NNJR "Trackside" Classroom

Why Drive <u>This</u> Line?

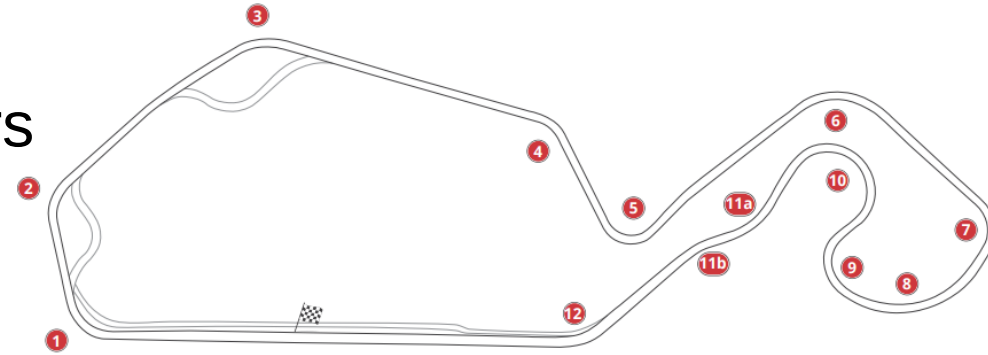
Disclaimer

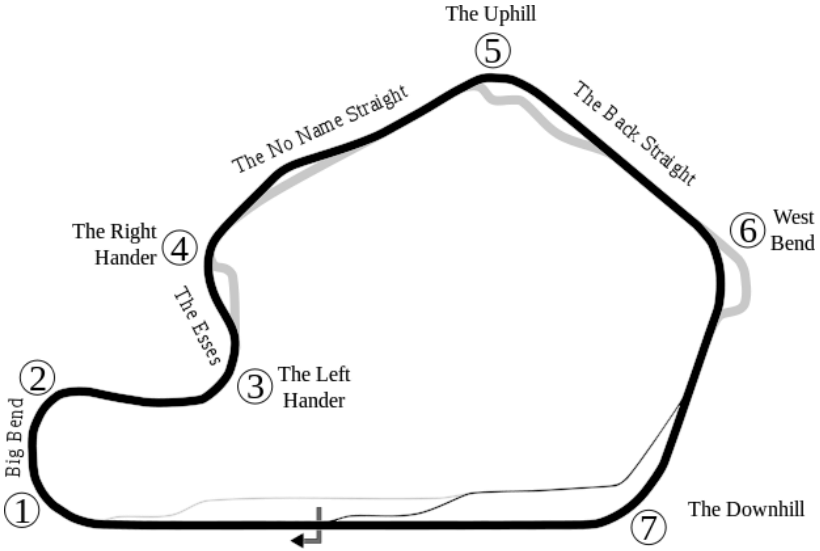
The techniques shown here have been compiled from experienced sources believed to be reliable and to represent the best current opinions on driving on track. But they are advisory only. Driving at speed at NJMP Thunderbolt, or any other track, requires skill, judgment and experience. These techniques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

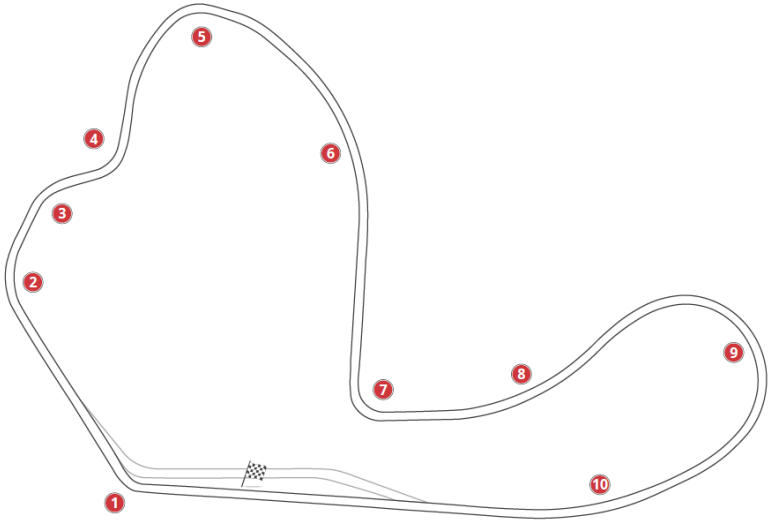
High-performance driving can be very dangerous, carries inherent risks and may result in injury or death. NNJR and PCA make no warranty, guarantee or representations as to the absolute correctness or sufficiency of any representation contained herein. Nor can it be assumed that all acceptable safety measures are contained herein or that other or additional measures may not be required under particular or exceptional conditions or circumstances.

