



City of Urbana

Sustainability Advisory Commission Public Meeting

April 6, 2021

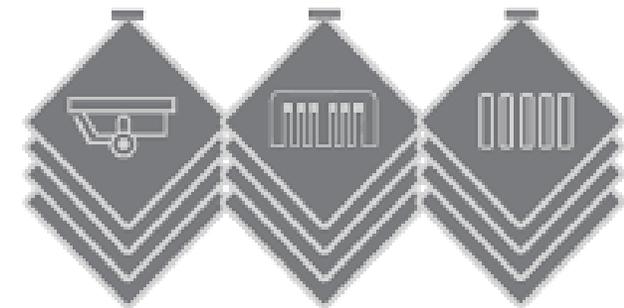
Introductions of the Asphalt-Materials, Inc Team

- ▶ Tony Kriech, Retired Director of The Heritage Research Group
- ▶ Rick Beyers, Vice President of Emulsicoat, Urbana IL
- ▶ Sarah Clark, Environmental Compliance Manager, AMI
- ▶ Keith Toombs, Safety Manager, AMI
- ▶ Linda Osborn, Director of Analytical Research, The Research Heritage Research Group
- ▶ Rebekah Shaw, Industrial Hygienist / Lab Chemist, The Heritage Research Group
- ▶ Chris McGee, Executive Vice President, AMI

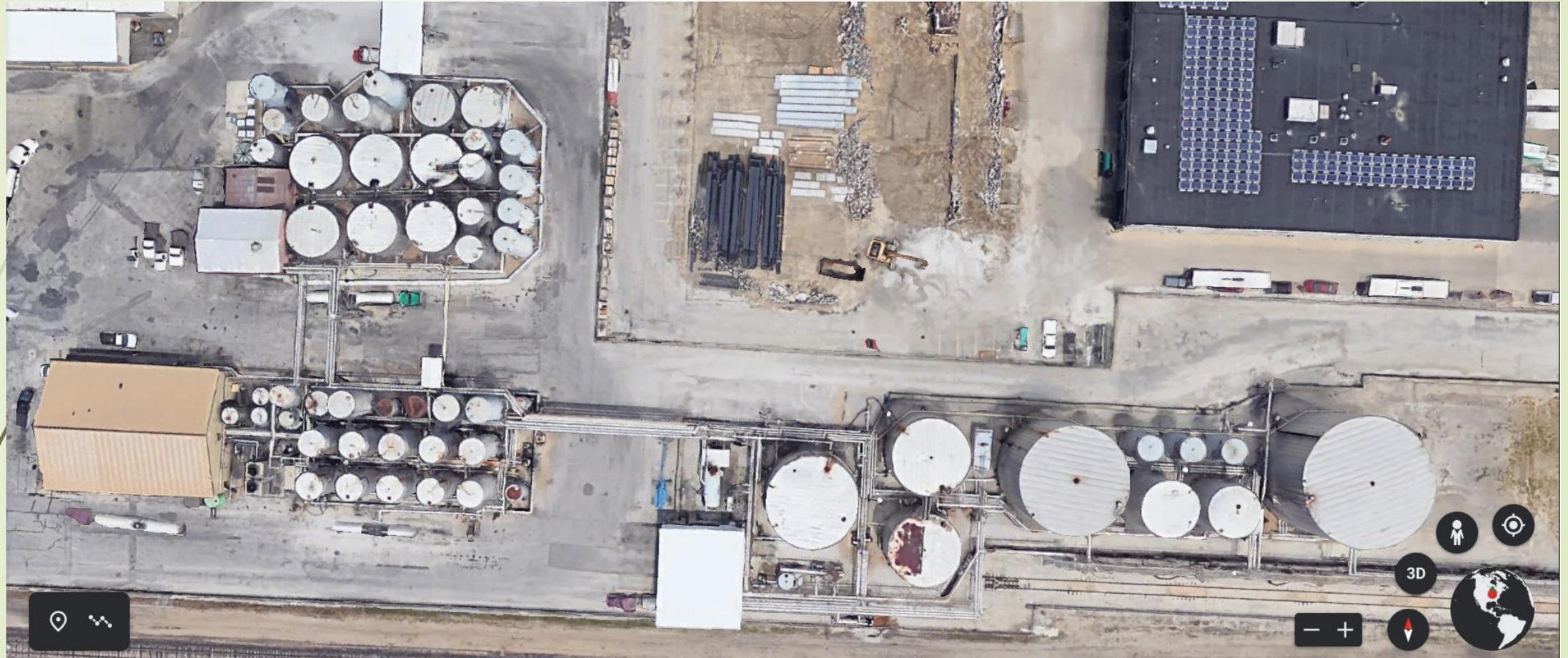


Asphalt Materials, Inc.

