Disclaimer

The techniques shown here have been compiled from experienced sources believed to be reliable and to represent the best current opinions on driving at VIR. But they are advisory only. Driving at speed at VIR, or any other track, requires skill, judgment and experience. These techniques assume the reader has high performance driving knowledge and applies them as applicable to their level of driving experience.

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Virginia International Raceway (VIR)

VIR is a famous track that was lost to history for many years (as a cow pasture!) and brought back to life in 2000. Today it is well known as a world class facility and track with many driving challenges. Elevation changes and several sets of connected corners set it apart from other tracks (e.g. Watkins Glen, which is a similar length). Unfortunately, the signature Oak Tree no longer exists but Corner 12 is still known as Oak Tree. Elevation changes and the connected corners affect the line in many corners. In this article, we cover the basics to help drivers new to VIR plus we include some tips to help advancing drivers stay safe while they drive this challenging—and fun—track.

Some track basics to start. The reference points (RP's) for a corner are typically the Turn-in, Apex and Track Out. (On the maps that follow, they are labeled TI, A and TO). Where possible, we've described these RP's for all of the VIR corners with something permanent, e.g. a light. Cones will be placed at each of these RP's to make them easy to see but it is always best to find an immovable reference, even if it is a tire mark on the white verge line or on the track. The other consideration is that the same RP doesn't work for every driver. One driver will see a Turn-in cone and turn when the nose of the car is abreast; another driver when they (the driver) are abreast. And some cars turn quicker than others.

As a student driver, your instructor will work with you to find the right RP's. For student drivers, achieving a consistent Turn-in point is the first (critical) step to achieving a consistent line. A consistent speed at the same Turn-in point lap after lap is the mark of an advancing driver.

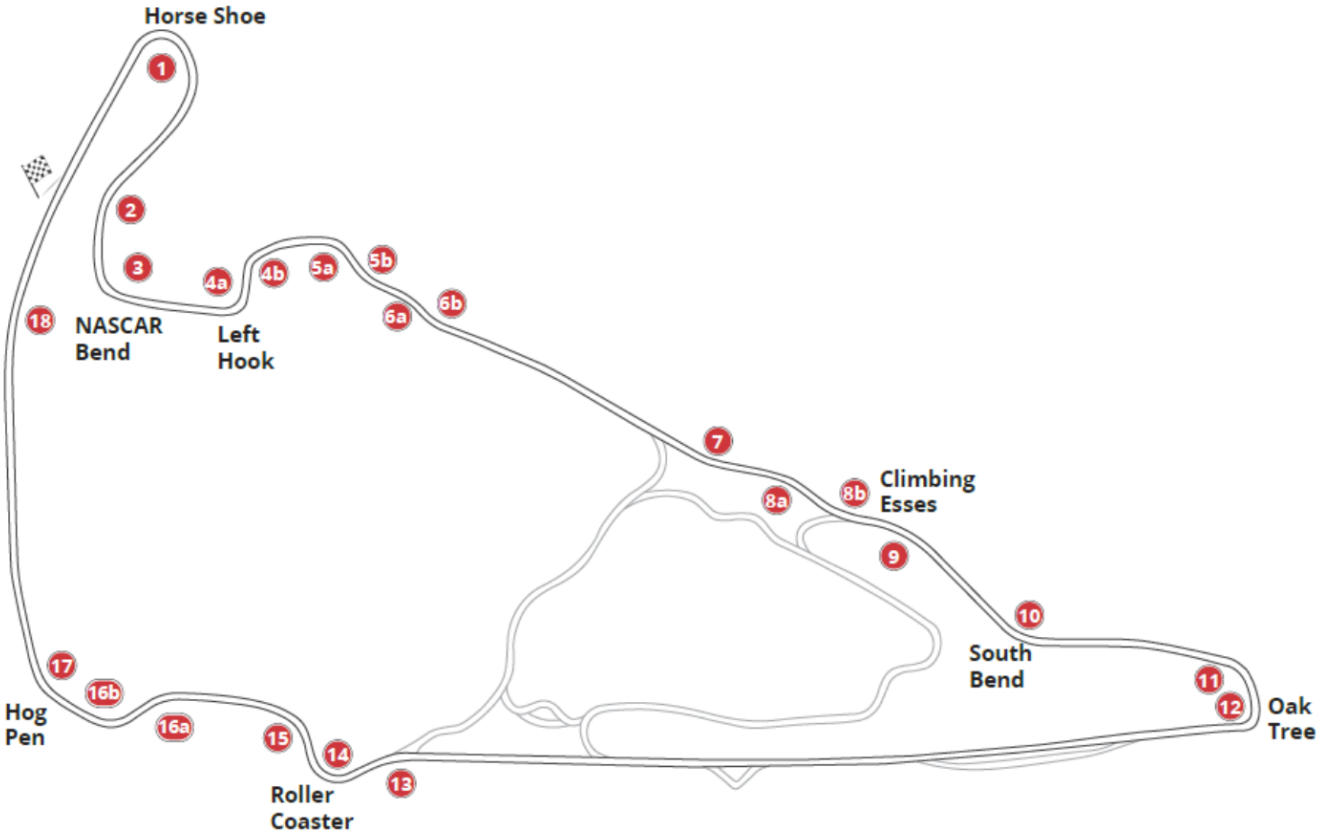
We've attempted to draw in the line in the following diagrams but please recognize that doing so is somewhat imprecise: the line isn't in the same scale as your car and it is very difficult to get an accurate line in an electronic diagram (at least for your authors).

Passing zones are noted in the following description. Unless otherwise noted, passing must be done on the side noted. For example, passing on the main (back) straight must be done the left while passing on the front (pit) straight must be done on the right. This is consistent with DE philosophy that the passing car goes off line and the car giving the pass stays on line.

The following description talks about trail braking, mainly for advancing drivers. As a new driver, just know that you will naturally find yourself trail braking; it simply means braking while turning into a corner.

With all of that said, let's take a lap around VIR!

