

VIR TURN CHANGES GUIDE-TARHEEL BMWCCA BY KRAUSE & ASSOCIATES LLC



- Pit Exit Blend Line- Six feet extra width right of centerline all the way down into T1.
- Extra asphalt on the right runs into the leading edge of the inside curbing at Turn 1.
- Directly across from the start of the inside curbing is the turn-in point, is a triangular concrete patch.
- This marks the beginning of six feet of extra asphalt all the way around Turn 1 left of centerline (LoC).
- The inside beveled curbing is the same, there is additional FIA curb behind the original curb.
- The Turn-In and Apex areas for Turn 1 are unchanged.
- More width at the exit of Turn 1 (all 200 degrees of it) than there used to be, old track out curb is gone.
- Most drivers, especially with good power, should be accelerating so as to "walk" the car out to a left of center track out using the throttle.
- Placing the car close to the second inside curb just pinches the exit, not necessary.
- Be careful at track out left because it is not easy to see the edges of the track.
- End of the excess asphalt past the old track out curbing is a triangular white concrete patch.
- If you don't pay attention, you may hit it and there is only grass beyond!



VIR TURN 2 CHANGES, TARHEEL CHAPTER-BMWCCA



- After track out from Turn 1, not necessary to go full track right to turn in for Turn 2.
- You can accelerate longer, harder, sooner than before.
- As soon as the Tech Barn is visible without the trees in front of it, move to the left to apex the Turn 2 curbing at between the 50% and 60% length point.
- Accelerate until at least the leading edge of the Turn 2 apex curb, depending on the car.
- Create a braking zone from the apex of Turn 2 to a point near the right side track edge to the right of the Tech Barn.
- The car should cross the width of the road on a diagonal from left apex to right of center, at least.
- Brake earlier and easier with an emphasis on brake release. Follow through as soon as possible with progressive throttle application.
- Turn in is a point directly across the width of the road, two to two and a half car lengths before the beginning of the inside curbing for Turn 3.
- It is easy to brake too late, slow too much, turn too much and “square the corner off.”
- NASCAR (Turn 3) is faster than it looks and should be treated as the sweeper that it is.



VIR TURN 3 CHANGES, TARHEEL CHAPTER-BMWCCA



- The turn-in for Turn 3, NASCAR Bend, benefits from the extra width right of center at the entry.
- This means that if the car is in the proper place, brake release can occur at a slightly higher speed.
- The original inside apex curbing is unchanged. There is additional FIA curbing behind it.
- Be careful not to turn so late that you can't get to the apex curbing at a point 66%-75% of its length.
- The original exit curbing has been retained, with an additional width of negative FIA curbing placed behind it.
- Additionally, there is asphalt placed in the runoff area to improve maintenance and help with emergency recovery options.
- While some videos online show the use of this extra asphalt on the far side of the exit curbing, the proper geometry from turn-in to apex to track out in this turn does NOT require the use of the excess asphalt for the best sector times.
- Crossing the exit curbing with any sort of lateral loading WILL upset the car.
- There is extra pavement asphalt right of center all the way from exit of Turn 3 through the outside of Turn 4.
- This will allow for slightly earlier turn in for Turn 4 to cross the extra track width.