EMULSICOAT, INC.



705 E University Ave, Urbana, IL



Current Operations

- ▶ Operations start with various grades of base asphalt binder
 - ▶ Asphalt Binder is delivered hot via truck and occasionally by rail which requires heating to unload.
 - ▶ The asphalt binder and asphalt products are maintained as a liquid by a combination of heating coils, using steam and hot oil which is heated indirectly by natural gas .
- ▶ There are currently 2 families of products
 - ▶ Base asphalt and polymer modified asphalt binder – primarily used in road construction of highways.
 - ▶ Asphalt emulsions – Primarily used in road preservation on low volume county roads.
- ▶ There are 65 storage tanks on site
 - ▶ 29 are used to store asphalt or polymer modified asphalt (both raw material and finished goods).
 - ▶ 19 are used to store asphalt emulsions finished goods.
 - ▶ 17 store other raw materials, fuel oil, pH modifiers, emulsifiers, surfactants, etc..



Tank Inspection

- ▶ The tanks are inspected each month as part of the Spill Prevention, Control and Counter Measure Plan, required and overseen by the EPA
- ▶ Employees visibly monitor the tanks during their daily activities.
 - ▶ Looking for leaks
 - ▶ Equipment conditions
 - ▶ Surrounding condition



Current Operations

Polymer Modified Asphalt (PMA)

- Illinois Department of Transportation (IDOT) specifies polymer modified asphalt (PMA) binders for heavy traffic application on highways.
- Concentrated PMA is received via truck from Cicero, IL and Indianapolis, IN.
- The PMA is diluted with base asphalt binder to achieve the desired IDOT specification for the specific application.

Asphalt Emulsions

- Different asphalts are blended to achieve the specific performance characteristics required for each finished good.
- Water is prepared by adjusting the pH and adding soaps, emulsifiers and other raw materials to achieve the specific performance characteristics required in the product.
- The Water mixture and Asphalt are then processed through a high shear pump to create the emulsion.





Air Emissions

- ▶ Volatile Organic Compounds (VOCs) are reported using the Tanks409d software developed by the EPA for storage tank emissions.
 - ▶ The software does not specify individual VOCs, (as VOCs are a class of criteria pollutant under air permitting regulations).
- ▶ CO₂ emissions are the result of using natural gas to power the steam boiler and hot oil heater. Other than the heating units, the manufacturing process itself does not create CO₂ emissions.
- ▶ A standard emission factor, determined by the EPA, is used to calculate the CO₂ emissions produced from the amount of natural gas consumed.
 - ▶ CO₂ emissions released from our facility are a fraction of the 25,000 tons/year regulatory reporting threshold implemented by the EPA.
- ▶ The detailed calculations submitted with our air permit modification application had a typo on the summary page. The Actual Emissions (tons/yr) table should have been titled Potential Emissions (tons/yr) and the Actual Emissions (tons/mo) table should have been titled Actual Emissions (tons/yr). All the calculations were based on an annual basis, as shown in Tables 1 and 2 of the application cover letter.

Clarification

Appendix A: Emission Calculations Summary of Emissions

Company Name: Emulsicoat, Inc.
Source Address: 705 University Ave, Urbana, Illinois

Potential

Emission Unit ID	Actual Emissions (tons/yr)								Worst Single HAP	
	PM	PM10	PM2.5	SO ₂	NOx	VOC	CO	Total HAPs		
Natural Gas Combustion	0.25	1.01	1.01	0.08	13.23	0.73	11.11	0.25	0.24	Hexane
Fuel Oil Combustion	0.67	0.80	0.71	23.81	6.71	0.11	1.68	2.30E-03	7.04E-04	Selenium
Storage Tanks and Mixing Tanks*	-	-	-	-	-	0.02	-	negl.	negl.	-
Loading Racks	-	-	-	-	-	1.17E-05	-	1.53E-07	9.39E-08	Polycyclic Organic Matter (POM)
Fugitive Connections	-	-	-	-	-	0.36	-	-	-	-
Parts Washer	-	-	-	-	-	0.49	-	-	-	-
Cutting and Grinding	1.31E-02	1.64E-03	1.64E-03	-	-	-	-	-	-	-
Welding	6.88E-06	6.88E-06	6.88E-06	-	-	-	-	7.50E-07	negl.	-
Total PTE of Entire Source	0.94	1.81	1.72	23.89	19.93	1.71	12.79	0.25	0.24	Hexane