VIR Track Map



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Turn 1

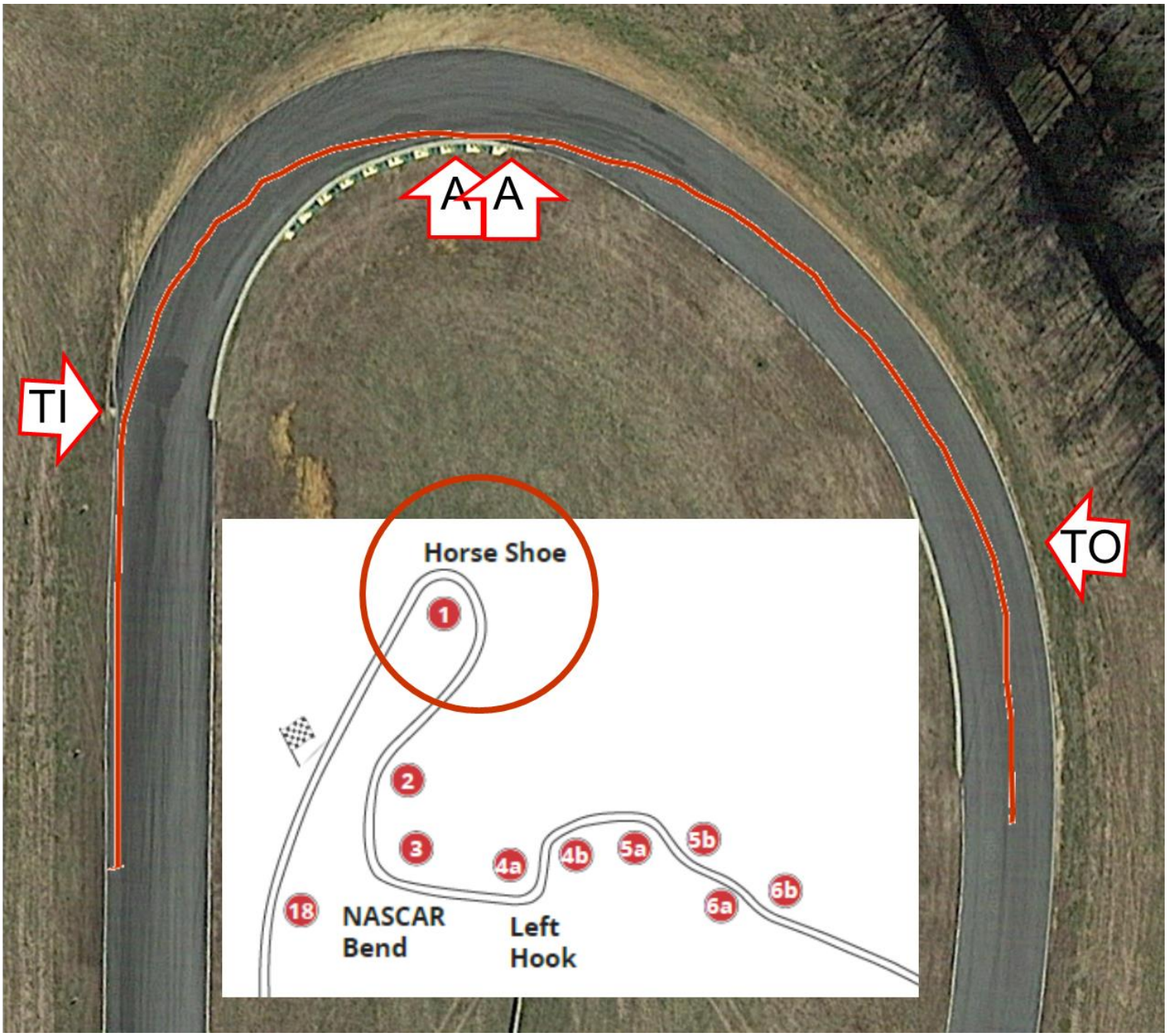
Turn 1 is entered very fast: at the end of the front (pit) straight so heavy braking is required. The braking zone is downhill and often quite slippery and the corner has very little camber to help slow the car. Many drivers leave braking too late and find there is very little “extra” road surface to recover. It is slower than it appears, partly because it is flat. It is also longer than it appears, so patience is rewarded. Look carefully at the overhead view and you will see that the first half of Turn 1 is tighter (slower) than the second half: i.e. it is an increasing radius corner. This means that, if we slow appropriately for the first half, we can accelerate through the second half.

In most cars, Turn 1 rewards trail braking, potentially all the way to the apex. In all cars, it is not possible to accelerate until after the apex.

Turn in is at or after the arrow sign on the left which more or less corresponds to the start of the apex curbing. As noted above, carrying some braking well past the turn in point is useful for many cars to help them make the tight turn. Mid-engine cars generally will need less trail braking. Note that the track rises slightly at the 2 Brake Marker which can assist in slowing the car, but the road flattens at turn in! And falls away after the apex: meaning gentle throttle application is called for.

The apex is the last quarter or so of the apex curb and we should drive along it for some time (long apexes are common at VIR). In fact, we can drive on the curb or on the crack between the curb and the asphalt. At the apex, we should begin gentle acceleration, feeding on as much gas as we can while not running out of track surface! Our goal is to exit on the left half of the track, then continue the arc back to the right hand half of the track (to set up for Turn 2).

If it isn’t obvious yet, Turn 1 is very challenging, even for experienced drivers. Remember that patience is rewarded, as is sensitive car control with the brakes and the throttle. A smooth transition from brake to throttle here cannot be over emphasized.



Turn 1 is one of only a few corners on the track where driving on the concrete (not Green/Yellow) curb is recommended. In most other cases, we want to drive next to the curbing but not on it.

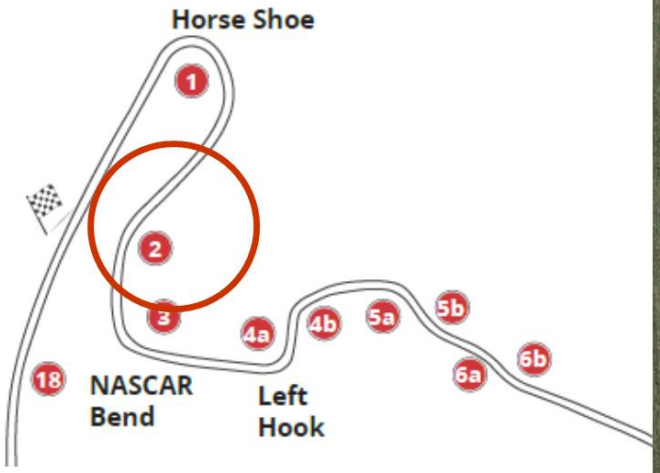
Turn 2

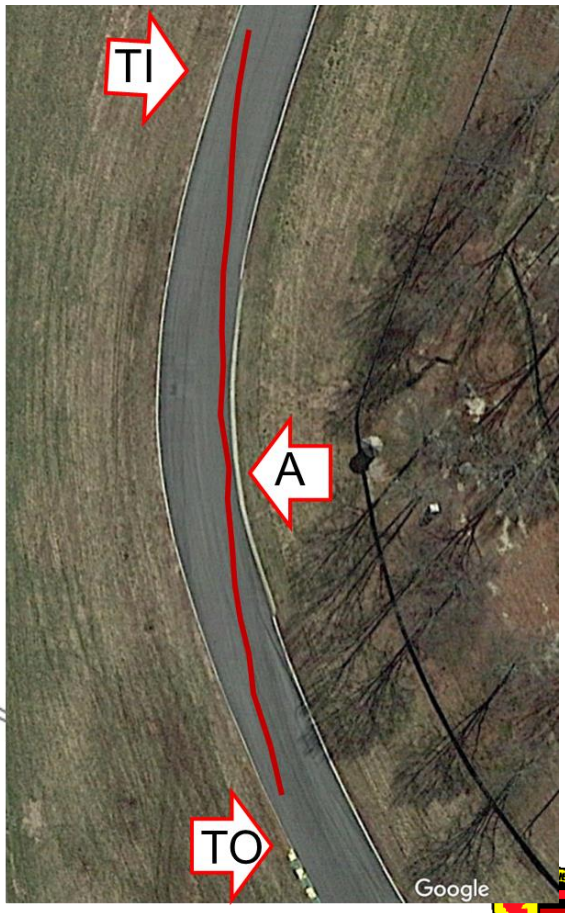
Turn 2 is just an arc that connects the exit of Turn 1 to the braking zone for Turn 3. That said, it is driven on as much throttle as you and the car can handle, recognizing that coming off the gas and braking for Turn 3 requires extremely smooth technique, since the braking zone is not straight (relax the steering as you approach the flag station to straighten somewhat), and Turn 3 is a reasonably fast corner.