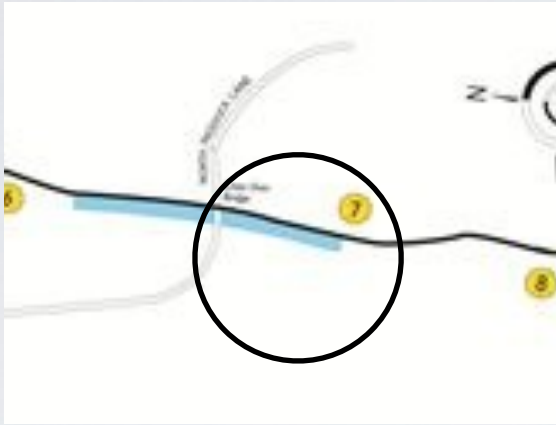
VIR TURN 4 CHANGES, TARHEEL CHAPTER-BMWCCA



- The excess asphalt beyond the track out curbing at the exit of Turn 3 necks down shortly after the curbing ends, but still offers extra width on right.
- The turn-in for Turn 4 is likely to change for most because if the car is in the right place, there is more width to traverse to get to the apex.
- Ideally, most cars will come away from the right edge of the road between half and one and a half car lengths before a point across the road from the beginning of the original inside curbing.
- The grip level is very high, so attention should be paid to brake release after the car begins to turn.
- The position of the inside curb is unchanged and the desired apex area three-quarters to seven-eighths of the way around the inside is unchanged.
- The excess pavement width to the right of center through the corner and after the turn in should not be used.
- The excess curbing right of center ends by blending into the beginning of the T5 apex curbing.
- The inside curbing for Turn 5 is unchanged but the addition of FIA curbing behind it makes it easier to see.



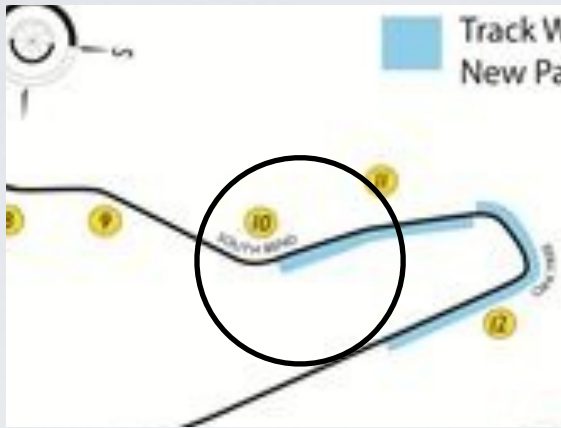
VIR TURN 7 CHANGES, TARHEEL CHAPTER-BMWCCA



- New excess pavement right of center at the exit of the Snake, Turn 6, extending past the North Course cut-through and the turn-in for Turn 7.
- The edge of the road still creeps in on the right as you approach the bridge, so remain vigilant so as not to drop a wheel inadvertently.
- The extra asphalt has lessened the harshness of the transition up the hill for the North Course configuration.
- The extra asphalt width will require, for most cars, turning in to the left for Turn 7 on the full course, a little earlier to traverse the extra width.
- The position of the inside curb is unchanged and the desired apex area of the end point of the curbing and the grass after is unchanged.
- As elsewhere, the grip level improvement will allow slowing less for the entry to the uphill.



VIR TURN 10 AND 11 CHANGES, TARHEEL CHAPTER-BMWCCA



- The overall grip improvement will allow more speed and more security at Turn 10, South Bend.
- The proper apex area is the leading edge of the original width apex curbing extending to at least the mid point of the painted FIA curb behind.
- The extra asphalt right of center begins at the end of the track out curb at Turn 10 and extends to the beginning of the inside curb at Turn 11.
- The extra asphalt width on the left at Turn 11 begins at a point just beyond and across from the beginning of the inside apex curbing at Turn 11.
- The position of the inside curb is unchanged and the desired apex area of the mid point of the Turn 11 apex curbing is unchanged.
- Because there is excess pavement left of center from the curbing around the outside of Turn 11 to Turn 12, you can carry more speed through T11
- The width of the road at turn-in and the geometry of turn-in to apex for Turn 11 is unchanged, however there is more exit pavement.

VIR TURN 12 CHANGES, TARHEEL CHAPTER-BMWCCA



- The overall grip improvement will allow more speed and more security at Turn 12, Oak Tree.
- The extra asphalt left of center at the exit of Turn 11 and entrance of Turn 12 allows for more speed between corners a wider radius can be drawn through both corners.
- The key is slightly earlier braking, focus on braking release after beginning to turn the car and getting a majority of the turning done before the apex curb at Turn 12.
- The position of the inside curb is unchanged and the desired apex area of two-thirds to three-quarters distance of the Turn 12 apex curbing is unchanged.
- The exit past the apex curbing is downhill and slightly off camber, so any steering input after the apex is less effective.
- The extra width past the exit curbing is for improved physical plant maintenance and a safety net for those who cannot or will not stay on the track surface proper. The exit trajectory of the corner is such that if you track out before the last half of the exit curb length, you turned early, didn't turn enough or missed the apex. Data shows that going over the exit curb to the new asphalt is not faster and rougher on the car.