tons/yr

Emission Unit ID	Actual Emissions (tons/mo)								Worst Single HAP	
	PM	PM10	PM2.5	SO ₂	NOx	VOC	CO	Total HAPs		
Natural Gas Combustion	0.16	0.62	0.62	0.05	8.21	0.45	6.89	0.15	0.15	Hexane
Fuel Oil Combustion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00E+00	0.00E+00	Selenium
Storage Tanks and Mixing Tanks*	-	-	-	-	-	0.00	-	negl.	negl.	-
Loading Racks	-	-	-	-	-	6.27E-06	-	8.15E-08	5.02E-08	Polycyclic Organic Matter (POM)
Fugitive Connections	-	-	-	-	-	0.36	-	-	-	-
Total PTE of Entire Source	0.16	0.62	0.62	0.05	8.21	0.81	6.89	0.15	0.15	Hexane
Total Criteria	16.12									

Notes:

*The Potential Emissions from the storage tanks and mixing tanks have been evaluated using the US EPA TANKS Program (version 4.09) and determined negligible (negl.).



Current Operations

- ▶ This is not a typical chemical process, where the product is purified, and a waste or by-product is produced.
- ▶ 100% of the raw materials used end up in the product and are part of building better roads.
- ▶ The base asphalt is a recyclable resource, so if an off-spec batch is produced, it can be recovered with zero waste from the production process.



Odors

- ▶ There appear to be 3 odors to be discussed.
- ▶ First, some asphalts are more odorous than others. It depends on which oil field it originated from. When heated to a liquid, asphalt binders emit trace volatiles that can be odorous. There can be a sharp odor related to a compound containing sulfur called thiophenes. These compounds tend to remain in the vent space above the hot liquid and only are released when the tank is being filled pushing the vapors out of the tank into the engineered, safety-related, pressure release vents in the top of the tank.
- ▶ Emulsicoat has utilized a control device, called a mist eliminator, for many years to mitigate odors from our tanks. This device has piping connected to the pressure release vents on the tanks, which pulls the displaced air and odors into the mist eliminator.
- ▶ Emulsicoat is currently replacing and upgrading the vent piping to do a better job of collecting and routing those odors to the mist eliminator designed to minimize their impact.
- ▶ We will also be moving some of the production to the Saline Court facility, which will reduce the amount of asphalt moving from tank to tank .



