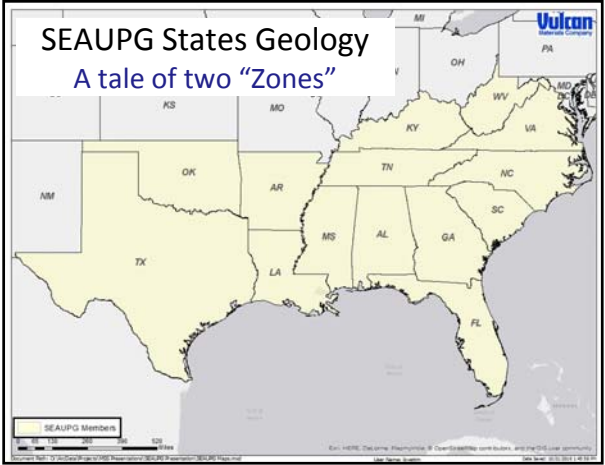


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Current State of Aggregate Supply to SEAUPG States

Harry H Bush
Vulcan Materials
November 16th, 2016



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SO, why is it called the Aggregate "Fall Line"

- It's not because Rock "Falls" down hill
– (Even though it does)
- It's because water does.....

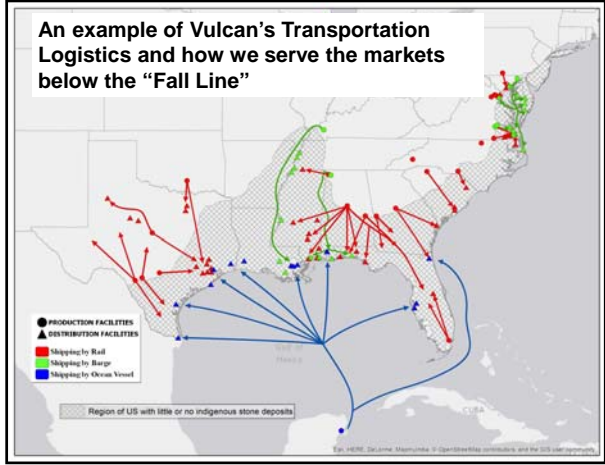
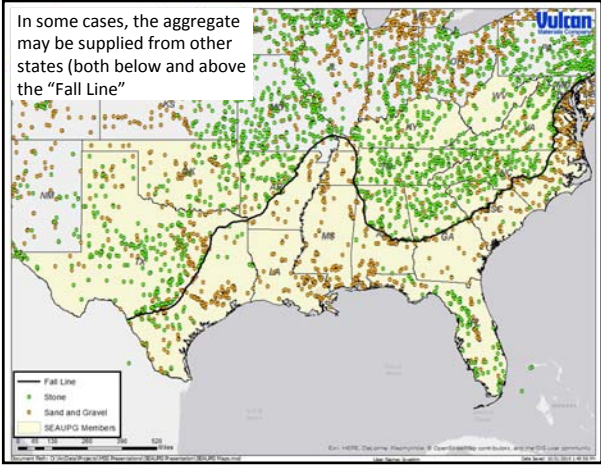
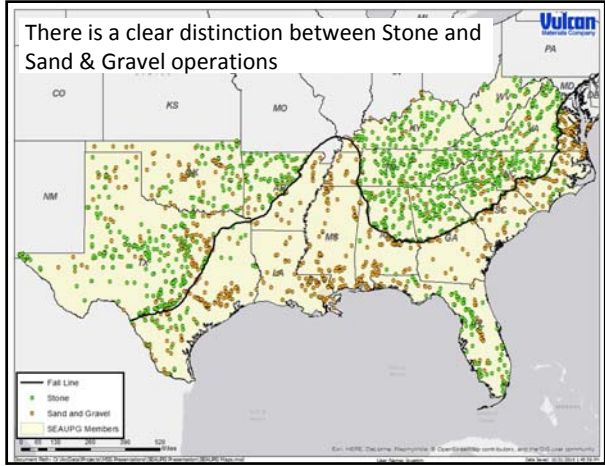
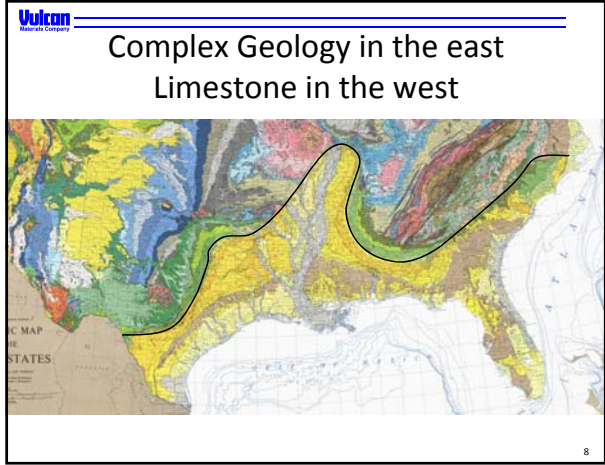
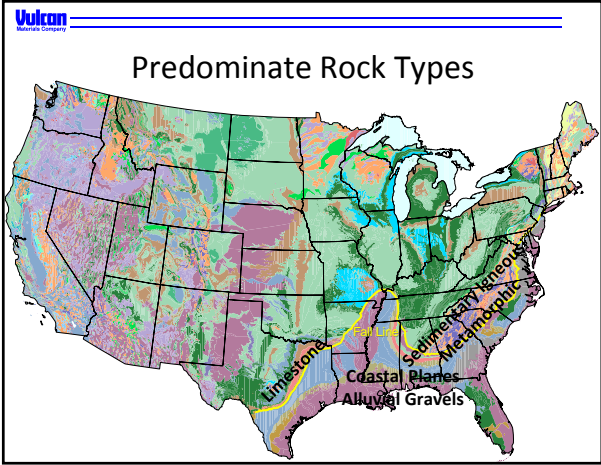
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Fur Traders used the rivers for Transportation

