

Asphalt Concrete Cost Trend: Why Quantity Matters

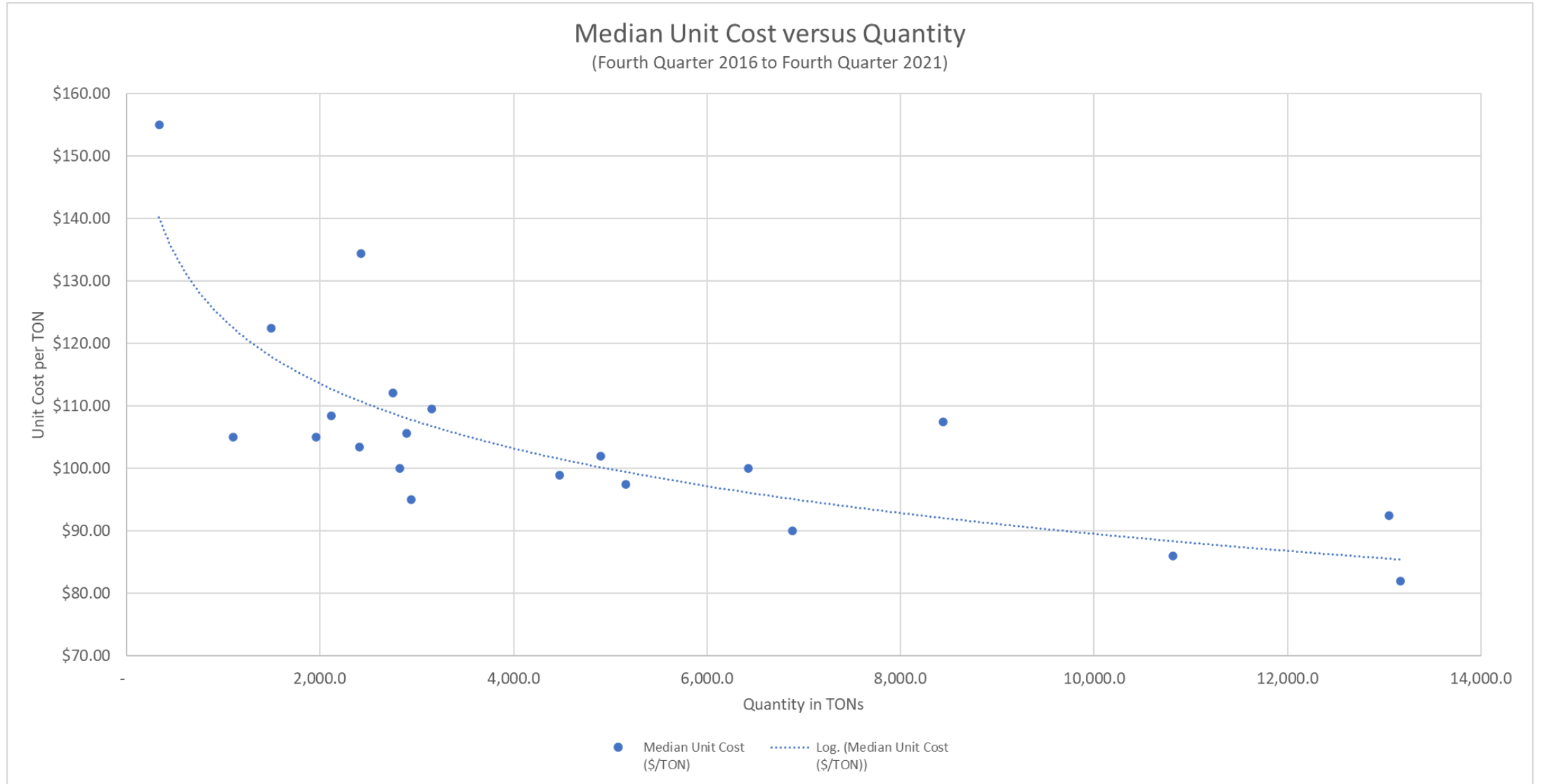
by Charles Nickel

Why Quantity Matters

- When looking at average unit costs, it is important to consider the quantities involved.
- The chart on the right shows the median quantities, unit costs and sample sizes by quarter for Asphalt Concrete.
- The next slide shows the relationship quantity has with the unit cost.

