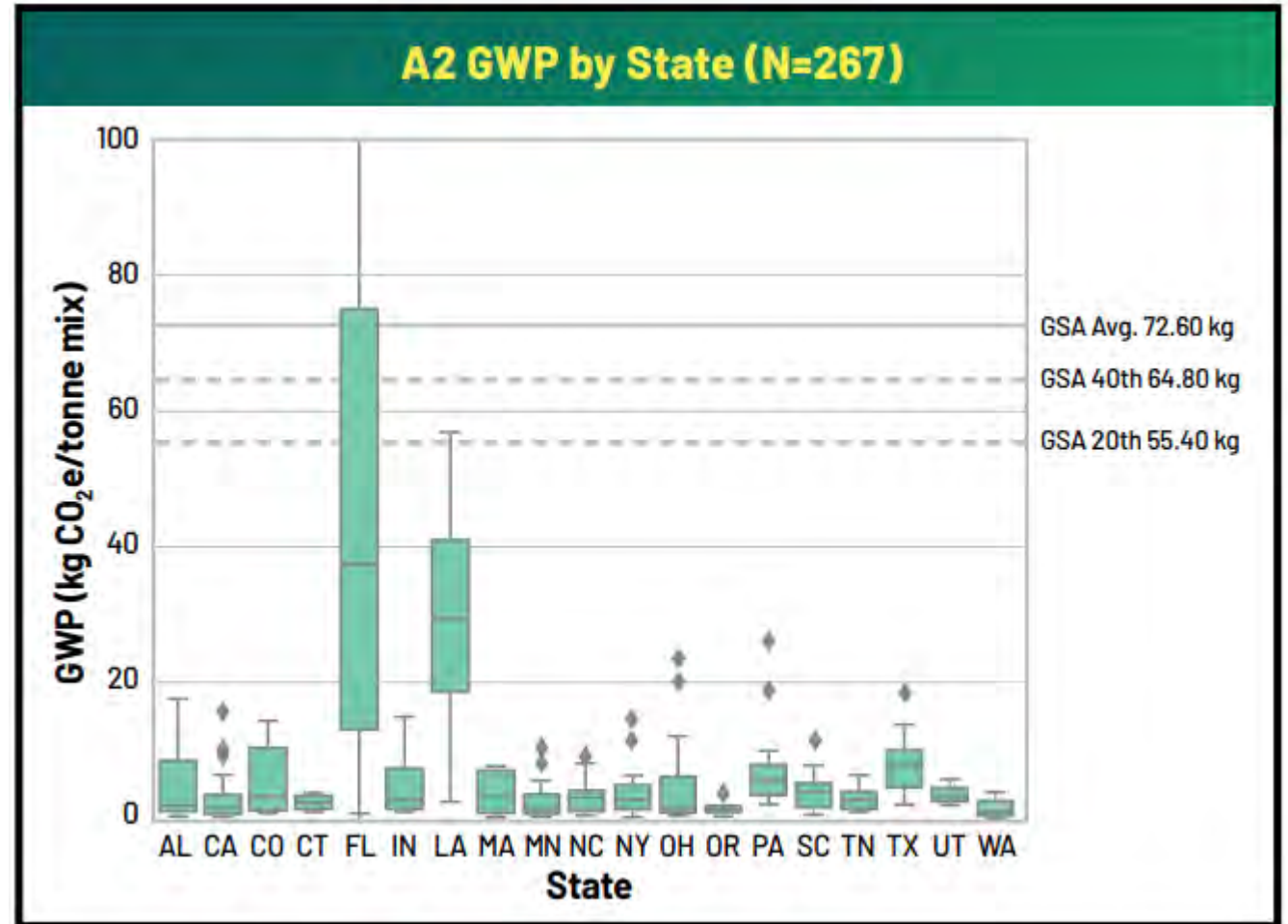
# A1: Impact of Mix Design Parameters

- Option 2: Agencies develop mix type-specific values, either:
  - Average/Target values for each mix type
  - Historical data from approved mix designs (population dist.)