Odors

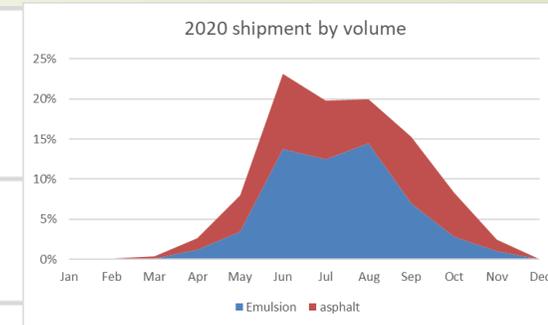
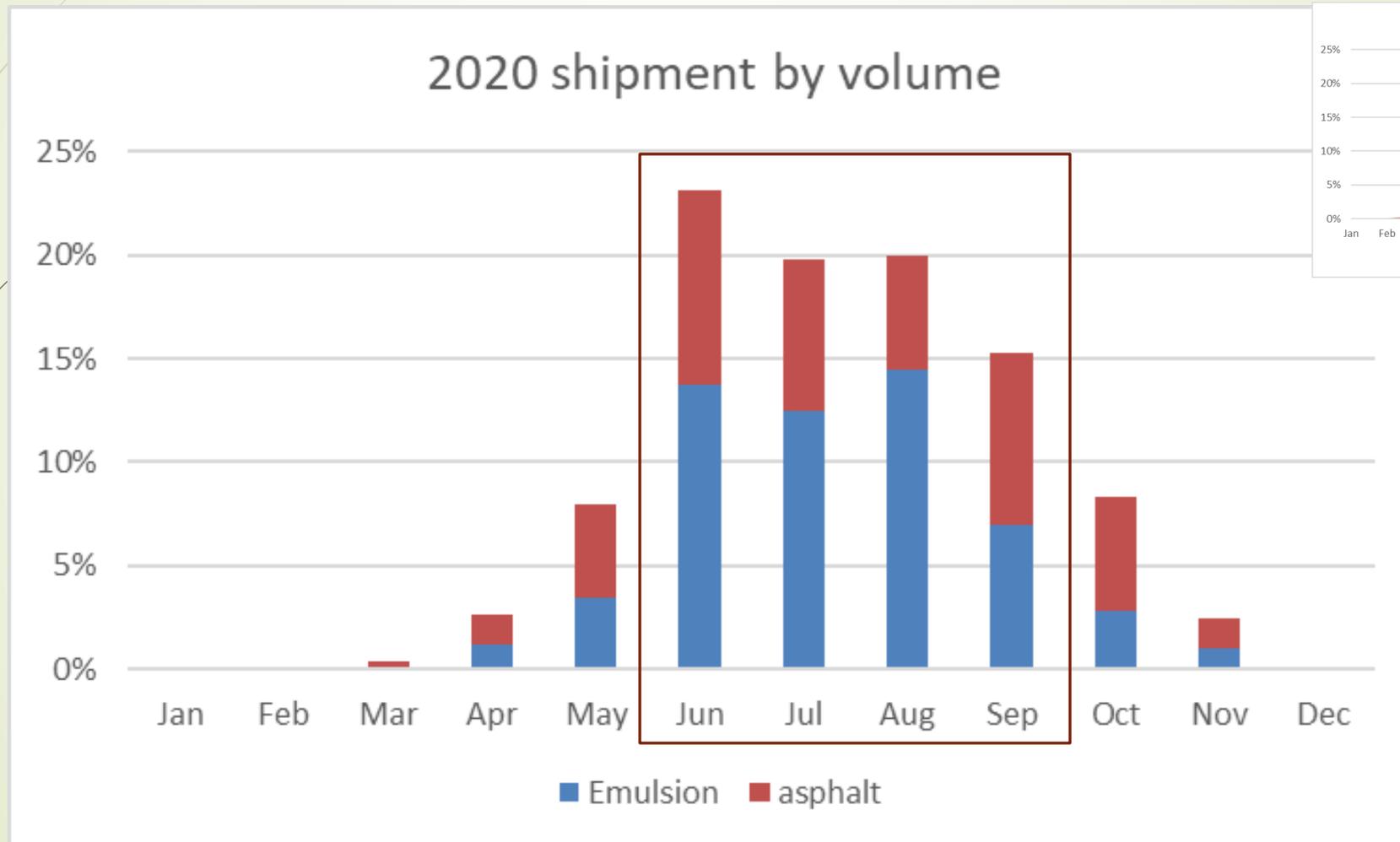
- The second odor appears to be from the end of the season activities.
- At the end of the season, fresh material is added to the first emulsion storage tank to clean it and prepare it for winter. That material is then moved to the second tank to prepare it, and so on and so forth, until all the asphalt emulsion tanks have been cleaned and prepared for the winter leaving the tanks essentially empty until the following season.
- The accumulated flush material is moved to a single tank. The combined cleanings from these tanks are heated to 212 °F to remove the water from the asphalt emulsions and recover the hot asphalt binder, which is stored for the winter and used in future production runs.
- In fall of 2020, the odor appears to be the result of heating emulsifiers (soap) used in making the asphalt emulsions higher than normal resulting in an odor after the water had been removed.
- Emulsicoat is evaluating options to discontinue this activity at University Ave.



Odors

- ▶ This year there have been reports of a natural gas odor.
- ▶ We have had the supplier visit the plant numerous times to identify the source. It does not appear to be natural gas (no leaks were found).
- ▶ This is the first time the plant has observed this odor.
- ▶ We have not observed the odor at any of our other facilities.
- ▶ We have several employees who have worked at other asphalt companies and this is a new odor to them as well.
- ▶ This odor seems to be occurring when the wind is blowing from the north, and may not be from our facility, but passing through our facility. We are committed to trying to determine where this odor is coming from.
- ▶ We are using air sampling equipment in an attempt to capture the odor so that we can identify its chemical fingerprint to pinpoint the source.
 - ▶ After collecting 11 air samples for 4 hours, nothing was detected.
 - ▶ ~24-hour samples have also been collected, nothing was detected.
 - ▶ ~Weeklong samples are currently being collected.