AGENDA

- The Line
  - Type 1, 2 and 3 Corners
  - Classic Late Apex
  - How to Use?
  - How to refine / adjust the line
  - Line variations





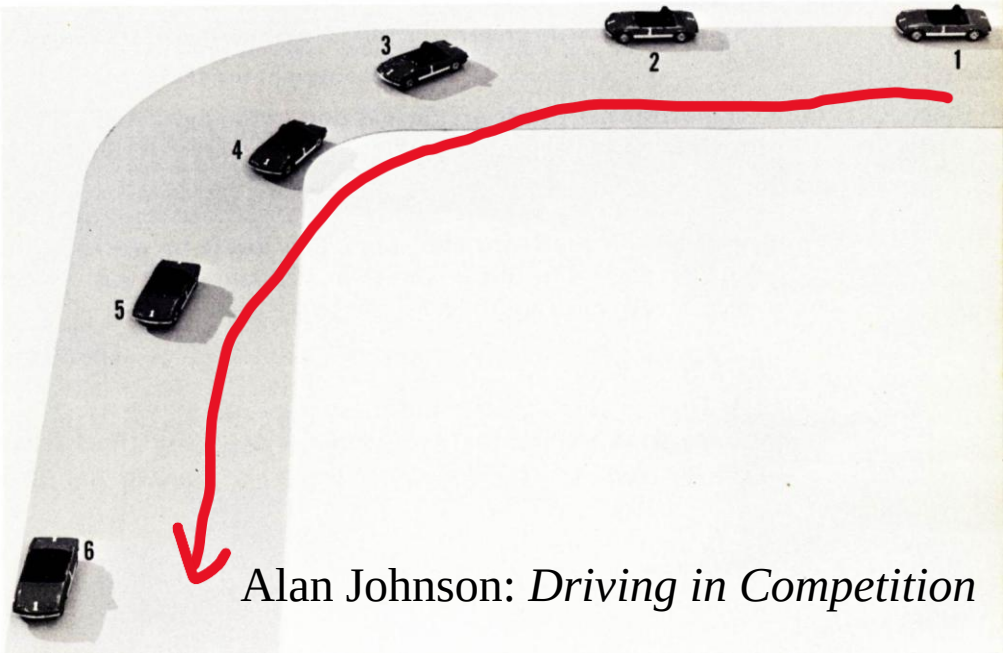


Types of Corners

- Type I, II, III
  - Type I = Most Important; leads onto straight
  - Type II = Next; ends a straight, no straight after
  - Type III = Least; between corners
- Fast vs. slow
- Long vs. short

Type I Turn. A Type I turn is one that leads onto a straightaway. In this type of turn you brake early, get on the throttle just as early as possible, make a late apex and accelerate onto the following straight at maximum rate of speed. In the illustration below, it is put together like this:

1. *Maximum braking.*
2. *Braking almost complete, downshifted to lowest gear that will be used in accelerating out of turn.*
3. *Balancing point. Transition from braking to accelerating. This is a critical point. If you accelerate too early, you will have to let off to keep from running out of road on exit from turn. If you wait too long to begin acceleration, you will not be able to make entrance onto straight at maximum speed.*
4. *Late apex. Should be at or very nearly at full throttle.*
5. *Full throttle, accelerating at maximum rate.*
6. *Full throttle, clear of turn, using all of the road to make a smooth arc on to straightaway.*



Alan Johnson: *Driving in Competition*

From Dion von Moltke/Blayze

- Exit Speed Corners
  - Similar to Type I
- Entry Speed Corners
  - Similar to Type II
- Balanced Corners

- How to tell?
  - Is Acceleration Zone longer than Deceleration Zone?
    - Yes: Exit Speed
    - No: Entry Speed
    - Same: Balanced

How to Use Corner Types?