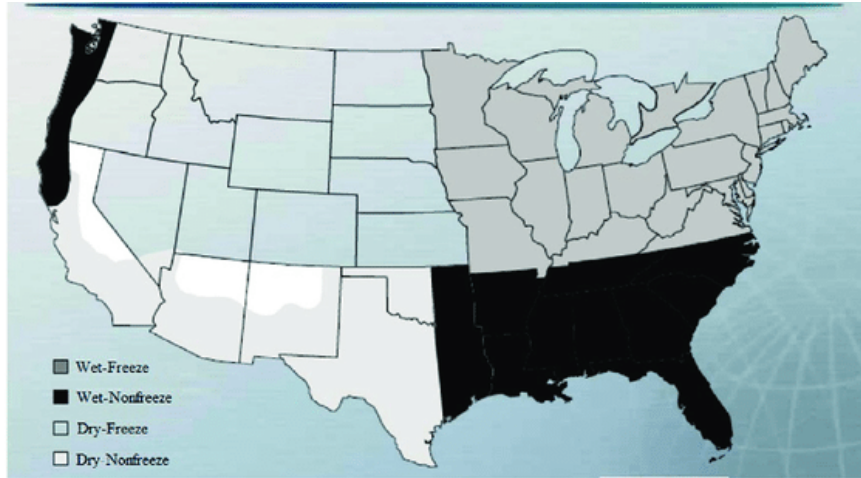
<b>AI Material</b>	<b>Mass balanced with</b>	<b>GWP Intensity kg CO<sub>2</sub>e/tonne ingredient (* /sh tn)</b>	<b>Adjustment factor for using ingredient for additional 1% of mixture by mass kg CO<sub>2</sub>e/tonne mixture (* /sh tn)</b>
Neat Binder	Aggregate	631.51 (573.06)	<b>+6.30 (+5.71)</b>
3.5% SBS Modified Binder	Aggregate	758.71 (688.49)	<b>+7.57 (+6.86)</b>
Lime	Aggregate	1389.0 (1259.9)	<b>+13.87 (+12.58)</b>
RAP	Aggregate + Neat Binder	0.781 (0.710)	<b>-0.357 (-0.325)</b>
Aggregate (USLCI, prescribed)	Neat Binder	1.94 (1.761)	<b>-6.30 (-5.71)</b>

# A2: Impact of Raw Material Transportation

- Data are based on plant-level average A2 impacts
- Agencies can develop mix-specific A2 numbers based on approved mix designs