Our exit arc from Turn 1 should have gotten us to the right hand half of the track and parallel with the edge. From there, the line is a slight arc to the left ending at the outside (TI) curbing of turn 3. Begin the arc when you see the tech barn emerge from behind the trees (drivers left). This arc should result in hitting the middle of the Turn 2 apex curb and the Turn 3 outside curb. There is a wider line (that doesn't go all the way left to the Turn 2 apex curb) preferred by some drivers. If this is more comfortable for you (it may make the Turn 3 braking zone easier), then use it. However, for advanced drivers, the local experts say using the Turn 2 apex line has proven to be faster.

The section from Turn 1 to Turn 2 is a (short) passing zone for all groups. Initially, passing is on the right, later on the left. Advanced drivers should have no problem here, especially with a fast car behind. Student drivers find this a challenging place to give, or take, a pass but it can be used, with the advice of your instructor. Students generally find it easier to give a pass signal on the left.

Turn in when you see the Tech Barn





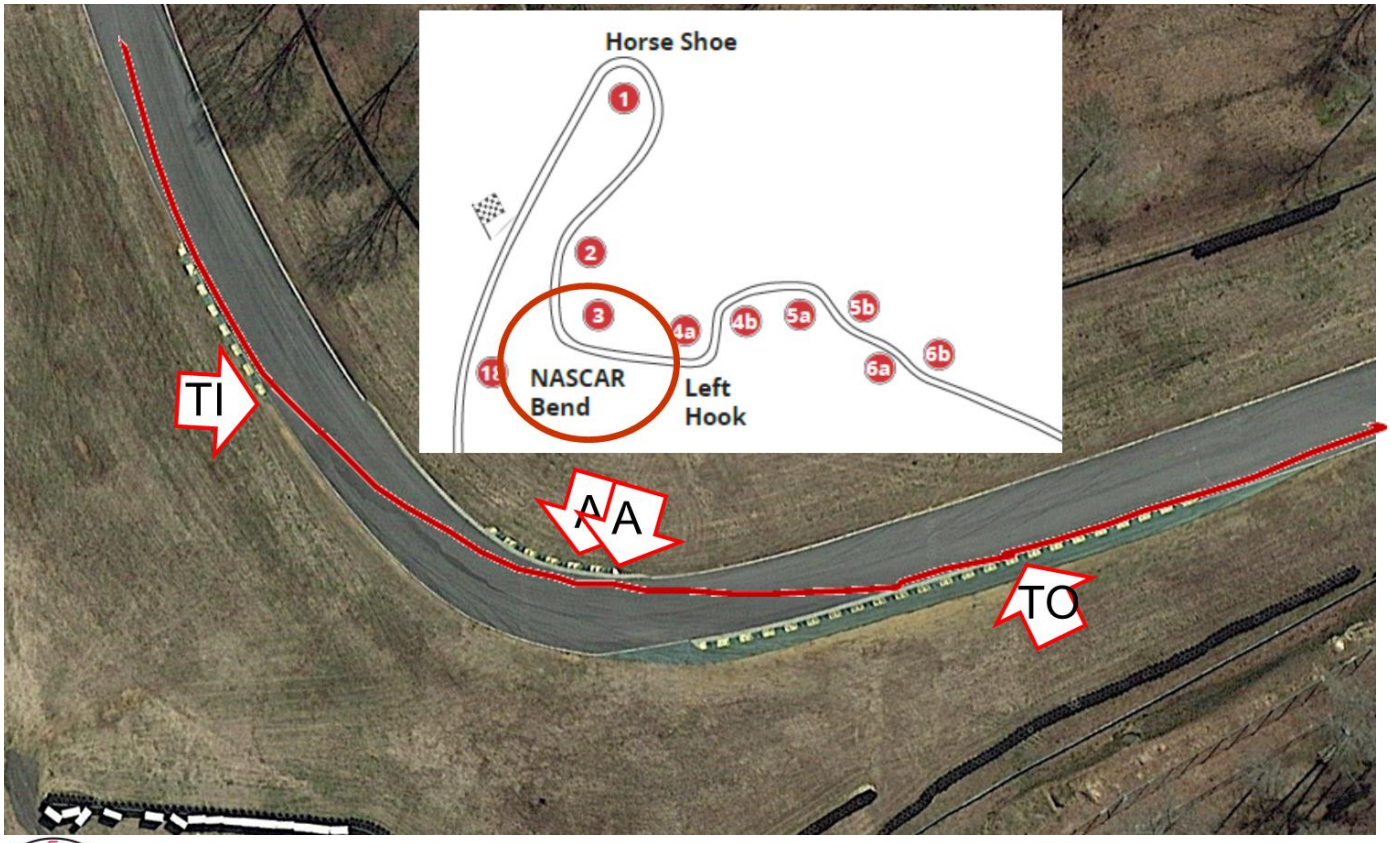
Turn 3 (NASCAR Bend)
We approach Turn 3 on the arc that starts before Turn 2. As indicated above, this means the braking zone isn't straight. This requires a smooth transition off the gas onto gentle braking while opening (unwinding) the steering slightly. Braking starts before the curbing at track right. Turn In is at the end of the green and yellow curbing on the right. At entry, we want to be within a couple of feet of the right side curb. Turn in needs to be decisive with a bit more steering input than it initially appears to call for.

Turn 3 uses another long apex, running along most of the last half or third of the apex curbing.

A careful look at the diagram below will show that Turn 3 is actually a decreasing radius corner, even though it may not appear so in the car. This may explain why many famous NASCAR drivers, including Richard Petty, repeatedly went off in this corner "back in the day." Which may explain why Turn 3 is also referred to as the "NASCAR Bend."

Track out is well down the outside curbing. There is a paved runoff outside of the curbing to use if you overcook the corner. But that curbing counts as 2 off or 4 off by NNJR DE standards. Those of you thinking it would be faster to use that green asphalt might be surprised to learn that staying on track is actually quicker. Use it for insurance, as intended.

The short chute between Turns 3 and 4 is a passing zone on the left. All groups should use it (with a lift) to get one car by. But note that the overtaking car must enter Turn 4 off line.



Turns 4a, 4b, 5a, 5b
Turn 4a may be the slowest corner at VIR and it invites overdriving. However, it is much more important than many drivers realize. An early local expert at VIR said, “The straight that ends at Oak Tree starts at Turn 4a!” This is literally a true statement for those driving a low power car. While not literally true for most of us, the sections of the track that follow are all set up by Turn 4a.

