PHASE 1 SOUTH: AMERICAN LEGION BRIDGE I-270 TO I-370 TOLL RATE RANGE SETTING PROCESS
SOFT RATE CAP VIDEO
AUDIO TRANSCRIPT
MAY 20, 2021

Link to Soft Rate Cap Video: https://vimeo.com/552441203/cc3c81f8a4

SLIDE	VO
1	Hi! And welcome to the Phase 1 South Toll Rate Range Setting Process in-depth look at the soft rate cap. We know the soft rate cap process is new to our customers, so we've prepared a video that will walk you through two examples of how the soft rate cap is determined and applied. In the examples, the soft rate cap is being exceeded based on two criteria: traffic volume ***or*** traffic speed. In both examples, the soft rate cap can be exceeded so that demand on the High-Occupancy Toll or HOT lanes can be appropriately managed and the overall mobility goals of the project can be achieved. Keep in mind that in both examples, toll rates would apply to each tolling segment, *individually*, rather than the project as a whole.
2	As we know, when HOT lanes are near capacity, congestion can develop in the HOT lanes with even small increases in traffic demand. So, allowing the soft rate cap to be exceeded is another way of saying toll rates will be adjusted to help prevent congestion in the HOT lanes. This adjustment is not arbitrary; it is demand-based and triggers when traffic volumes or speeds reach certain levels in the HOT lanes. So, to be specific, during a preceding 5-minute period, the soft rate cap can be exceeded when the traffic volume exceeds 1,600 vehicles per hour, per lane, ***or*** the average speed is below 50 mph.
3	Before we jump into our first example, let's dive into some graphs and get you oriented. First, all traffic volumes have been converted to 2-axle passenger car equivalents. Both graphs here have time on the X axis, in 5-minute intervals. The top graph show HOT lanes average traffic volume, along with the corresponding demand factors, on the Y axis, and the bottom graph has the toll rate per mile on its Y axis. This is where we'll see the soft rate cap fluctuate to meet traffic demands.
	OK, let's first look at an example of toll rates "exceeding" the soft rate cap due to **traffic volume**. We begin by looking at vehicles driving north on a segment of the I-270 HOT lanes towards I-370. Traffic is moving pretty well, and the volume is currently below the 1600 threshold, so the soft rate cap is at $1.50 per mile. Five minutes later, demand for the HOT lane has increased and traffic levels increase to about 1,620. This triggers the demand factor of 1.05. We multiply the current $1.50 per mile rate times the demand factor and get our new rate of $1.58 per mile for this

	segment. Remember, this increase is temporary and will be recalculated to a new rate in the next five minutes. That new rate will be based on demand. This temporary increase in the rate helps ensure the overall mobility goals of the project can be met in the following 5-minute time periods.
4	In our next five minutes of looking at vehicles on a segment of the I-270 HOT lanes, demand and traffic continue to increase even after the toll rates were temporarily increased to $1.58. Traffic increases to about 1,660, corresponding to a demand factor of 1.10. Therefore, the previous revised toll rate cap of $1.58 can be multiplied by 1.10 for a new revised toll rate cap of $1.73 in this segment for the next 5-minute period.
5	We keep observing the vehicles on I-270, and traffic volume is still increasing, up to 1,705 now, which leads to a new demand factor of 1.15 and $1.73 times 1.15 gives us our new toll rate cap of $1.99 for the next 5-minutes.
6	The $1.99 toll rate begins to better manage demand, although traffic is still a little higher than the maximum desired level of 1,600. 1,600 was determined to be the traffic threshold for our project above which there is a higher risk for congestion to develop in the HOT lanes. So even though traffic drops to 1,620, it is still above the 1,600 threshold, so a demand factor of 1.05 is used. The revised toll rate cap for the next 5-minute period is now $2.09 for this segment, or $1.99 times 1.05. Even if conditions are improving, the rate goes up – though at smaller increments – until the target of 1600 vehicles is achieved.
7	Traffic in the HOT lanes now drops below 1,600, meaning a lower risk for congestion to develop in the HOT lanes due to traffic levels. Once that 1600-vehicle target is achieved, the rate will begin to decline. It won't drop all at once - to help prevent the cycle from starting again - but as long as traffic stays below 1600, the rate will decline incrementally. A demand factor of 0.9 is used. $2.09 times 0.90, gives us $1.88 toll rate for the next 5-minute period. If traffic remains below 1,600, the revised toll rate cap would continue to decline at 0.90 factor intervals every 5-minutes until it returns to the $1.50 soft rate cap.
8	OK, now we are going to look at an example of toll rates "exceeding" the soft rate cap due to **traffic speeds**. This specific example is a more unique situation compared to the traffic volume example on the previous slides. In this example congestion quickly builds on the HOT lanes and toll rates need to rapidly increase. Let's head out for another drive. We are looking at vehicles at the American Legion Bridge, heading north towards I-270. Speeds rapidly decline to about 35 miles per hour in the HOT lanes. The heavy traffic congestion could be due to events such as a severe crash or

	extreme weather. Because of the decrease in speed, the overall project mobility goals are not being achieved in this segment. With speed, the developer can apply a demand factor ranging from 1.05 to 1.25 for speeds below 50 miles per hour. More flexibility is allowed in the speed demand factors compared to the traffic demand factors shown previously to allow for a better pricing response during unique events. The developer applies the 1.25 demand factor in an attempt to return to speeds over 50 miles per hour as quickly as possible. Note that a speed threshold of 50 miles per hour is used here with the soft rate cap. This is higher than the 45 miles per hour overall minimum speed desired for the HOT lanes. The 5 mile per hour buffer is included here because the speeds are monitored in the previous 5-minute period to make toll rate changes in the next 5-minute period. The revised toll rate cap for the next 5-minute period in this segment becomes $1.88, or $1.50 times 1.25.
9	That change doesn't have the full intended effect, as speeds continue to decline even with the 1.25 demand factor and higher revised toll rate cap. A 1.25 demand factor is again applied. $1.88 times 1.25 gives us a new toll rate of $2.35 per mile for the next 5-minute period in this segment.
10	We see speeds continue to drop over the next five minutes, so the 1.25 demand factor is applied again.
11	And the next five minutes don't get much better, so the 1.25 factor is applied again.
12	Speeds finally recover to around 45 miles per hour. A demand factor of 1.05 is decided to be applied to the previous revised toll rate cap of $3.68 to try to return speeds to over 50 miles per hour. Because 1.05 times $3.68 is higher than the maximum toll rate of $3.76 per mile, the revised toll rate cap would be limited to the $3.76 maximum toll rate in this segment.
13	Speeds exceed 50 mph and a demand factor of 0.90 is applied. Similar to the traffic threshold example, applying the 0.90 demand factor would continue until the revised toll rate cap returns to the soft rate cap of $1.50. The temporary revised toll rate cap doesn't immediately return to the soft rate cap now that we have exceeded 50 mph. This is to help ensure that demand is adequately managed before making large changes to the toll rates.
14	Thank you so much going for a ride with us. We hope you found this explanation of the soft rate cap helpful. For more information on the Phase 1 South Toll Rate Range Setting Process, please visit *mdta.maryland.gov/A-L-B-2-7-0-TollSetting*.