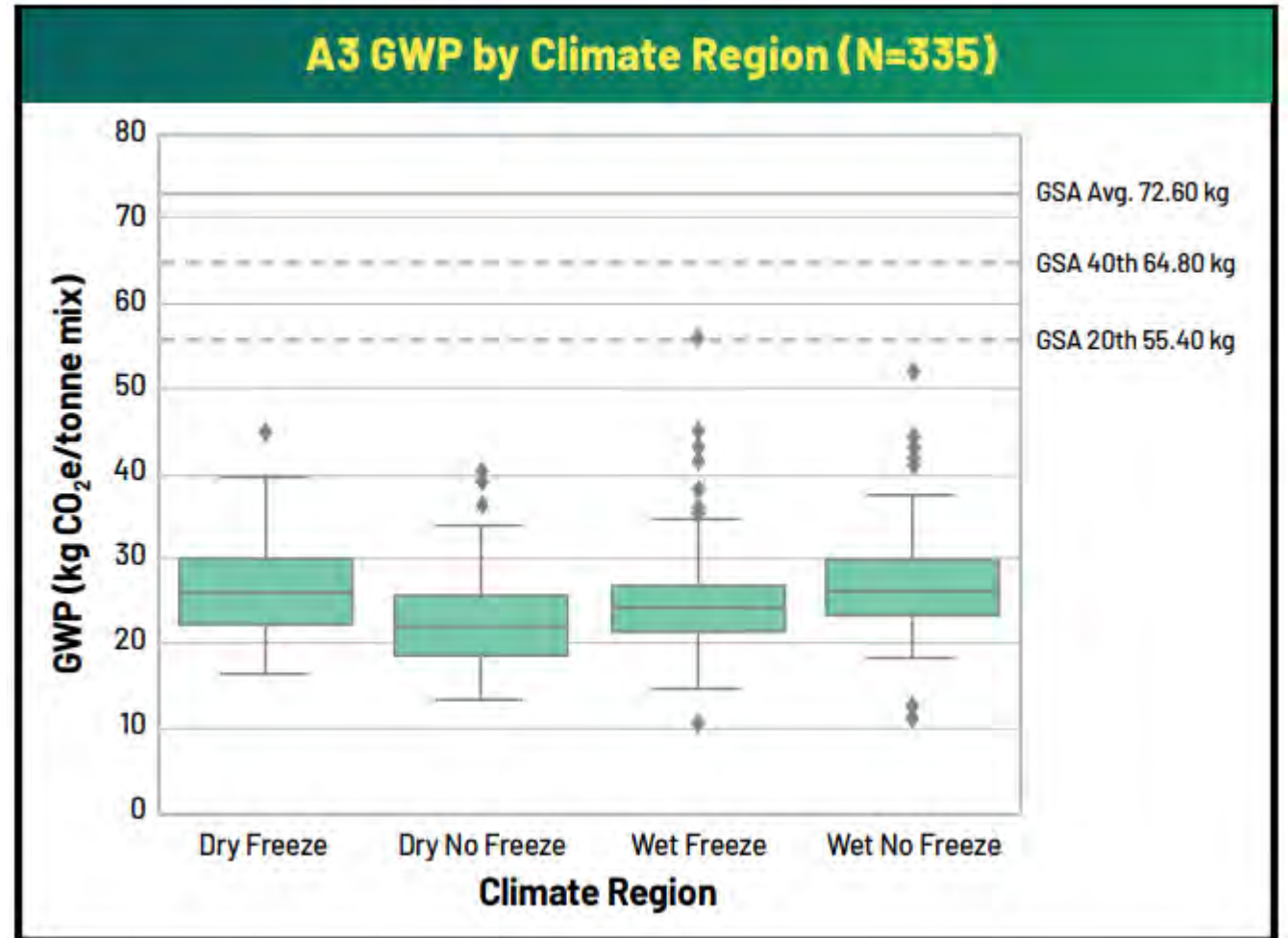


# A3: Impact of Climate Region on GWP



## 4 Climate Regions

- Wet Freeze
- Wet No-Freeze
- Dry Freeze
- Dry No-Freeze



# Pennsylvania Benchmarking Example

# Pennsylvania Example



- A1 – Mix Type: 9.5 mm Superpave mix with RAP
- A2 – Transportation Region: National Average (excluding FL and LA)
- A3 – Climate Region: Wet Freeze

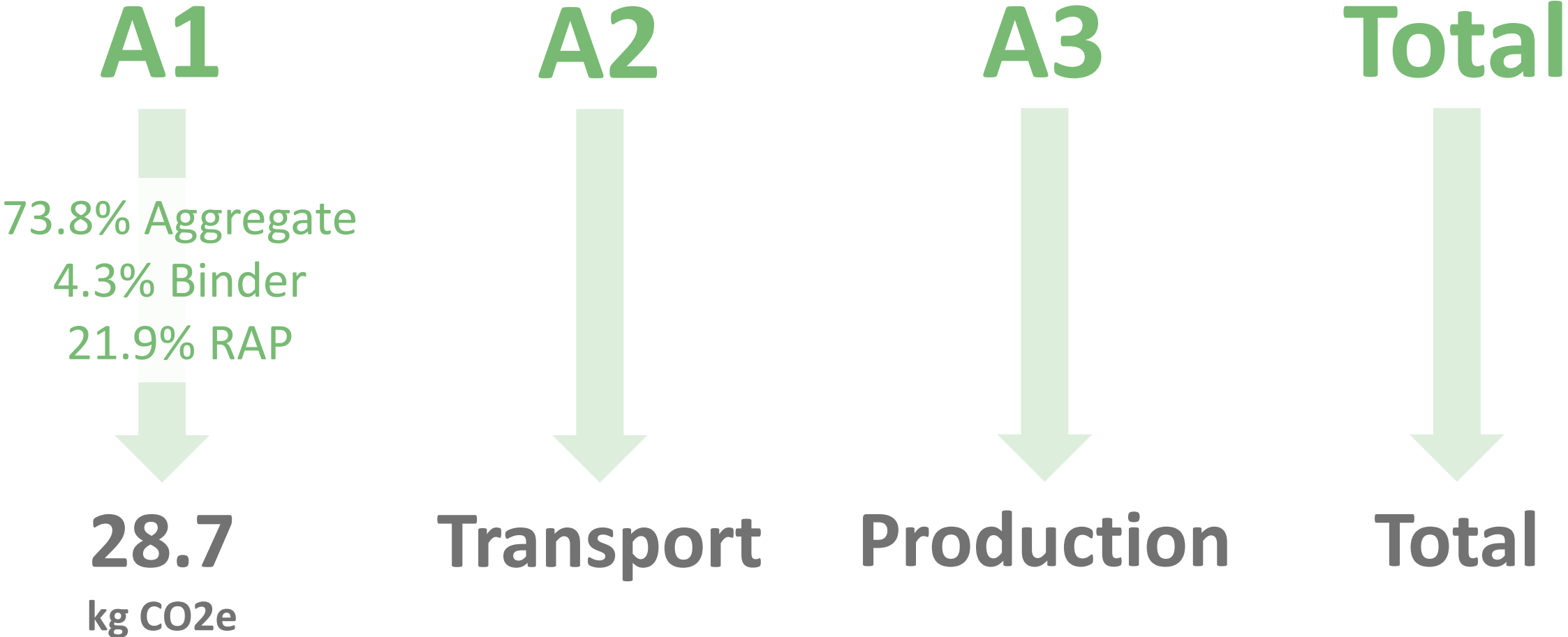
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Virgin	94.5	5.5	0	0	0	36.57
With RAP	73.83	4.3	0	0	21.87	28.74
With Lime	93.5	5.5	0	1	0	50.44
With Lime, RAP	72.83	4.3	0	1	21.87	42.61
With 3.5% SBS	94.5	0	5.5	0	0	43.56
With SBS, RAP	73.83	0	4.3	0	21.87	34.21
With 3.5% SBS, Lime	93.5	0	5.5	1	0	57.43
With SBS, Lime, RAP	72.83	0	4.3	1	21.87	48.07