The line through Turn 4a is dictated by Turns 4b, 5a and 5b which follow it immediately. As a result, we do not track out the right in Turn 4a. Instead, after heavy straight line braking we need to make a sharp left (using lots of trail braking, the most of any corner at VIR), keeping the car on the left half of the track after the apex and, ideally, along the left side curbing. Turn in for 4b is after the end of the left side Green/Yellow curbing (even with the start of the 4b apex curb) and needs to be a bit later than it first appears: don’t be in a hurry to turn in here! We want to clip the apex of Turn 4b at the point where the apex curbing sticks out the most (in second half of the curbing). We can begin to apply throttle here but it is critical to get the eyes looking well ahead, past 5a. The gas must be modulated so that the line from the exit of Turn 4b/Turn in for 5a to the apex of 5 b is almost one arc, only adjusted with a turn in for Turn 5a at the second half of the outside curb. The exit of Turn 4b is downhill while 5a tightens up slightly, so this section is not as straightforward as it may appear! The line goes out to the curbing at track left but does not touch it (there is a “groove” where the asphalt meets the curb which can grab some cars).

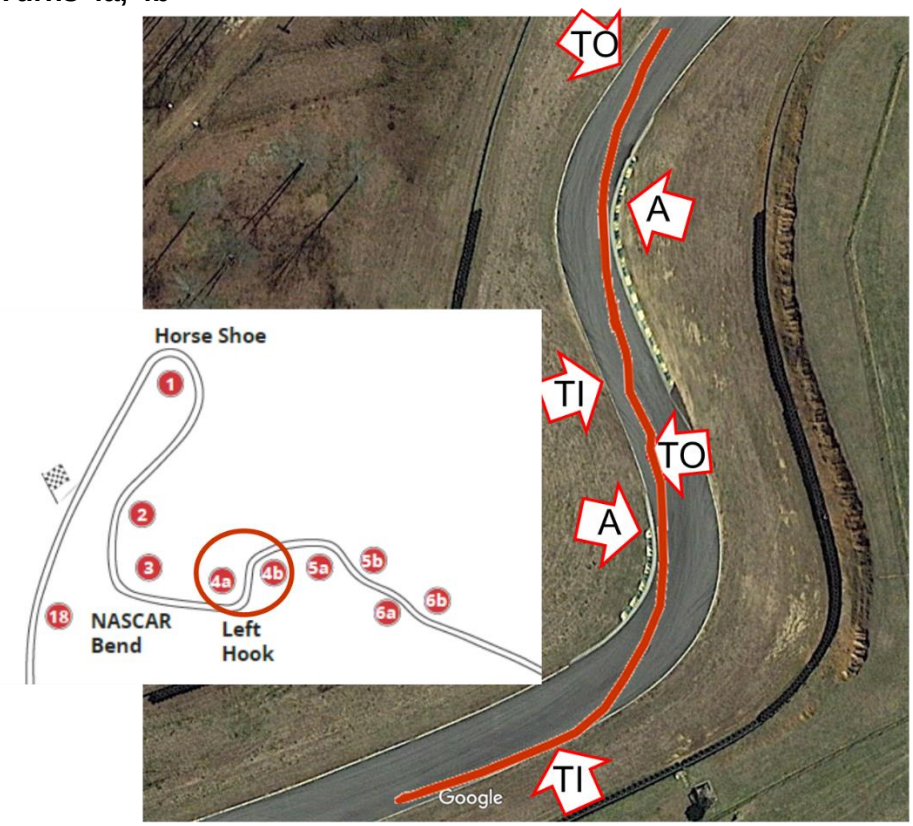
As we approach the apex of Turn 5a, some cars will not be turned enough. A small breathe of the throttle (partial lift) can help rotate the car. If you are a student driver, be sure to discuss with your instructor first!

Note that track camber is a big factor in this section. The road is heavily crowned, starting at 4a. This camber reinforces the recommended line. The most favorable camber is at the apex of Turn 5a and some drivers use it to apex on top of the inside curb at 5a. This is one of only a few curbs at VIR that can be recommended, though it is not for beginners. And some cars will be more comfortable on the curb than others. If you plan to use the curbs, it is extremely important to be parallel with them curbs in 5a and 5b; i.e. straight. If you are turning when you hit them, plan for a rude surprise, or worse.

The following corners: 5b, 6a and 6b (“the snake”) can be driven as a straight even though they are obviously not straight. If Turns 4a, 4b and 5a have been driven correctly, heavy acceleration is possible from 5a onward. However, several notes of caution are in order. First, these turns are not visible until almost at the apex of 5a. Second, the curbs are not friendly and should be avoided, especially at 5b. Finally, early in the day and later in the day, shadows and sun hit different sections of this track at different times, particularly 5a, causing significant differences in grip. Bottom line: this section of the track deserves more respect than it appears at first!

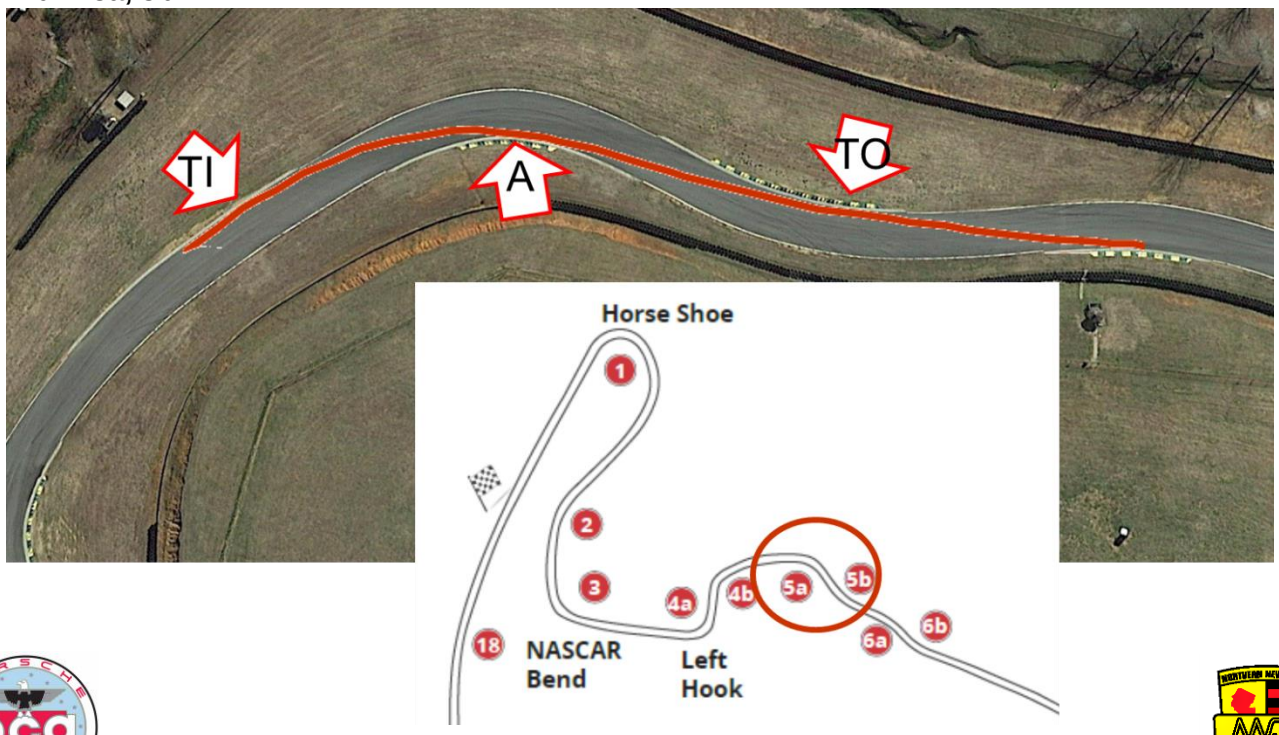
The straight that follows 6b is a passing zone, only on the left.