- Exit speed corners (Type I)
  - Objective: maximum acceleration onto straight
  - Late Apex (after geometric apex)
    - Slow point is before apex

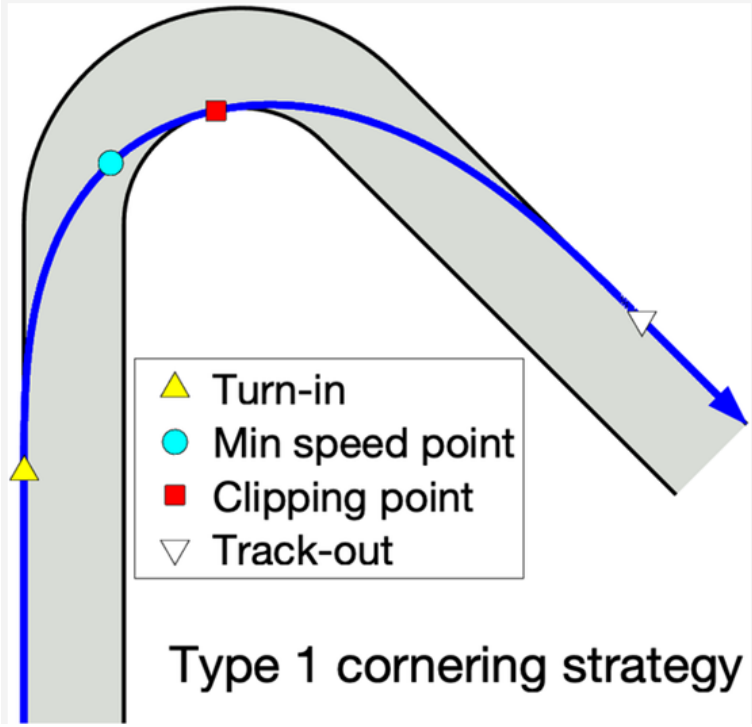
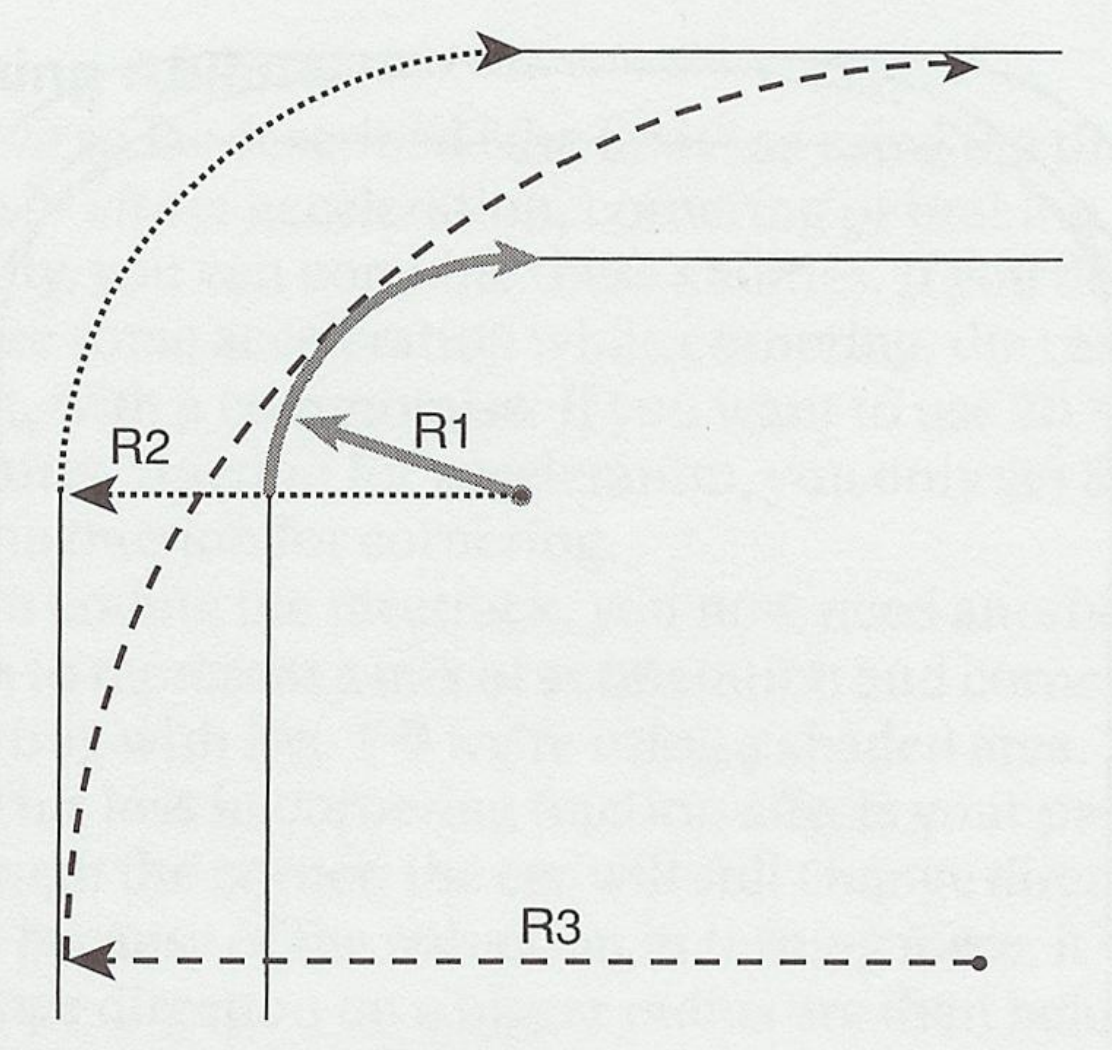