The elevation drop caused a Waterfall problem in rivers and streams...

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Texas Waterfall



Transportation Investment is High

Ship Cost - \$60,000,000+ Shipyard Cost - \$15,000,000+




Transportation Investment is High

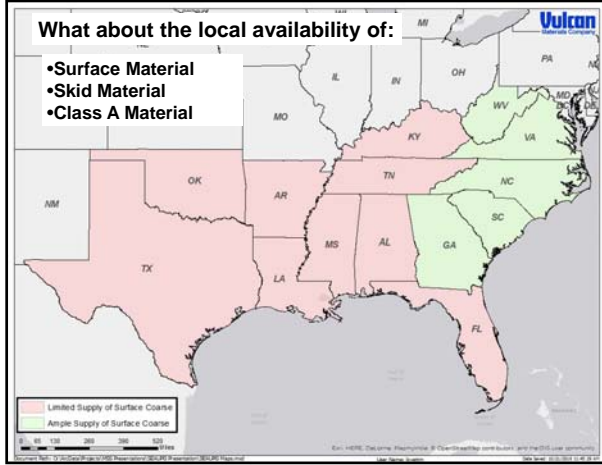
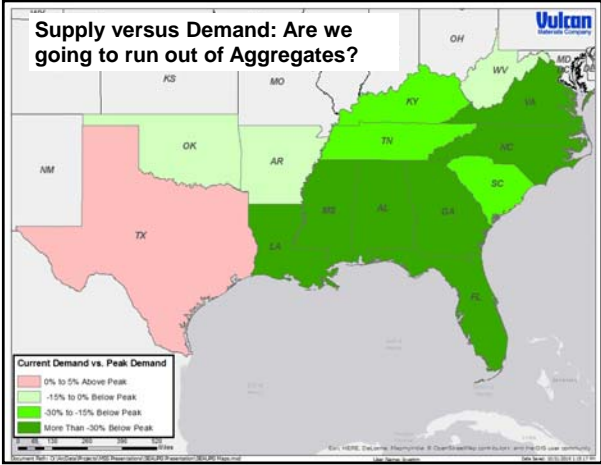
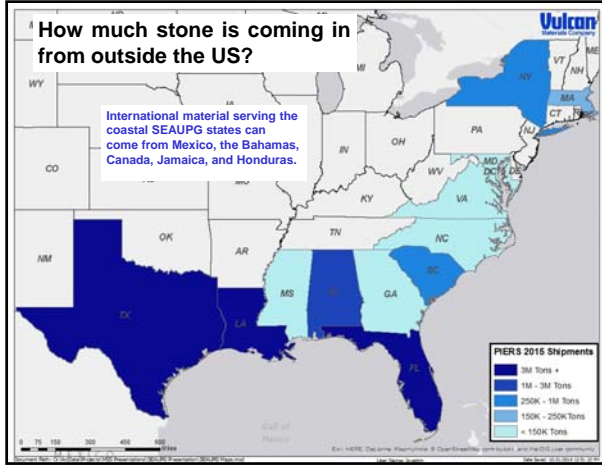
Rail Distribution Networks