# 9.5mm Superpave: Pennsylvania Example

Standard Mix with RAP



## A2: Impact of *Aggregate Transport* on GWP

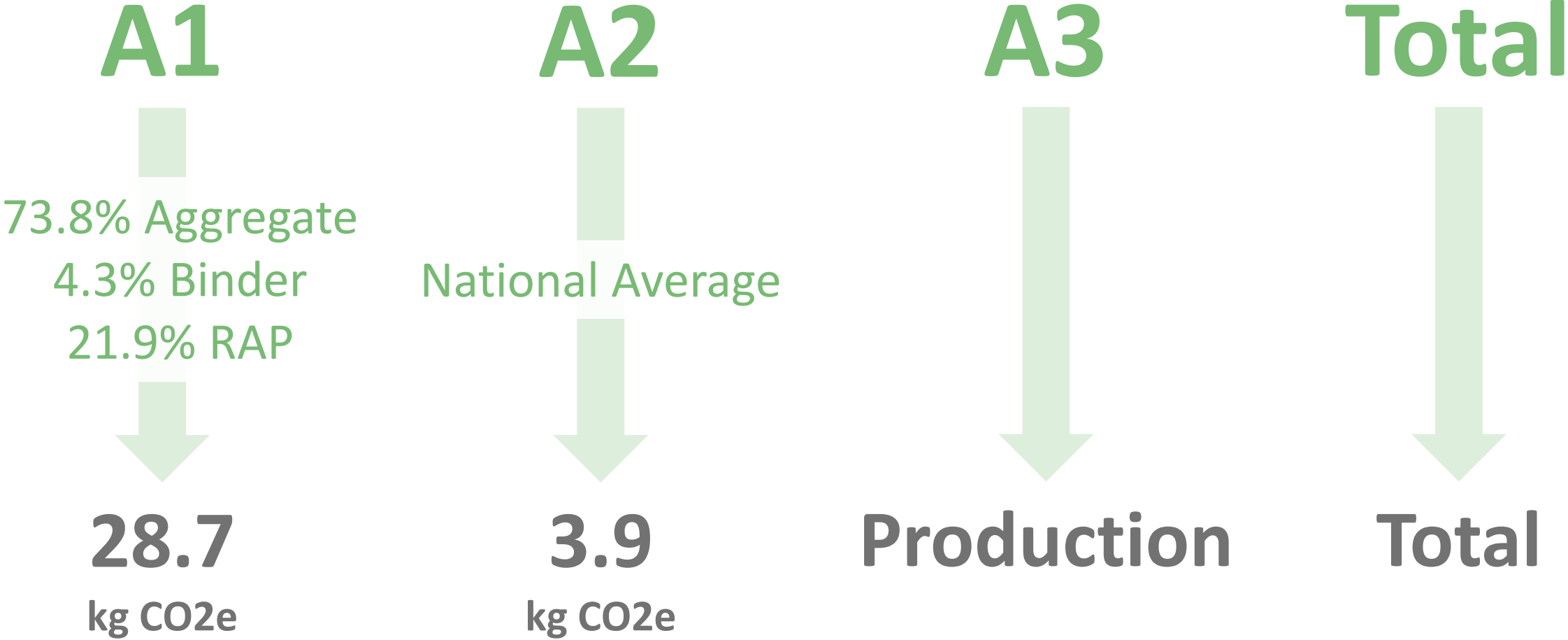
Some states have different benchmarks

A2 by State	Florida kg CO2 e/tonne (kg CO2 e/shtn)	Louisiana kg CO2 e/tonne (kg CO2 e/shtn)	All Others kg CO2 e/tonne (kg CO2 e/shtn)
20%	3.3 (3.0)	15.7 (14.2)	0.21 (0.18)
40%	18.7 (17.0)	24.0 (21.8)	1.4 (1.2)
50%	36.9 (33.5)	28.7 (26.0)	2.5 (2.2)
Average	41.3 (37.5)	28.9 (26.2)	3.9 (3.5)