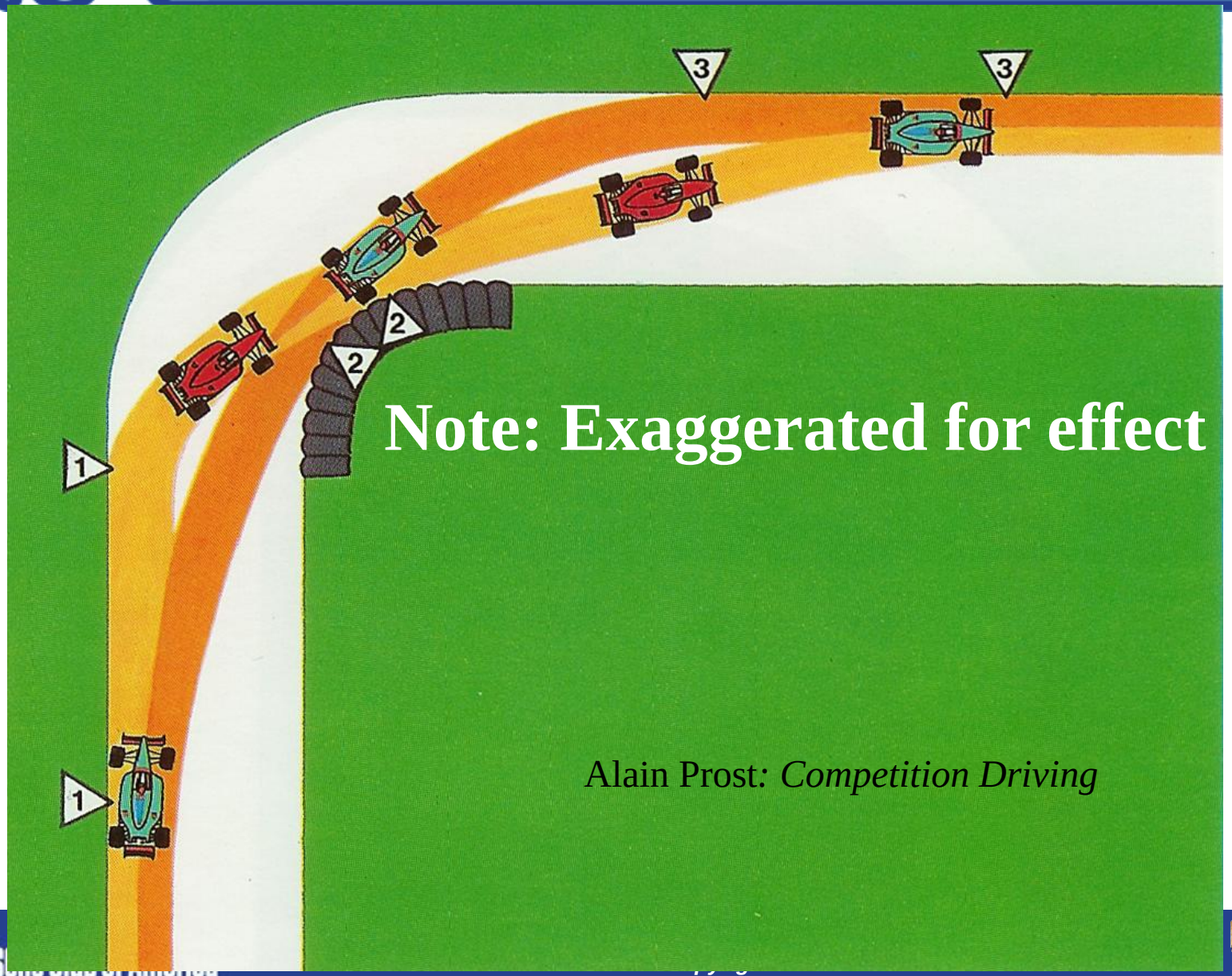
Diagram:
Speed Secrets Weekly 498
Chuck Tucker
https://HPDEclassroom.com