Turns 4a, 4b



TI

Turn 5a, 5b



Turns 7, 8a, 8b, and 9 ("Climbing Esses")
The climbing esses are a signature section of VIR and very rewarding to drive correctly. But they are very fast and require consistent technique and rhythm. A small mistake here, especially in Turn 7 or 8a can have very ugly consequences.

The climbing esses are approached at relatively high speed but, generally, only moderate braking is required, taking care not to upset or unbalance the car. The Turn In for Turn 7 is a very gentle bend that begins at the road on the right (entrance to the north course) and ends at the far end of the apex curb on the left. David Murry once advised to drive as if Turn 7 doesn't exist and to view the climbing esses as "two right hand turns." This works as long as the car is positioned properly after Turn 7, properly setting up Turn 8a. The key to Turn 7, and to setting up the rest of the climbing esses is the exit: stay left well after the curbing with the left side of the car parallel with the white line. As the hill begins to compress the front tires, turn to the right and cross the crest of the hill at Turn 8a with the front wheels straight. The apex for Turn 8a is the far end of the curb on the right.

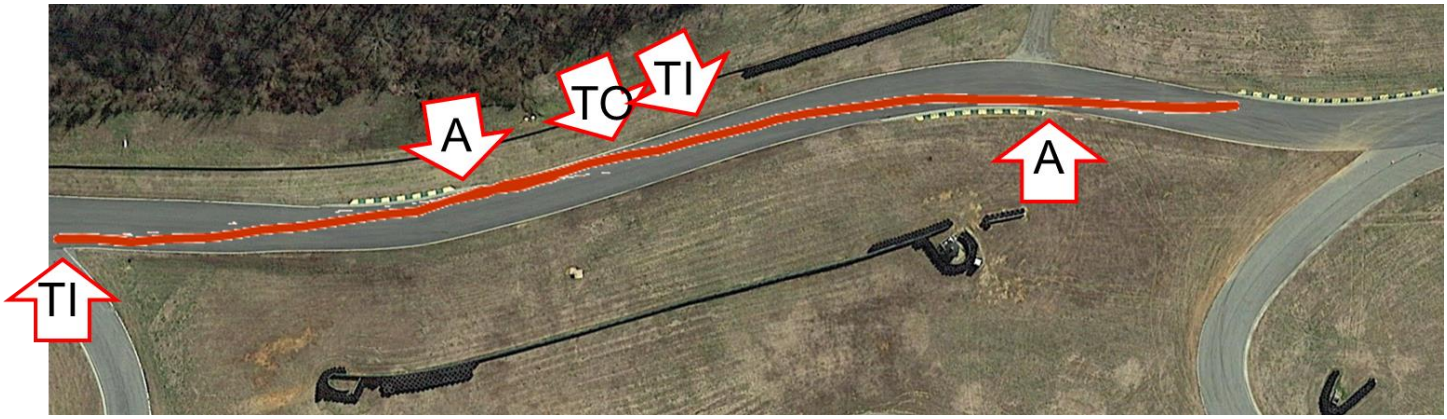
The apex for Turn 8b is the second half of the curbing: another long apex where we want to follow the curbing for some distance. In a similar manner, the apex of Turn 9 is the entire middle half of the curbing. Track out for Turn 9 will take us to the left hand half of the track, after which we need to immediately begin to move back to the right hand half of the track to set up for Turn 10 (South Bend).

If we exit Turn 7 correctly, we can feed gas on as we come up the climbing esses. But rhythm is almost as important as the line through this section. At these speeds, smooth inputs on steering and gas are essential.

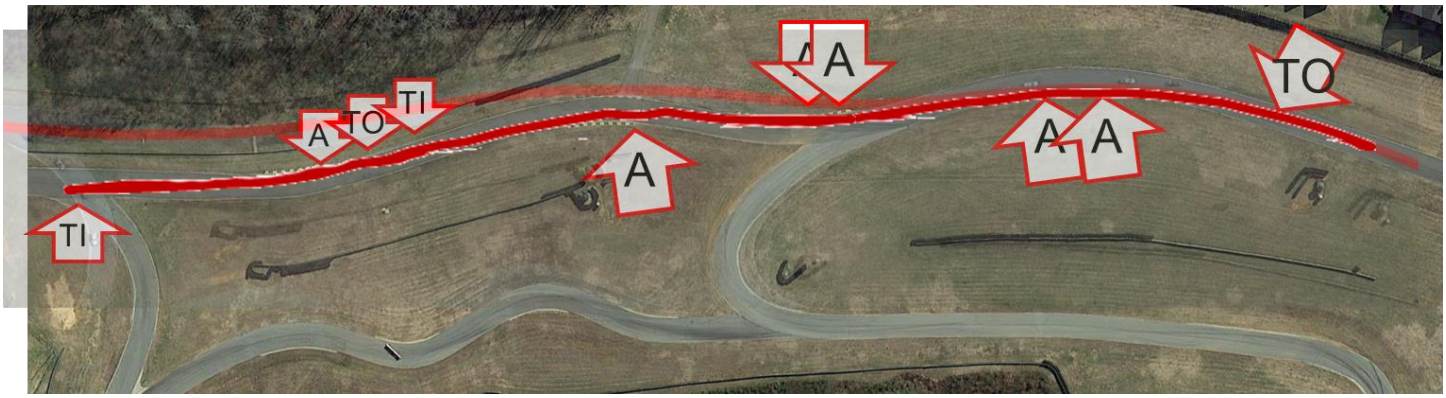
Many drivers use the curbs in the climbing esses, which is not advised for students or any other driver who is not extremely consistent. The curbs are more friendly after the recent repaving but they can still upset the car.

There is no passing in the climbing esses for any group (including Expanded Passing groups). No passing in the chute between Turns 9 and 10 except for Expanded Passing group(s).