The business is very seasonal
78% of sales volume in 4 months of the year





2020 volumes compared to 2018

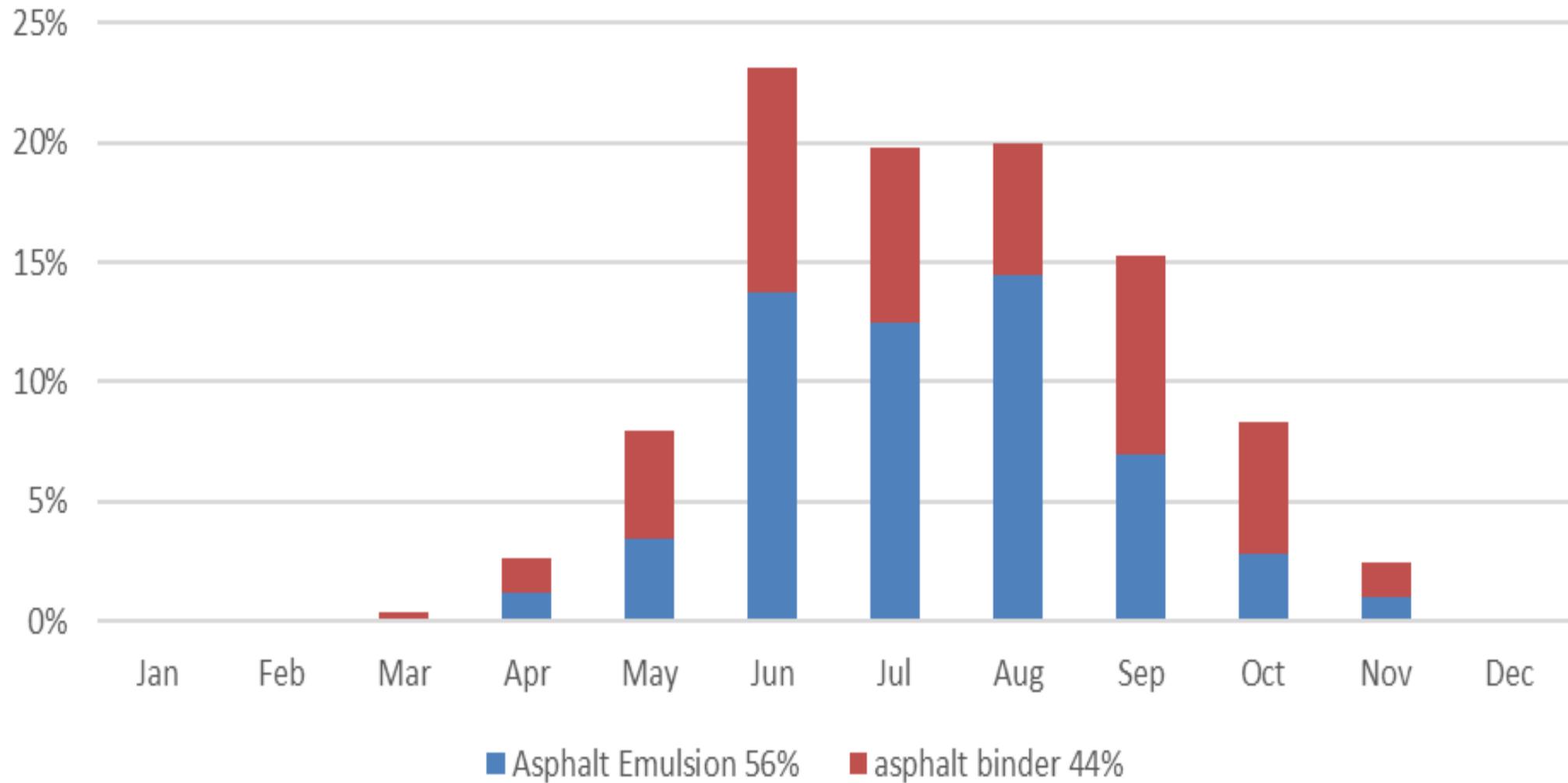
- ▶ Total product moved through the plant was up 59%.
- ▶ Emulsions moved through the plant were up 33%.
- ▶ Asphalt products moved through the plant were up 112%.
- ▶ Covid played a role; less traffic meant it was easier to do the road work so more work was completed.
- ▶ Municipalities and the state are also doing more infrastructure work, increasing the demand for asphalt and PMA.
- ▶ More asphalt moving through the plant creates more opportunity for odors to escape.



Expansion at Saline Court

- ▶ In 2014 / 2015 there was a conversation about the Transit Authority purchasing the University Ave property and Emulsicoat moving all operations to the Saline Court location.
- ▶ That conversation did not lead to a successful agreement and moving the entire plant is not economically feasible for either side.
- ▶ However, we are in the process of expanding our Saline Court capabilities to help deal with the increase in asphalt sales.
- ▶ This will allow us to move the PMA and asphalt binder sales out of University Ave to Saline Court reducing the volumes at University Ave.
- ▶ This transition is on schedule and expected to be complete Summer of 2022.
- ▶ There are no current plans to move the emulsion facility to Saline Court.

2020 shipment by volume



A scenic landscape featuring a winding asphalt road with a double yellow center line and white edge lines. The road curves through a lush green field with scattered trees. In the background, there are rolling hills and mountains under a hazy, overcast sky. The overall mood is peaceful and serene.

Thank you for your time