

VIRGINIA: WHY ASPHALT WINS!

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A Few Fun Facts on Virginia's Highway Network

- In 1632, The House of Burgesses passed the first highway bill in the US
- The first paved road was the Manchester Pike near Richmond in 1808; gravel was used as the surface
- VDOT was established in 1906
- Third Largest State Maintained Roadway Network in the US
- 99+% of the Stabilized Pavement Surfaces are an Asphalt Material
- Longest Interstate Route is I-81 (325 miles)
- Longest US Route is US 58 (508 miles)

Asphalt

Perspective: Virginia and Texas

Virginia

- Population – 8.9m (12th)
- Area – 42,774 sq. mi. (35th)



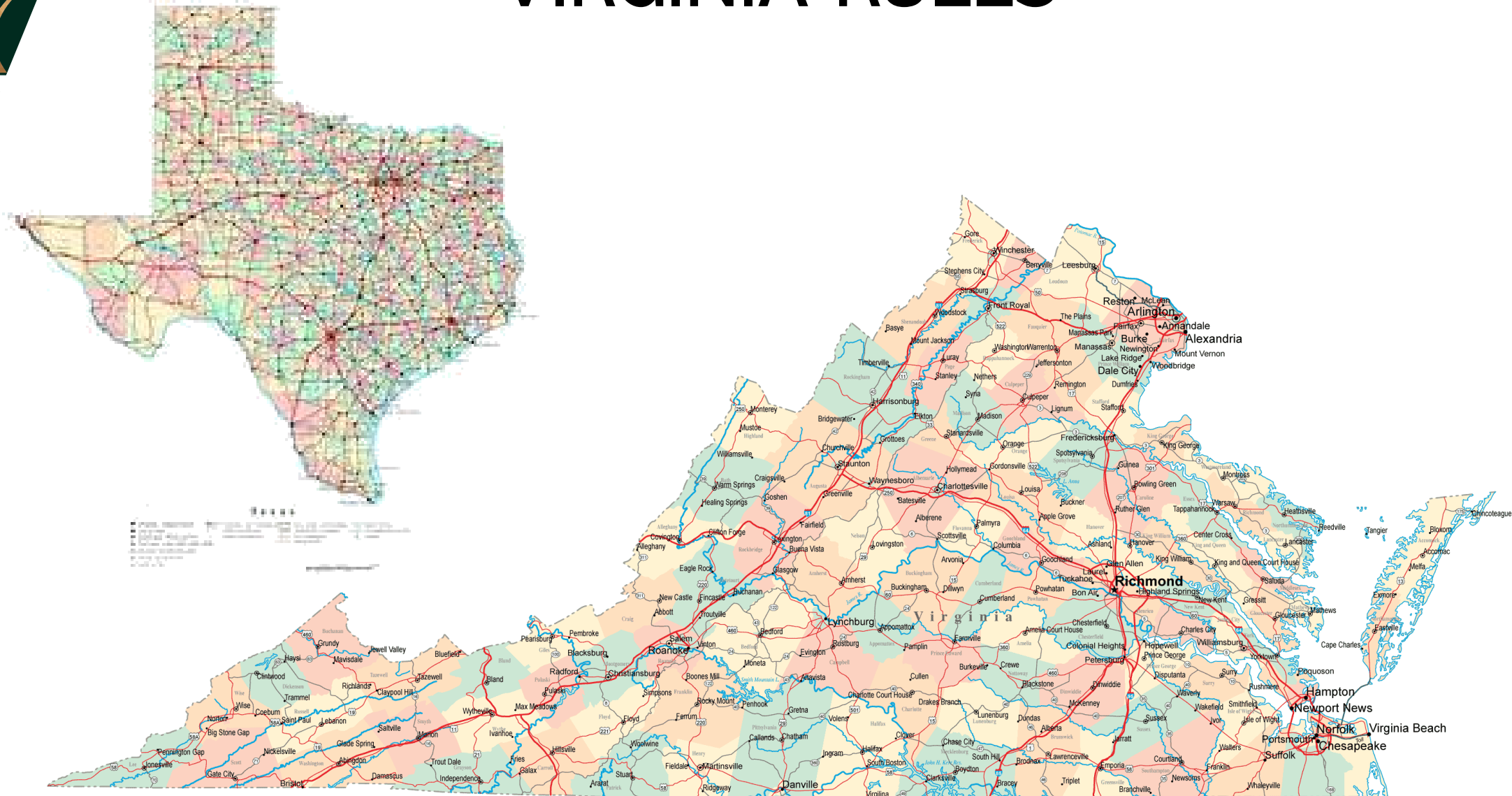
Texas

- Population – 30.5m (2nd)
- Area – 268,596 sq. mi. (2nd)





VIRGINIA RULES



Asphalt



Mission and Core Functions



VAA'S MISSION

To promote the increased use and quality of asphalt pavement in Virginia.