# 9.5mm Superpave: Pennsylvania Example

Standard Mix with RAP, US Average A2



# Objective 2: Phase-by-phase Benchmarking

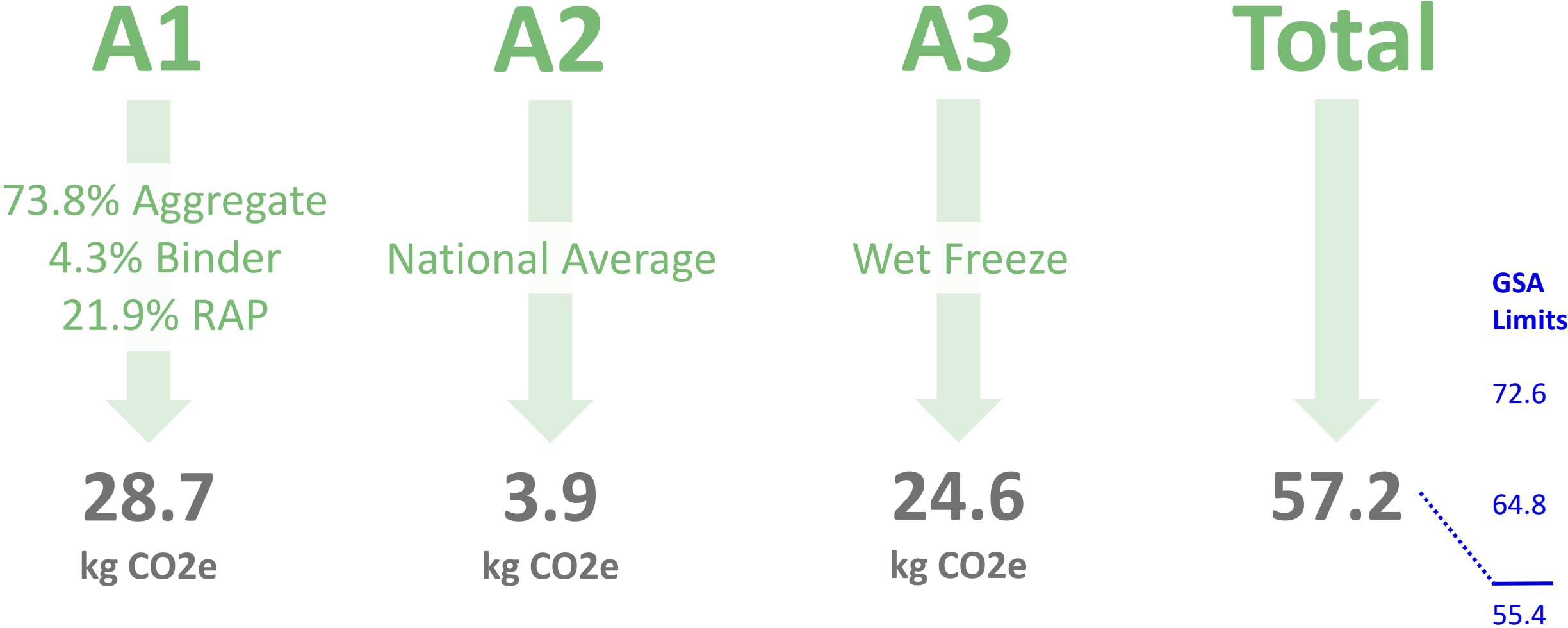
A3: Impact of *Climate* on GWP

Benchmarks differ by climate region

A3 by AASHTO Region	Wet No freeze kg CO2e/tonne (kg CO2e/shtn)	Wet Freeze kg CO2e/tonne (kg CO2e/shtn)	Dry No freeze kg CO2e/tonne (kg CO2e/shtn)	Dry Freeze kg CO2e/tonne (kg CO2e/shtn)
20%	23.2 (21.0)	20.9 (19.0)	17.5 (15.9)	21.9 (19.9)
40%	25.4 (23.0)	22.8 (20.6)	20.0 (18.1)	23.6 (21.4)
50%	26.1 (23.7)	23.6 (21.4)	21.8 (19.8)	25.8 (23.4)
Average	27.5 (25.0)	24.6 (22.3)	23.0 (20.8)	27.1 (24.6)