Quarter	Median Quantity (TON)	Median Unit Cost (\$/TON)	Sample Size
2016Q4	338.1	\$155.00	4
2017Q1	13,047.6	\$92.50	6
2017Q2	10,819.2	\$86.00	5
2017Q3	13,171.9	\$82.00	27
2017Q4	2,942.9	\$95.00	29
2018Q1	1,959.1	\$105.09	25
2018Q2	6,881.3	\$90.00	45
2018Q3	2,821.1	\$100.00	28
2018Q4	4,475.3	\$99.00	41
2019Q1	2,115.6	\$108.50	36
2019Q2	2,896.8	\$105.68	42
2019Q3	4,898.1	\$101.98	30
2019Q4	1,494.5	\$122.50	36
2020Q1	3,151.0	\$109.50	30
2020Q2	5,163.5	\$97.50	38
2020Q3	2,409.3	\$103.50	28
2020Q4	1,101.4	\$105.00	26
2021Q1	6,427.4	\$100.00	27
2021Q2	2,752.2	\$112.15	50
2021Q3	8,442.7	\$107.50	30
2021Q4	2,425.9	\$134.50	38

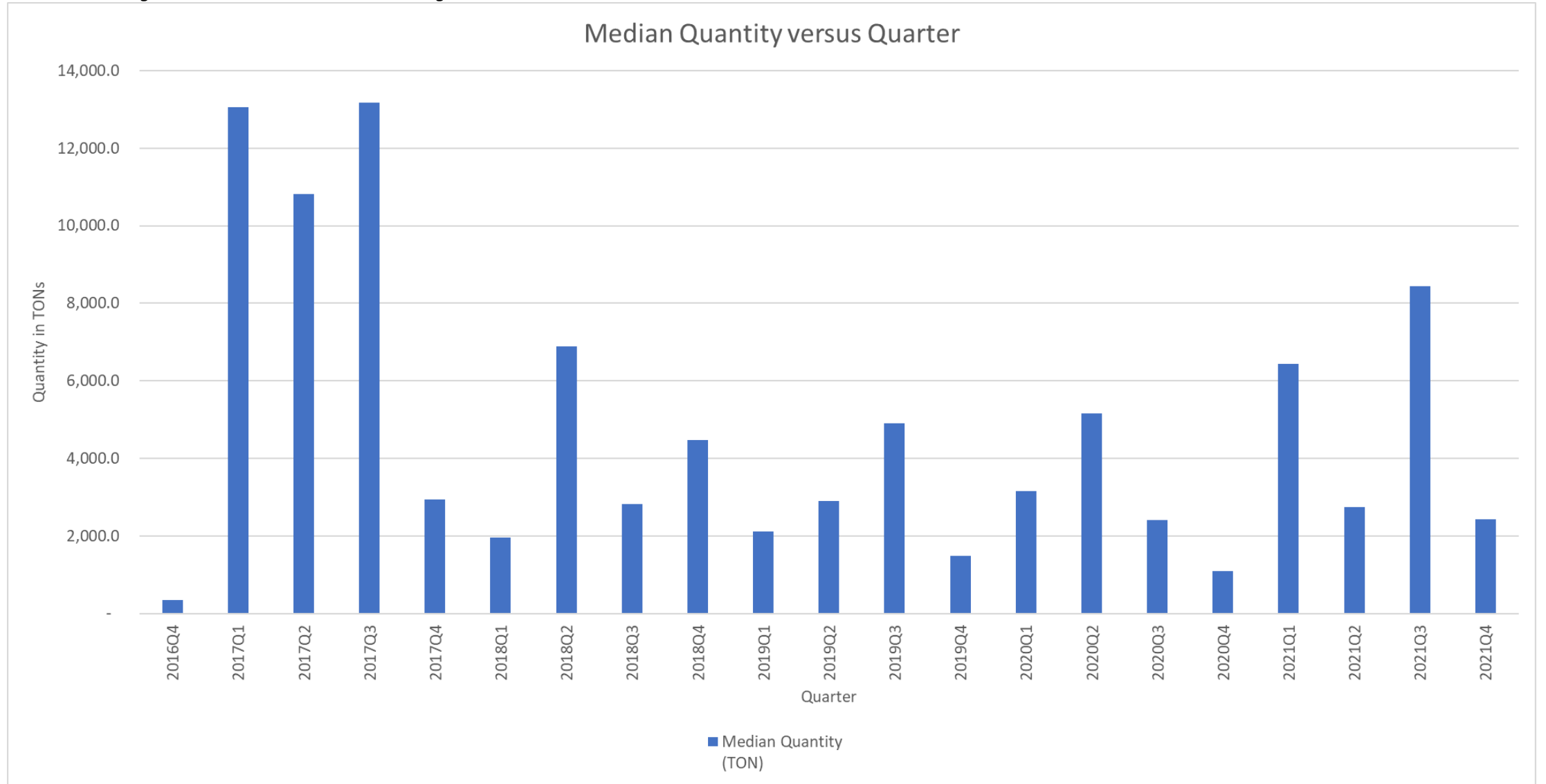
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- The next slide shows how the median quantity can vary from one quarter to the next.