VAA'S VISION



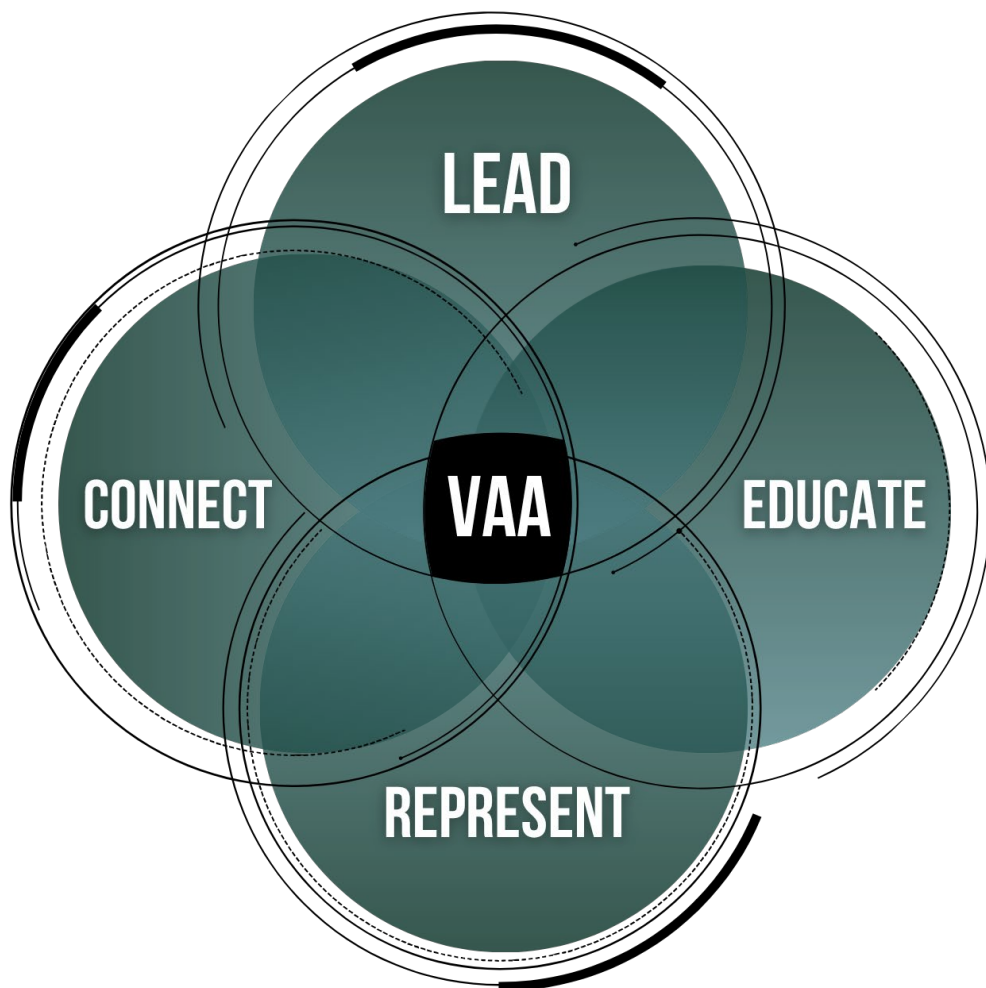
Be a united voice for the asphalt industry resulting in the betterment of society.





WHAT DOES VAA DO?

Four Strategic Pillars



LEAD

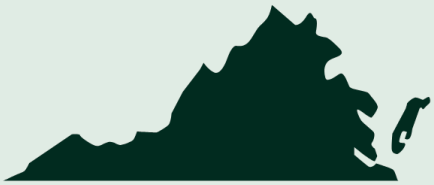
CONNECT

EDUCATE

REPRESENT



Today's Topics



VIRGINIA'S NETWORK

Interstates

Primaries

Secondaries



CONTRACTING

DBB

DB

PPP



WHY ASPHALT WINS

(Wait till the End)





Virginia's Highway Network (Directional Miles)

1960

Interstates – 154 (25 PCC, 62 AC)
Primaries – 7,926 (377 PCC, 3,410 AC)
Secondaries – 41,823

1980

Interstates – 1,019 (287 PCC, 717 AC)
Primaries – 7,895 (218 PCC, 6,997 AC)
Secondaries – 43,851