# 9.5mm Superpave: Pennsylvania Example

Standard Mix with RAP, US Average A2, Wet Freeze Average A3



# 9.5mm Superpave: Pennsylvania Example

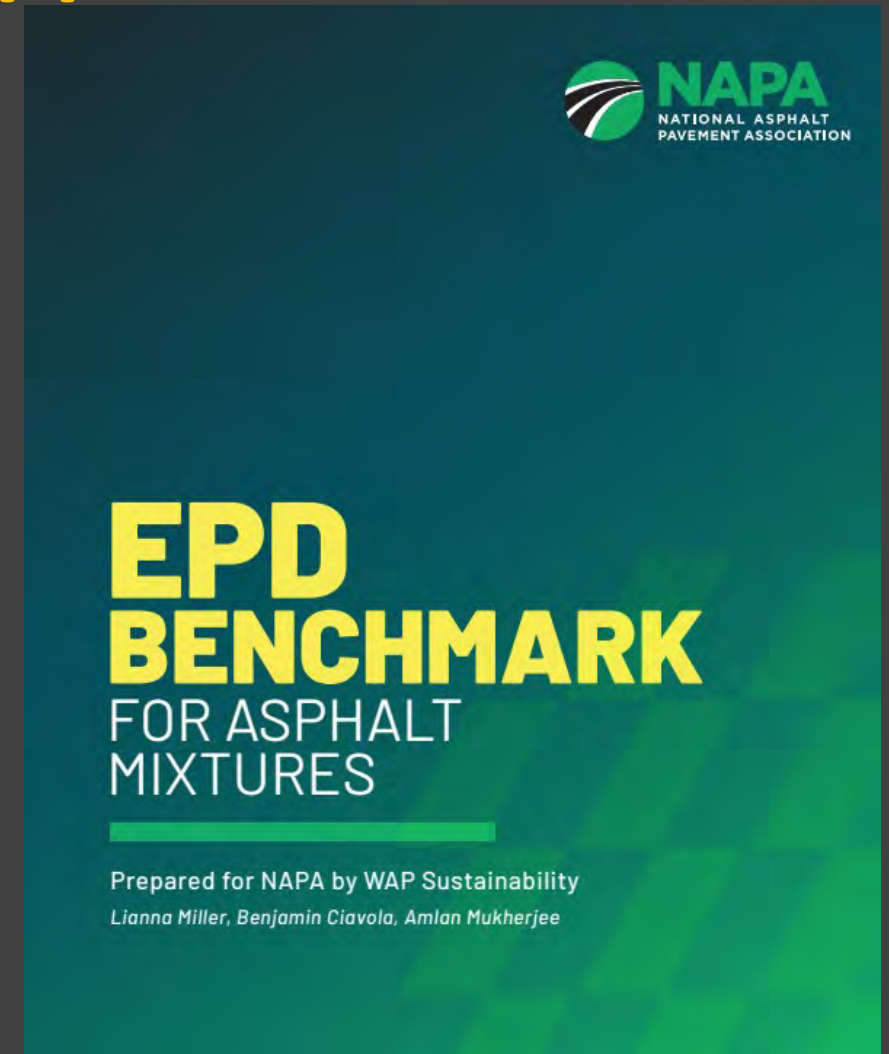
Standard Mix with RAP, US Average A2, Wet Freeze Average A3

[all values in kg CO2 e. / tonne]	A1 (Baseline Mix)	A2 (National Benchmark)	A3 (Wet Freeze)	A1-A3 Total (Proposed Method)	Current A1-A3 GSA Thresholds
20%	28.7	0.2	20.9	<b>49.8</b>	55.4
40%		1.4	22.8	<b>52.9</b>	64.8
50%		2.5	23.6	<b>54.8</b>	x
Average		3.9	24.6	<b>57.2</b>	72.6

- For this mix type in PA, benchmarks are much lower than GSA’s thresholds

# Another (better) Approach

- Compile approved mix designs for past 2-3 years
- Determine A1 and A2 values for each mix
- Evaluate regional variability for each mix type
- Develop a table of mix-type specific, region-specific A1 and A2 averages
- **Could be funded by FHWA LCTM grant**



# Resources to Help Reduce Emissions



# The Road Forward

A Vision for Net Zero Carbon Emissions  
for the Asphalt Pavement Industry

Learn more at  
[asphaltpavement.org/climate](https://asphaltpavement.org/climate)



**Vision:** Sustainable communities and commerce, connected by net zero carbon emission asphalt pavements

**Mission:** Engage, educate, and empower the U.S. asphalt community to produce and construct net zero carbon emission asphalt pavements

# NAPA Publications

<https://www.asphaltpavement.org/climate/research-best-practices>

## Production Strategies

**QIP 132**

Applying QIP-126 & QIP-127:

### Production Strategies for Saving Money and Reducing Emissions

TJ Young, T2ASCO LLC

**NAPA** **The Road Forward**

## Prioritizing RAP

**NAPA**  
NATIONAL ASPHALT PAVEMENT ASSOCIATION

### PRIORITIZING RAP SAVES ROAD OWNERS MONEY, REDUCES EMISSIONS, AND IMPROVES PERFORMANCE

How to capture the highest value from infrastructure investments

**Introduction**  
Reclaimed asphalt pavement (RAP) is a valuable material sourced from processing the milling or the removal of asphalt pavements. By detailing the economic, environmental, and performance advantages of RAP, this paper illustrates both the importance of giving priority to RAP utilization in new asphalt mixture production and why using RAP in aggregate replacement and shoulder construction provides a lower return on investment to the road owner.

**Cost-Efficiency through Aggregate and Asphalt Binder Replacement**  
The incorporation of RAP in asphalt mixture production yields substantial cost savings. The aggregate and asphalt binder within RAP can efficiently replace virgin materials, resulting in reduced financial and environmental burdens associated with acquiring these natural resources.

Compared side by side, the savings achieved using one ton of RAP in a common asphalt surface mixture against the use of RAP as shoulder gravel are overwhelming.

**Table 1. Costs of Virgin Materials (NAPA)**

Material	% of Market	Cost/Ton
		2021
Asphalt Binder	Unmodified	\$490.85
	Modified	\$614.01
	Weighted Average*	\$519.45
Aggregate	Crushed Stone	\$11.79
	Sand and Gravel	\$8.88
	Weighted Average	\$11.51

\*The asphalt binder weighted average calculation takes into account that 37 states provide unmodified binder/index pricing, while only 5 states provide both modified and unmodified binder pricing.