Radius = Speed*



* David Murry

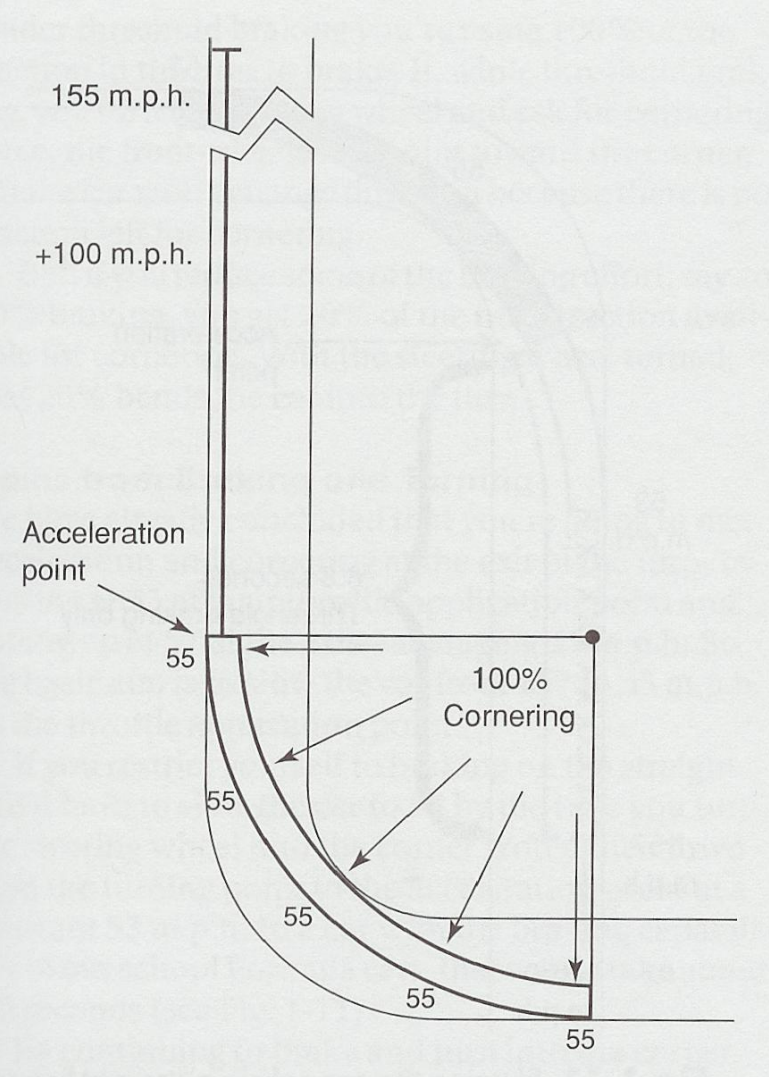
Classic Late Apex

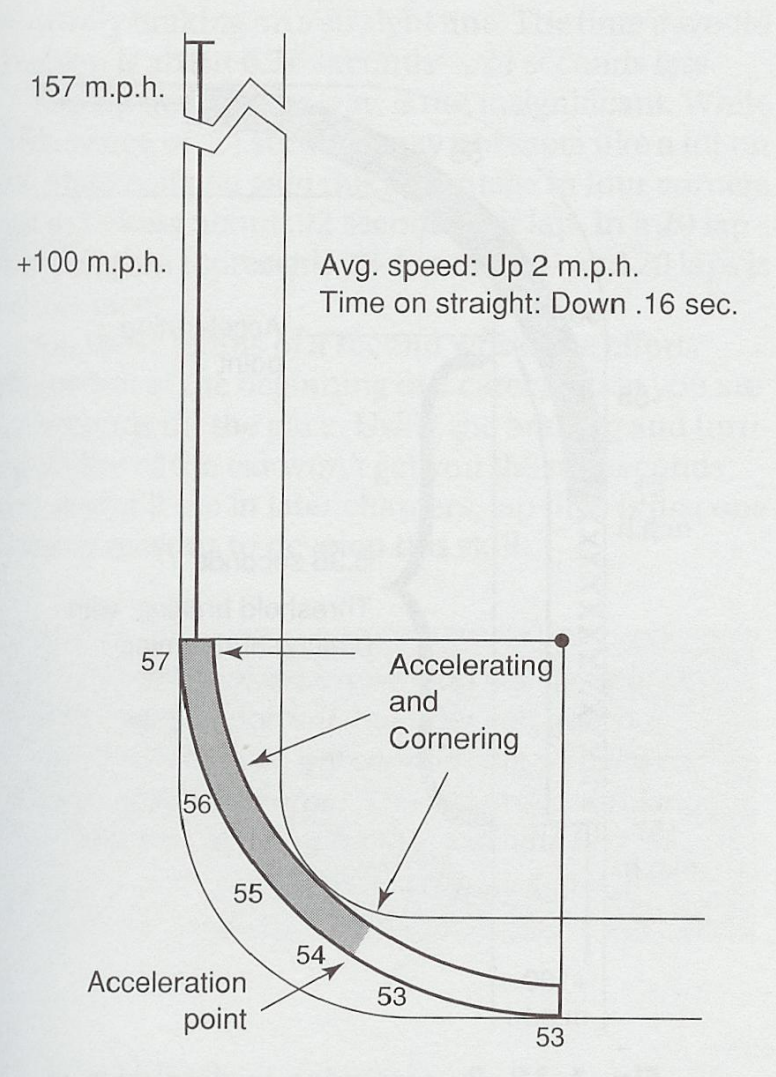


Note: Exaggerated for effect

Alain Prost*: Competition Driving*

Why a Late Apex Line?