Turns 7 and 8a



Climbing Esses

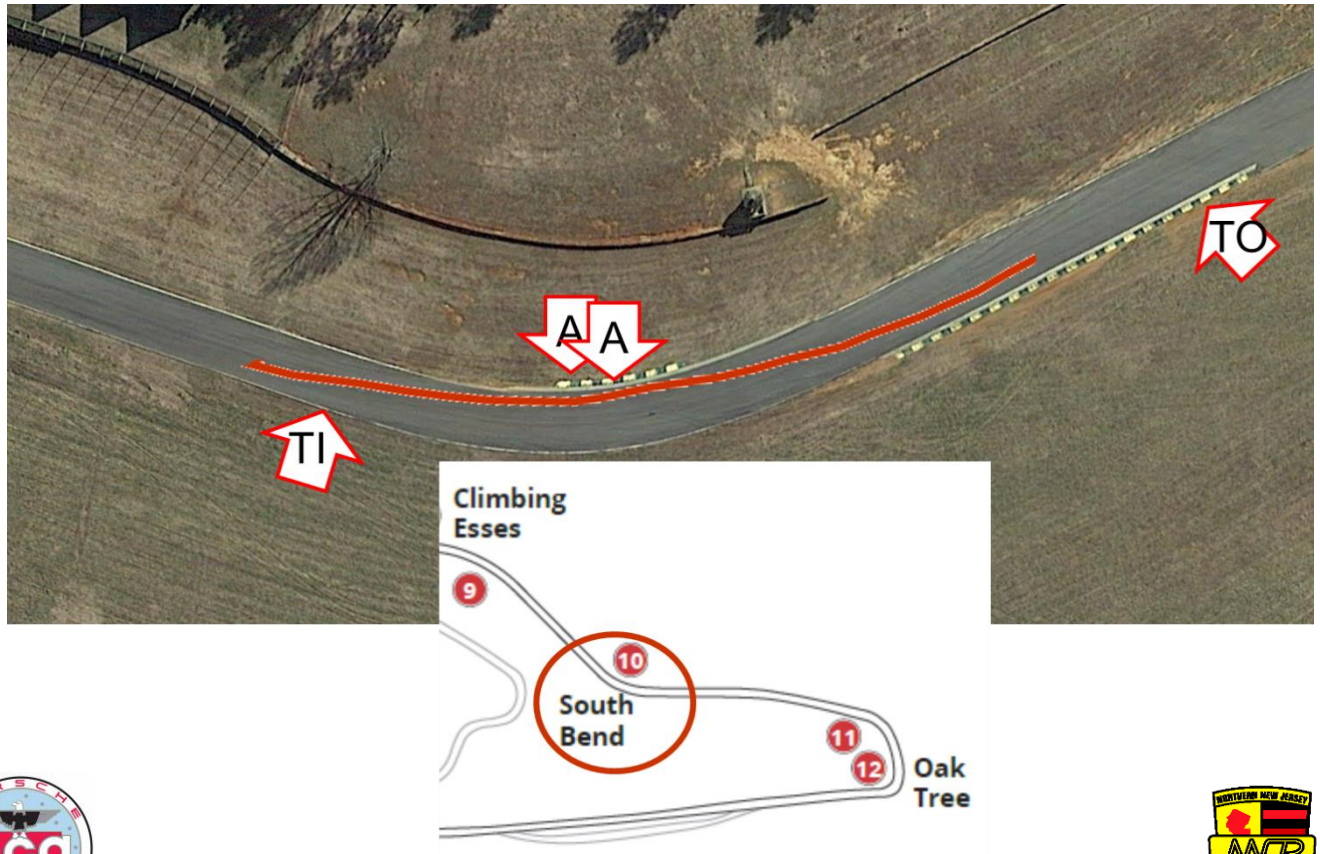


Turn 10 (South Bend)
Turn 10 is the fastest corner at VIR and the most dangerous one on the track if a mistake is made and the driver attempts to keep the car on track. Like all corners, if you are headed for an early apex, or have entered too fast, straighten the steering wheel and drive off. In this case, there is a huge field outside of the exit curb with acres of runoff room. But holding the car on track will result in a high speed spin and a hard collision with the tire wall.

Entry to Turn 10 is from the right hand half of the track, full right if you can get there but momentum from turn 9 may make that very difficult. Turn in as soon as you see the beginning of the apex curbing. The apex is another long one: run along the first third or more the curbing. It's possible to run along the edge of the apex curbing, but not all the way on it.

Braking for Turn 10 should be done while straight. This is a very fast corner and very little or no trail braking is recommended (though trail braking is a common mistake here). Feed power on gradually but make sure the car is well "planted" early in the corner. Track out is not easily seen when you turn in; once you have a comfortable visual line of sight through the corner, continue to commit to the throttle. The track goes off camber toward the track out curbing which is often disconcerting to drivers unfamiliar with VIR. This is another reason to be very progressive with the gas pedal. Some drivers use the exit curbing which is OK when "over cooking" the corner slightly but not recommended as a regular line since it uses up all of the available safety margin.

The short straight after Turn 10 goes downhill, then back up into Turns 11 and 12. It is a passing zone for all groups: initially on the left, then on the right. Student drivers generally find it easier to give the pass signal on the right, as they cross to track left.



Turns 11 and 12 (Oaktree)
Oaktree is a signature corner at VIR but this two-turn complex is much more difficult than it first appears. In fact, most experienced drivers "over drive" Turn 12 at first, resulting in "4 wheels off" on the outside just past the apex. It is also a very important complex, since it leads onto the (very long) back straight.

A careful look at the overhead view shows that Turn 12 is tighter (slower) than Turn 11. This means we can carry momentum into and through Turn 11 that must be reduced for Turn 12. Fortunately, the braking we do to slow the car helps it turn for Turn 12, which is a sharp corner (as slow as Turn 4). What the diagram doesn't show is that Turn 11 is on camber and Turn 12 is off camber! And the entrance to Turn 11 is uphill (helpful) while the exit of Turn 12 is downhill (not helpful)!

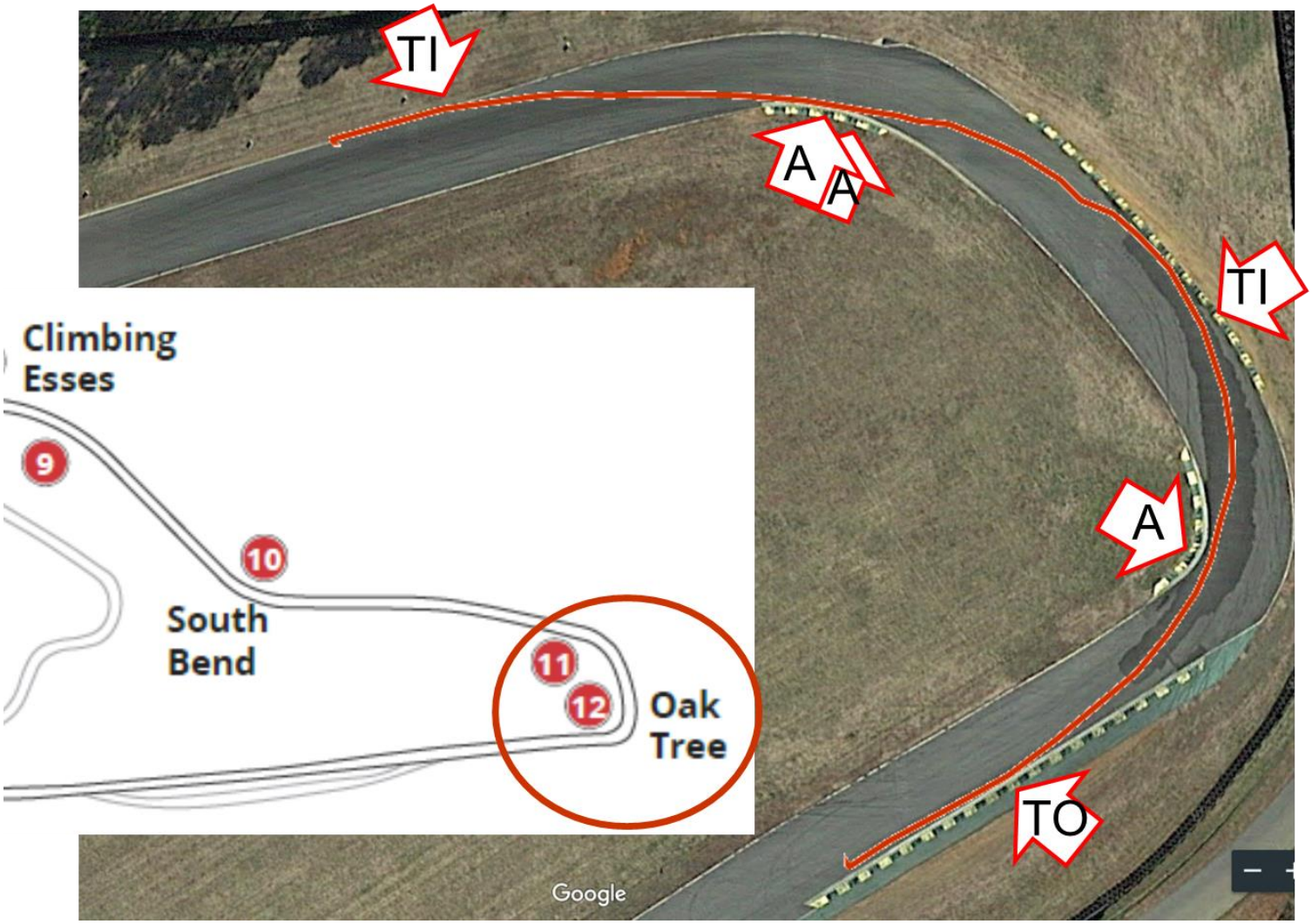
We approach Turn 11 on the left side of the track with substantial speed. We use the hill immediately preceding Turn 11 to brake, which means less braking is required than it appears. Especially since we want to carry speed past the apex of Turn 11.