The comparisons demonstrate how impactful capturing the asphalt binder replacement value of RAP is when utilized in the production of asphalt mix. As shown in Table 2, road owners save three times more by using RAP in mix (valued at a cost equivalent to replacing both virgin aggregate and virgin asphalt binder in a new asphalt mixture) compared to using it as aggregate alone.

**Table 2. Cost Savings of One Ton of RAP, Based on Use (Williams et al, 2023)**

Material	% Agg.	% AC	Aggregate Cost Savings, \$/Ton	Asphalt Binder Cost Savings, \$/Ton	Total Cost Savings, \$/Ton
RAP in Asphalt Mix	95	5	\$10.83	\$25.97	\$36.80
RAP in Aggregate	100	0	\$11.79	\$0	\$11.79

## Inform Decisions

**OPERATIONAL TIPS: THE ROAD FORWARD TO LOWER EMISSIONS AND HIGHER PROFITS**

### USING EPDS TO INFORM DECISIONS AND MODERNIZE OPERATIONS

**A Commitment to Sustainability**  
An affiliate of an NYC-based heavy civil infrastructure contractor, Green Asphalt LLC located in Long Island City, New York was envisioned in 2009 as an asphalt producer committed to making and constructing 100% recycled asphalt pavement mixtures.

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In 2015, New York State approved Green Asphalt's R-000, making Green Asphalt **THE FIRST RECYCLED ASPHALT PLANT IN THE STATE.**

In fact, the team had never produced a ton of mix but wanted to prove that the reuse of construction materials was possible. Knowing that they needed to develop, prove, and sell the vision to road owners, they began by building a plant with old parts. Working in conjunction with the City Department of Design and Construction, they began by placing temporary asphalt, then moved on to get a 100 percent reclaimed asphalt pavement (RAP) mix design approved. Finally, in 2015, New York state approved Green Asphalt's R-000, the first recycled asphalt plant in the state. To this day, despite the ability to run conventional asphalt mixtures, Green Asphalt runs high RAP with the minimum amount of RAP used set to 50 percent.

**Quantifying Our Impacts**  
Emerald Eco-Label, NAPA's verified Environmental Product Declaration (EPD) tool, makes it easy to quantify the environmental impact of an asphalt mix. Created by industry professionals and stakeholders and evaluated by sustainability experts, the Emerald Eco-Label EPD tool was developed in conformance with ISO 14025, ISO 21930, and the Product Category Rules (PCR) for Asphalt Mixtures. These standards establish the principles and procedures for developing a Type III environmental declaration program and prescribe specific rules for asphalt mixture EPDs.

## Whole Life Cycle

**THE CARBON FOOTPRINT OF ASPHALT PAVEMENTS**

A REFERENCE DOCUMENT FOR DECARBONIZATION

Joseph Shacat  
Richard Willis, Ph.D.  
Ben Ciavola, Ph.D.

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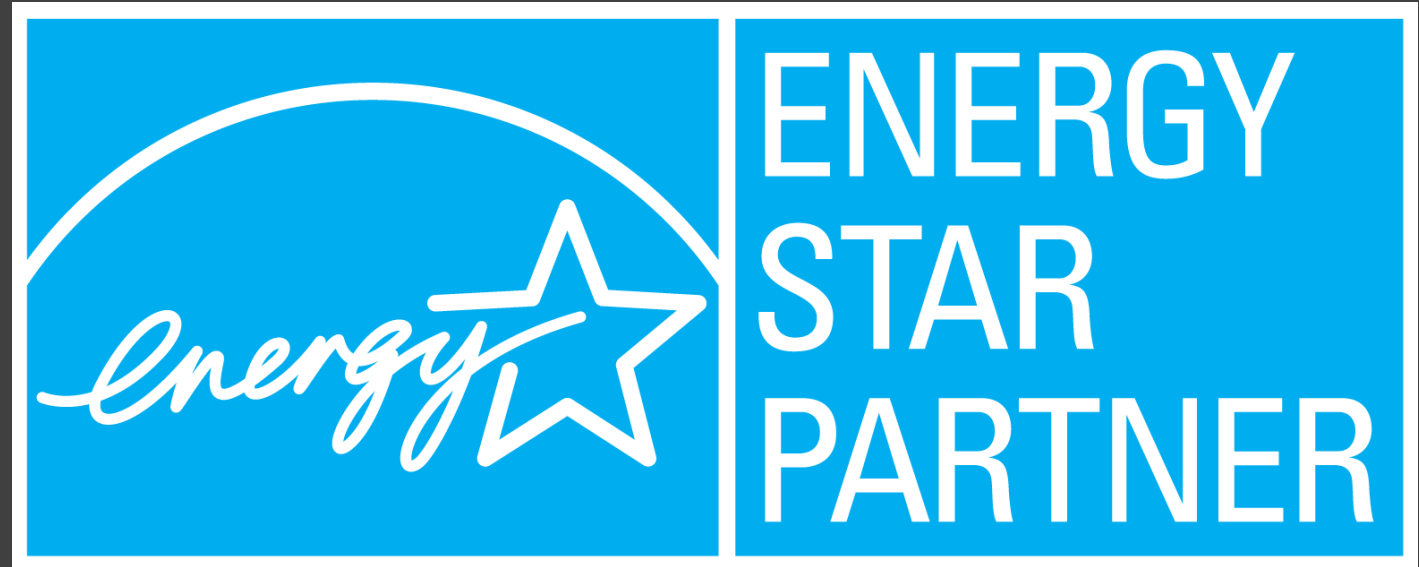
**SIP-109** March 2024