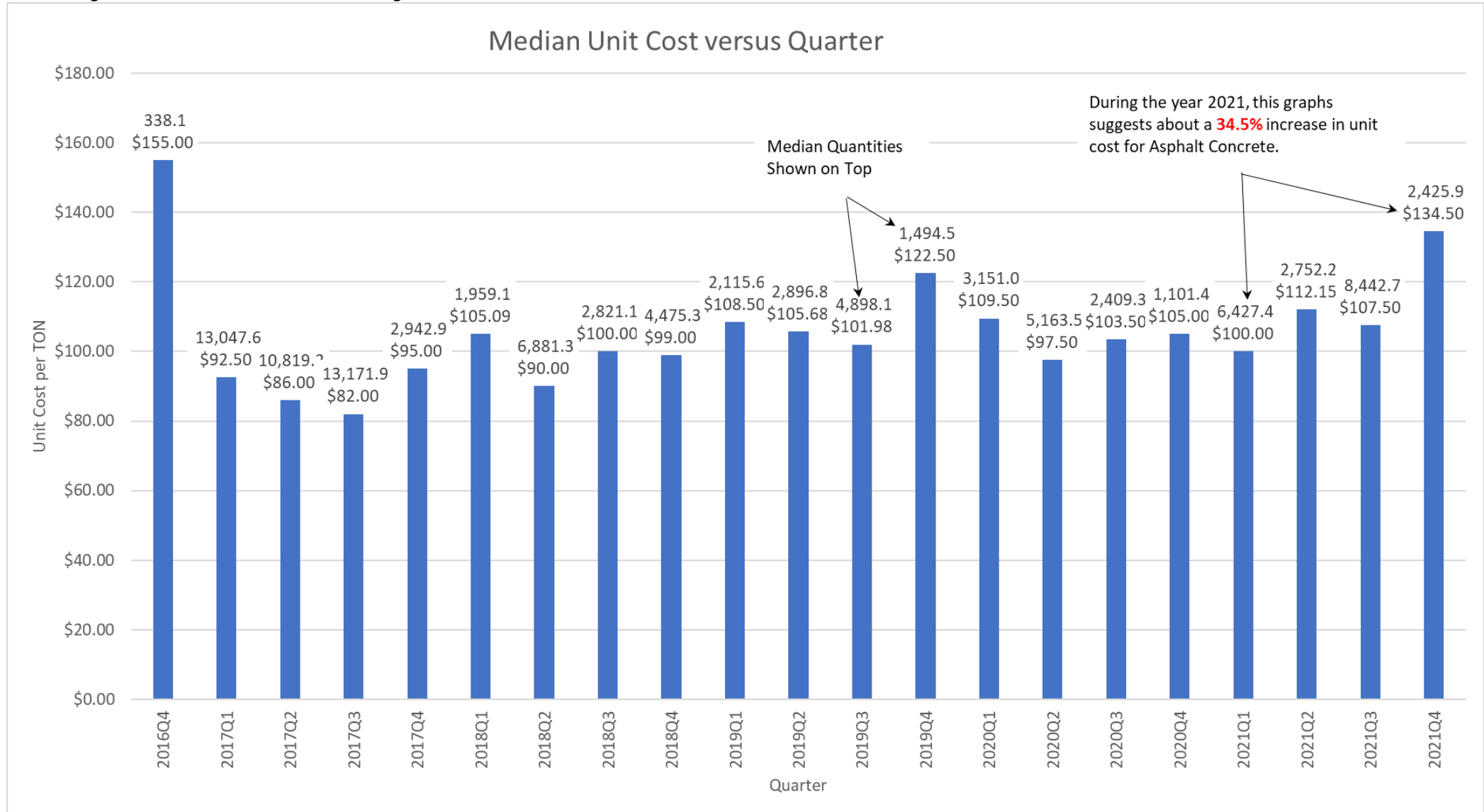
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- The next slide shows how the median unit cost varies from one quarter to the next.
- Notice how the higher median unit costs correlate with the lower median quantities.
- Likewise, the lower median unit costs also correlate with the larger median quantities.