2000

Interstates – 1,117 (213 PCC, 905 AC)
Primaries – 8,012 (174 PCC, 7,741 AC)
Secondaries – 47,247

2024

Interstates – 1,119 (40 PCC, 1,080 AC)
Primaries – 8,045 (54 PCC, 7,956 AC)
Secondaries – 50,195





Major Interstate Projects (2000 – 2010)



I-495/95 (DC BELTWAY)

Original pavement was concrete

Overlaid with asphalt

Addition of HOT Lanes

I-95 (DC TO FREDERICKSBURG)

Original pavement was concrete

Overlaid with asphalt

Addition of HOT Lanes

I-64 (TIDEWATER)

Original pavement was concrete

Reconstructed with CRCP and JPCP



Major Interstate Projects (Since 2010)



I-81

Original pavement was asphalt

Rehab and reconstruct with asphalt

Added capacity within existing ROW

I-95 FREDEX (FREDERICKSBURG)

Original pavement was concrete

Overlaid with asphalt

Addition of Collector/Distributor Lanes

I-64 (RICHMOND TO HAMPTON)

Original pavement was concrete except a few miles

Overlaid with asphalt

Reconstructed with asphalt

Asphalt



But Is There Any Traffic?

- I-66 Fairfax County: 63,000 ADT and 5% Trucks
- I-95 Fairfax County: 108,000 ADT and 10% Trucks
- I-495 Fairfax County: 82,000 ADT and 10% Trucks
- I-81 Roanoke County: 28,000 ADT and 28% Trucks
- I-64 York and James City Counties: 39,500 ADT and 5%-9% Trucks
- I-64 Henrico County: 41,000 ADT and 12% Trucks



Contracting Practices



DESIGN-BID-BUILD

- Most common contracting mechanism
- VDOT determines pavement type/design
- LCCA may be used

DESIGN-BUILD

- Used for larger and complicated projects
- VDOT provides minimum pavement structure(s)
- GC selects pavement design

PUBLIC-PRIVATE PARTNERSHIP

- Used on major contracts
- VDOT provides minimum pavement structure(s)
- Concessionaire Team selects pavement design

Asphalt



Contract Outcomes Since 2000



DESIGN-BID-BUILD

- PCC: 4 Projects (2 Interstate, 2 Primary)
- AC: Everything else

DESIGN-BUILD

- PCC: 0
- AC: Everything

PUBLIC-PRIVATE PARTNERSHIP

- PCC: 0
- AC: Everything



Cost



Speed



Performance

Why Asphalt Wins



Pavement Costs



DESIGN-BID-BUILD

- Asphalt is lowest initial cost
- AC and PCC thicknesses are comparable
- Except in special circumstances, alternate pavement structures not bid

DESIGN-BUILD

- Lowest initial cost, included in overall bid with technical score
- Multiple pavement alternatives
- Allows alternative materials (CCPRM, FDR, etc.)

PUBLIC-PRIVATE PARTNERSHIP

- Lowest asset cost over concession period
- Multiple pavement alternatives
- Included with overall bid and technical score



Other Cost Considerations



RAP

Used in nearly all mixes

Percentages range from 15%-35%

CCPRM

85% - 100% plus virgin binder

Laid in 6" – 8" lifts

Excellent performance since 2011

COMPETITION

Multiple bidders on DBB, DB, and PPP projects

Several asphalt producers as potential subs

Concrete is not competitive





Why Asphalt Wins



Speed of Construction



- **FIX DATE CONTRACTS**
- **SEQUENCE OF CONSTRUCTION**
- **MAINTENANCE OF TRAFFIC**

Speed of Construction





Cost



Speed



Performance

Why Asphalt Wins

Asphalt

Pavement Performance: Hoped For vs. Actual

Hoped For



Actual



Pavement Performance: Hoped For vs. Actual

Hoped For



Actual



Pavement Performance: Hoped For vs. Actual

Hoped For



Actual





Summary

- Virginia is in an interstate capacity and reconstruction mode
- Traffic volumes and truck percentages are increasing
- Since 2000, **only 2** interstate projects have gone concrete
- DB and PPP projects have all been asphalt
- Asphalt is less expensive initially and long-term
- Asphalt is more “flexible” for capacity expansion projects
- Asphalt has continued to perform





Three Quotes to Remember:

“Those who fail to learn from the past are doomed to repeat it.” –
Philosopher George Santayana (*The Life of Reason*)

“Do not build what you cannot maintain.” – Farmer and Former FHWA
Project Engineer Nelson Clark

“Do not design what you cannot construct.” – anonymous







Thank You