Transportation Investment is High

Barge Distribution Networks





What Products might be Short

Rip Rap	Surge Stone	Base Stone
ASTM No. 57	TxDOT Gr 4 No. 78 & 89	Manufactured Sand
Screenings	Aglime	Natural Sand

Things to consider regarding the specifying of aggregates...

- Local availability of geology type (Class A / High Skid)
- High demand of one size causes an unbalanced quarry production
 - Increase waste
 - Increase cost
 - Reduce availability

A Troubling Trend - Taste for Steak

If everybody wants steak, then do you have to throw away the rest of the cow?

Aggregate Producers Serve Several Customer Groups

- Asphalt Plants
- Ready-Mix Concrete Plants
- Paving Contractors
- **What happens when everybody wants steak?**
- Commercial Building Contractors
- Government
- Agriculture

In many cases are using the products

Strategic Outlook for Aggregates
"The more times you crush it – the more it costs."

Typical Aggregate Plant

Cows don't just produce steak – you have to make some hamburger, brisket, roast, tongue, liver, heart...

22%	33%	25%	20%
¾" Base	1" x ½"	½" x #4	-#4
Base	Large	Small	Screenings

Strategic Outlook for Aggregates
"The more times you crush it – the more it costs."

Plant production slowed 50%

Typical Aggregate Plant

22%	6%	42%	30%
¾" Base	1" x ½"	½" x #4	-#4
Base	Large	Premium Aggregates Small	Mfg. Sand & Screenings

Recrush 1" x ½"

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Eating just Steak

(demand for one size aggregate)

- **Additional operating costs** for longer or additional shifts
- **Less product available for other customers**
- Demand for more clean stone that requires the plant to run **“out of balance”**
- **Less base & screenings used** – causing more product that can’t be sold

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SO... What is short and why? Or is it?

- High Skid Rock or (Class A)- is a special geology and not always in the right place
 - Many locations- it’s available but at a higher cost
- High demand for one size rock (1/2” to No.4)
 - Buying only steak drives up the cost

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What is the aggregate mining industry doing about it?

- Adding capacity at existing facilities
- Adding re-crush circuit to produce more ½”
- Adding new quarries (very expensive!)
- Adding transportation networks (very expensive!)


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What can the DOT’s do about it?

- Specify mixes requiring different sizes... (not likely)
- Give the industry an advanced estimate of product types and sizes required for coming statewide planning, as early as possible.

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Lets have a BLAST !!



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Lets have a BLAST !!

- <https://youtu.be/eHwo02KaJtU>

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