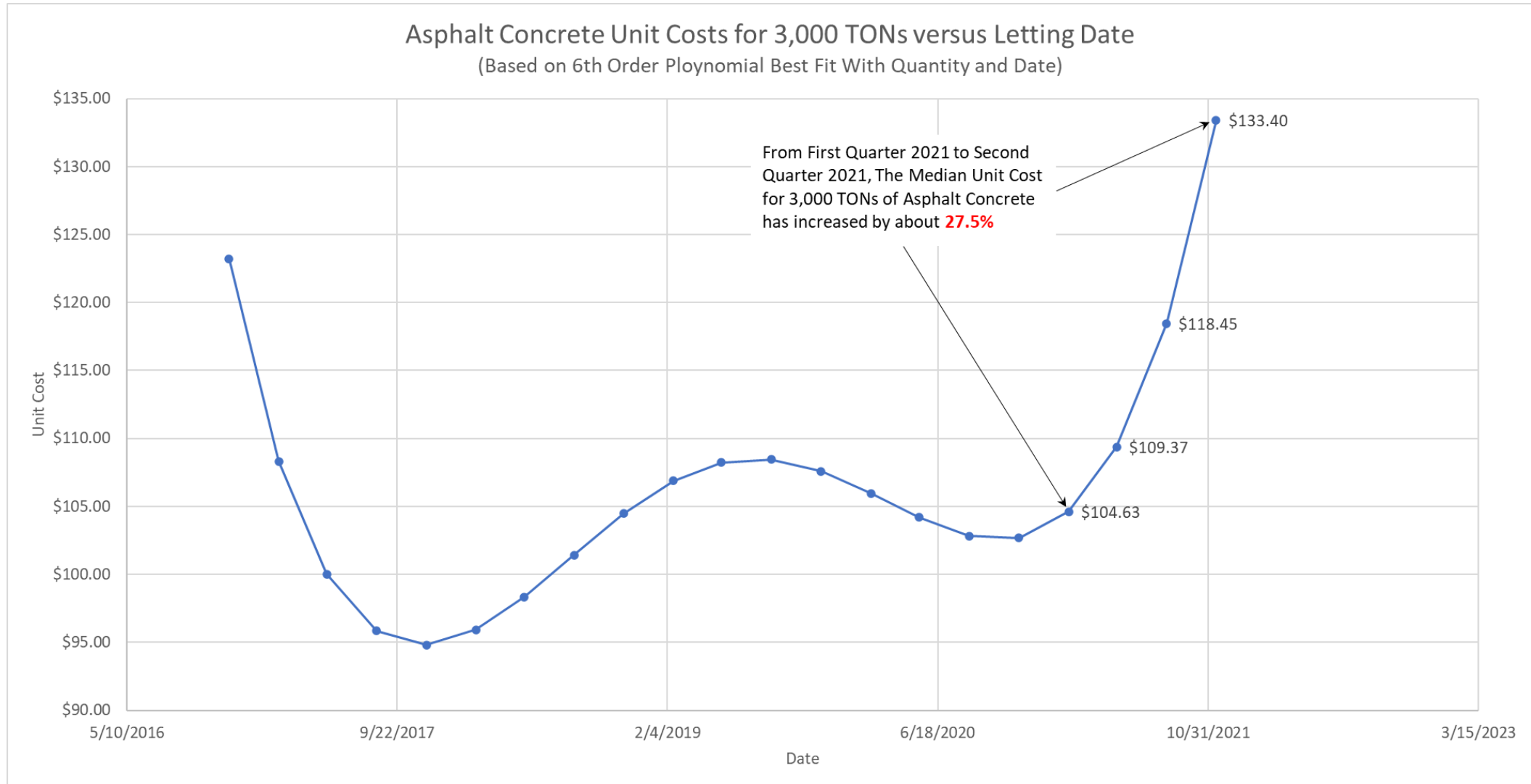
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- The next slide shows a plot of the trend unit cost for Asphalt Concrete.
- The trend is based on a 6th order polynomial regression with time as well as a logarithmic relationship that quantity has with the unit cost.
- With both time and quantity considered, the suggested increase in unit cost for Asphalt Concrete over the year 2021 is more like 27.5% as opposed to the previous slides suggestion of 34.5%.

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- Although a simpler way of dealing with the effects of quantity may be to exclude lower quantity bids, some items don't have bids that can be excluded so that the relationship with quantity doesn't skew their results.
- Other methods exist for taking quantity into account besides what has been shown in this presentation.
- The main “take away” for this presentation is that it can be important to take quantity into consideration.