With a modest Turn In for Turn 11, the line is almost a diagonal past the Turn 11 apex to the outside curbing: we aim for the second half of it, somewhat past the middle. This line is really an arc but it is essential to end up fully track left, parallel and next to the outside curbing. It is also critical to arrive with the car fully under control: too fast and we won't be able to make the sharp turn (too slow is also an issue; no one said this is an easy complex!). We want to turn in for Turn 12 when all 4 wheels are on the black sealer. Turn in should be deliberate and relatively fast (fast corner, slow hands; slow corner, fast hands) and more than you think. We want to trail brake to help the car turn (this is why arriving at the turn in too slowly is a problem). In all cars, we need to be patient and avoid committing to the gas until the car is pointed properly, after the apex. Most or all turning needs to happen before the apex. Look for the flag station on the outside. We need to be pointed at or right of it before committing to the gas. Remember that the Turn 12 exit is downhill and off camber! Track out is the second half of the exit curbing.

Some drivers new to VIR find themselves going back to the gas after Turn 11, before Turn 12. This common mistake means they have braked too much for Turn 11; they need to carry more speed through Turn 11, all the way to the brake zone for Turn 12. Plus, remember we want some speed left at Turn In for Turn 12 for trail braking to help the car turn. However, student drivers may find it more comfortable (easier) to initially use a bit of gas between 11 and 12 as they learn this challenging sequence. In addition, some drivers find that carrying speed through Turn 11 makes them inconsistent in Turn 12: not a good tradeoff. If you need to give up a bit in Turn 11 to make Turn 12 work, you won't be the only one!

When done correctly, these two turns provide a good launch onto the back straight. But the driver is very busy throughout!

The back straight is a passing zone but only on the left side. This means drivers should move to the right side of the track as soon as they can, before giving any pass signals. Faster cars should allow time for the car in front to move over.



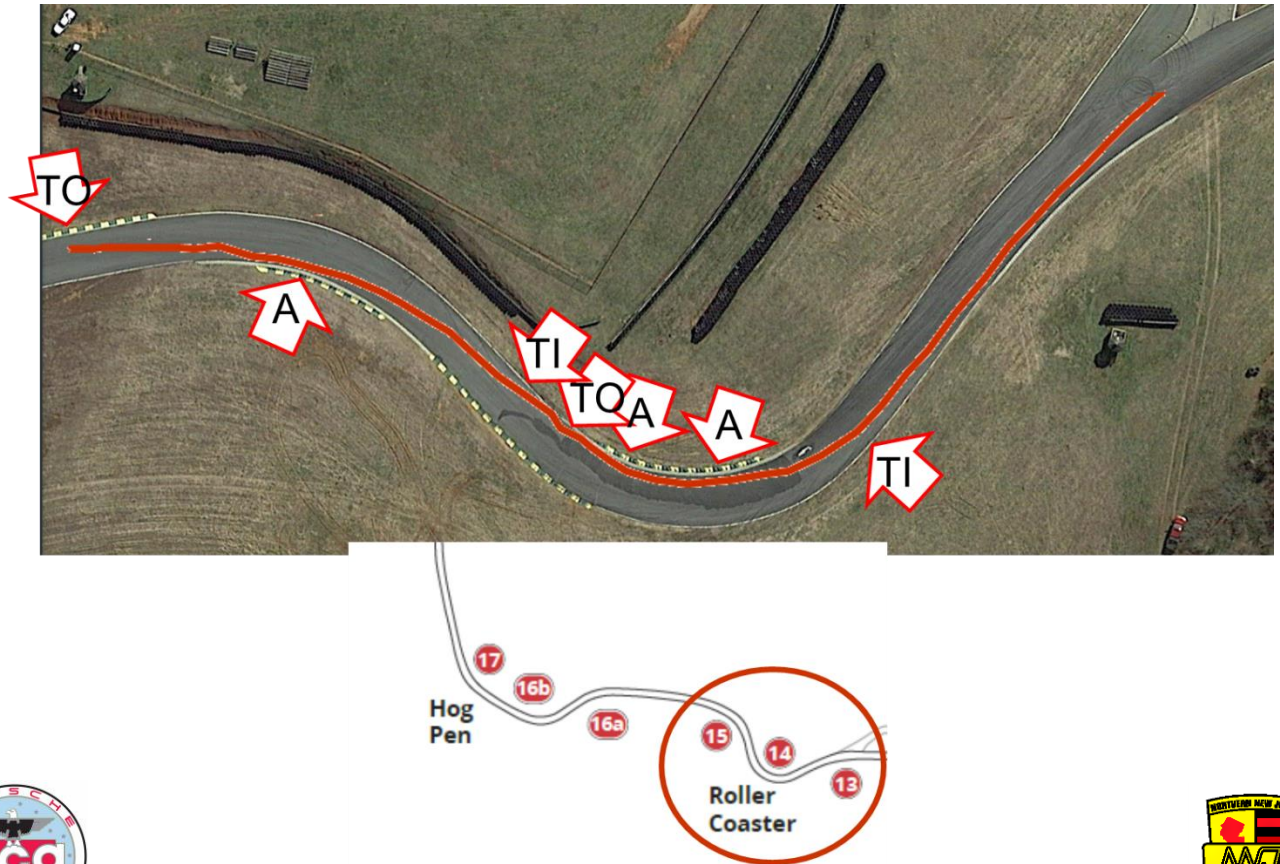
Turns 13, 14, 15 (Roller Coaster)
Obviously, we approach Turn 13 at high speed. Fortunately, we have a steep hill to help us brake. In this case, the hill not only helps us slow down but bend the car left (Turn 13). The idea is to end up track left, or at least on the left half of the track, after coming over the hill in Turn 13. Most cars and drivers will begin braking before the hill but use the hill for much of their slowing. It is necessary to relax the brake pedal partially coming over the hill, but the brakes can and should be applied harder again as the car settles (one braking zone for Turns 13, 14, 15). Turn 13 can be taken faster than it first appears, though doing so makes the setup for Turn 14 busy. Like the Oak Tree complex, Turns 13, 14 and 15 should be treated as a set.