# THE ROAD FORWARD PARTNERS



# Asphalt Plant Energy Performance Peer Exchange (APEX)



- Partner with U.S. EPA
- Market and promote your company's partnership
- Learn best practices to manage energy
- Get assistance from an experienced industrial energy advisor

<https://www.asphaltpavement.org/expertise/sustainability/tools/energy-star-apex-program>



- 2-day Workshop
- Chattanooga, TN

<https://www.asphaltpavement.org/programs/napa-events/energy-star-workshop>

# MAXIMIZING PROFITABILITY WITH ENERGY MANAGEMENT:

A WORKSHOP ON ASPHALT MIX PLANT ENERGY EFFICIENCY



June 25–26, 2024

## Gold Club (50+ Years)

- Genco-Sellers/Gencor
- Volvo Construction Equipment
- Warden Asphalt Co.
- York Building Products Co. Inc.

## 30-Plus Club

- American Asphalt Paving Co.
- Infern-O-Therm Corp.
- Joseph McCormick Construction Co. Inc.
- Meeker Equipment Co. Inc.
- Riverside Materials Inc.
- Russell Standard
- Walter R. Earle Corp.

## Members

- Abatech, Inc.
- ABE Materials - Easton
- Allan Myers
- Allegheny Asphalt Manufacturing Inc.
- Architectural Stone
- Bechtelsville Asphalt
- Berks Products Corp.
- Bishop Brothers Construction
- Bituminous Paving Materials of York, Inc.
- Blaw Knox
- Calvin C. Cole, Inc.
- CertainTeed by Saint-Gobain
- Charlestown Paving & Exc., Inc.
- Compliance Management International
- Conneaut Lake Asphalt Plant
- Coopersburg Materials
- Cumi Ameriaca Inc.
- Donegal Construction Corp.
- Dunbar Asphalt Products
- Dunmore Materials
- Eckley Asphalt
- Erie Asphalt Plant
- FORTA
- Glenn O. Hawbaker Inc.
- Golden Eagle Construction Co.
- Grannas Bros. Stone & Asphalt Co. Inc.
- H&K Group
- H&K Materials
- Harsco Environmental
- Heidelberg Materials East

## Members

- Heidelberg Materials Northeast Adamsburg
- Heidelberg Materials Northeast Glen Mills
- Heidelberg Materials Northeast Lake Ariel
- Heidelberg Materials Northeast Latrobe
- Heidelberg Materials Northeast Penns Park
- Heidelberg Materials Northeast Springfield Pike
- Heidelberg Materials Northeast Stroudsburg
- Heidelberg Materials Northeast Washington
- Hillsville Asphalt Plant
- Homer city Asphalt Plant
- HRI Inc. – East Region Muncy
- HRI Inc. – West Region Johnstown
- HRI Inc. Corporate Office State College
- IA Construction Corp Franklin Region
- Keystone Lime
- Koppel Asphalt Plant
- Leeward Asphalt LLC
- Liberty Tire Recycling LLC
- Lindy Paving Inc.
- Locust Ridge Quarry
- McMinn’s Asphalt Co. Inc., a CRH Co.
- Midland Asphalt Materials Inc. Clearfield
- Miller Materials LLC
- Multitherm LLC
- Nationwide Mechanical, LLC
- Neville Island Asphalt Plant
- New Kensington Asphalt Plant
- Northeast Paving, a Div. of Eurovia Atlantic Coast
- Partatherm a division of Lubrizol
- Pennsy Supply
- Pennsy Supply Inc., Central Region A CRH Co.
- Pennsy Supply North Region, A CRH Co.
- Peter J. Caruso & Sons
- Pikes Creek Asphalt & Crushed Stone
- Pine Test Equipment, Inc.
- Pottstown Trap Rock – Sanatoga Quarry/Asphalt
- Quaker Sales Corp.
- Schlouch Inc.
- Second Avenue Asphalt Plant
- Silver Hill Quarry
- South Reading Blacktop
- Sterrettania Asphalt Plant
- Superior Tire & Rubber Corp.



# Pennsylvania

## Members

- Trumbull Corporation
- United Employment Associates LLC
- Wheatland Asphalt Plant
- Wheelertown Asphalt Plant
- Wilkes-Barre Materials LLC
- Windsor Service
- Zelienople Asphalt Plant

## State Advisor

Owen McCormick, Joseph McCormick Construction Co.