Most cars will be downshifting at least two gears in this complex. One common approach is to shift from 5th to 4th coming up the hill, then 4th to 3rd after the hill.

Turn 14 is slow and is followed immediately by Turn 15. Therefore, like Turn 4, Turn 14 is sacrificed to set up the following corner. But in this case, the compression in Turn 15 allows for a rapid exit, making this section much easier for most drivers than the Turn 4, 5, 6 complex.

From the left hand half of the track exiting Turn 13, we turn in for Turn 14 well before the beginning of the apex curbing, with the objective to hit the apex curb in the first third and follow it the rest of the way around. Trail braking is rewarded here. Hold the line just past the end of the apex curb before turning left for Turn 15. As soon as the car turns, we can use the throttle aggressively, if we are smooth. Compression in Turn 15 provides lots of grip. Track out the second half of the exit curbing.

The chute between Turns 15 and 16 is a passing zone on the left in all groups but most students find it too short to use comfortably.



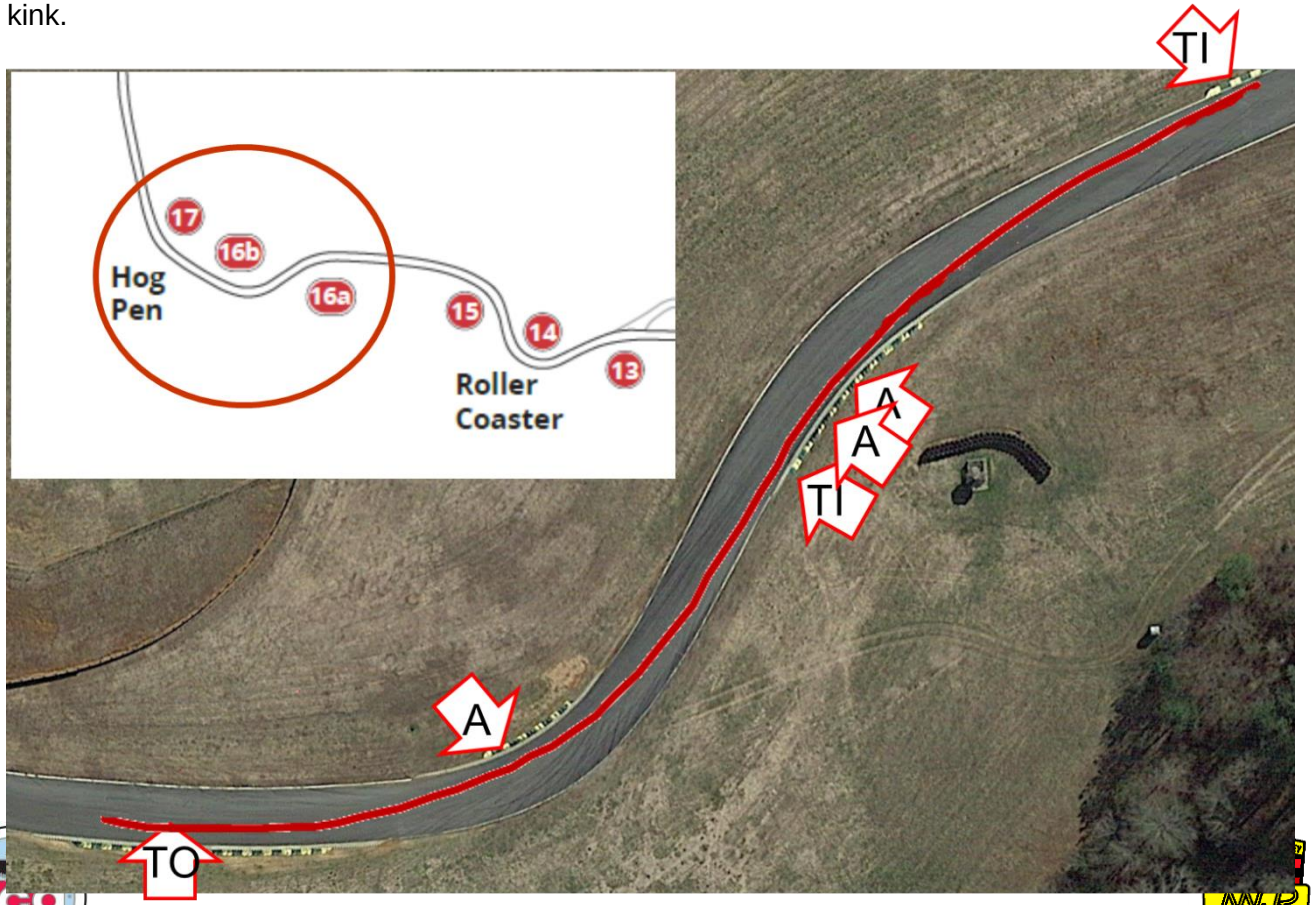
Turns 16a, 16b, 17 (Hog Pen)
We approach Turn 16a with reasonable speed and brake after we bend the car toward the apex, using the rise before the apex curbing to help slow the car. Braking needs to be smooth with only moderate intensity so as not to upset the car balance. We want to be at the 16a apex curb before the middle and follow it downhill, with the car straight. Turn in for 16b is at or just after the end of the apex curb on the left.

Our turn to the right should set up one big arc through the apex of Turn 16b all the way to Turn 17. Many drivers find they don't need to be at the Turn 17 apex curb; a car width or less outside of it usually works fine. The apex for Turn 16a is the last part of the Green/Yellow right side curb. We don't need or want to track all the way out to the left side curb, use 2/3 to 3/4 of the track. Track out of Turn 17 is the second half of the exit curb.

At the turn in for Turn 16b, it feels like the car is "falling off the edge of the world," but as the car drops, compression collects the car and creates good traction. No trail braking here: turn in with partial throttle. This section is faster than it initially looks, but requires practice and very good consistency to take quickly. It is a very important complex since it leads onto the front straight.

It is critical to look ahead for all of the normal reasons, plus Pit In is to the right as we exit Turn 17. Pit in signals should start before Turn 16a and continue to Pit In.

The front straight is a passing zone in all run groups, with mandatory passing on the right side. Many drivers make the mistake of giving a pass signal on the left, which can lead to cars weaving from left to right. Cars giving a pass signal in the middle of this straight are obliged to stay left at the kink.



We hope you've found this description of how to drive VIR useful. Have fun!