It's All About the Exit Speed

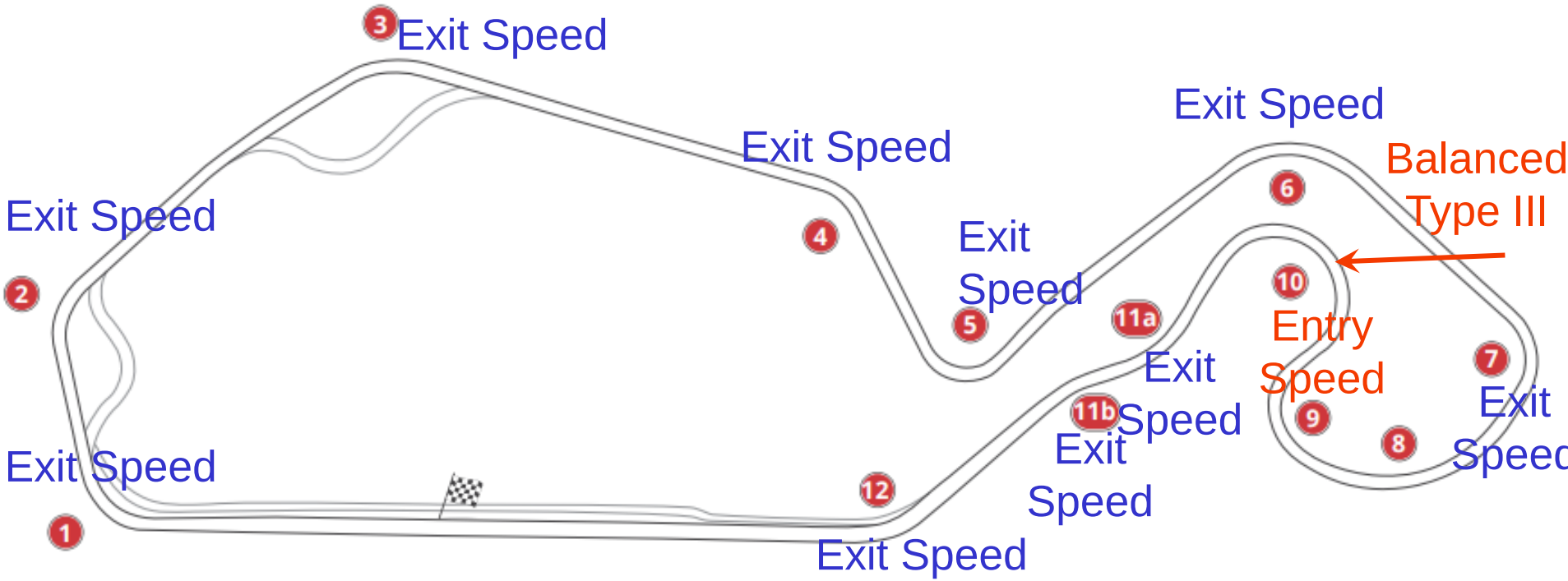




Carl Lopez*: Going Faster!*

Most Corners are Type I / Exit Speed

- Prepare by labeling each corner on Track Map



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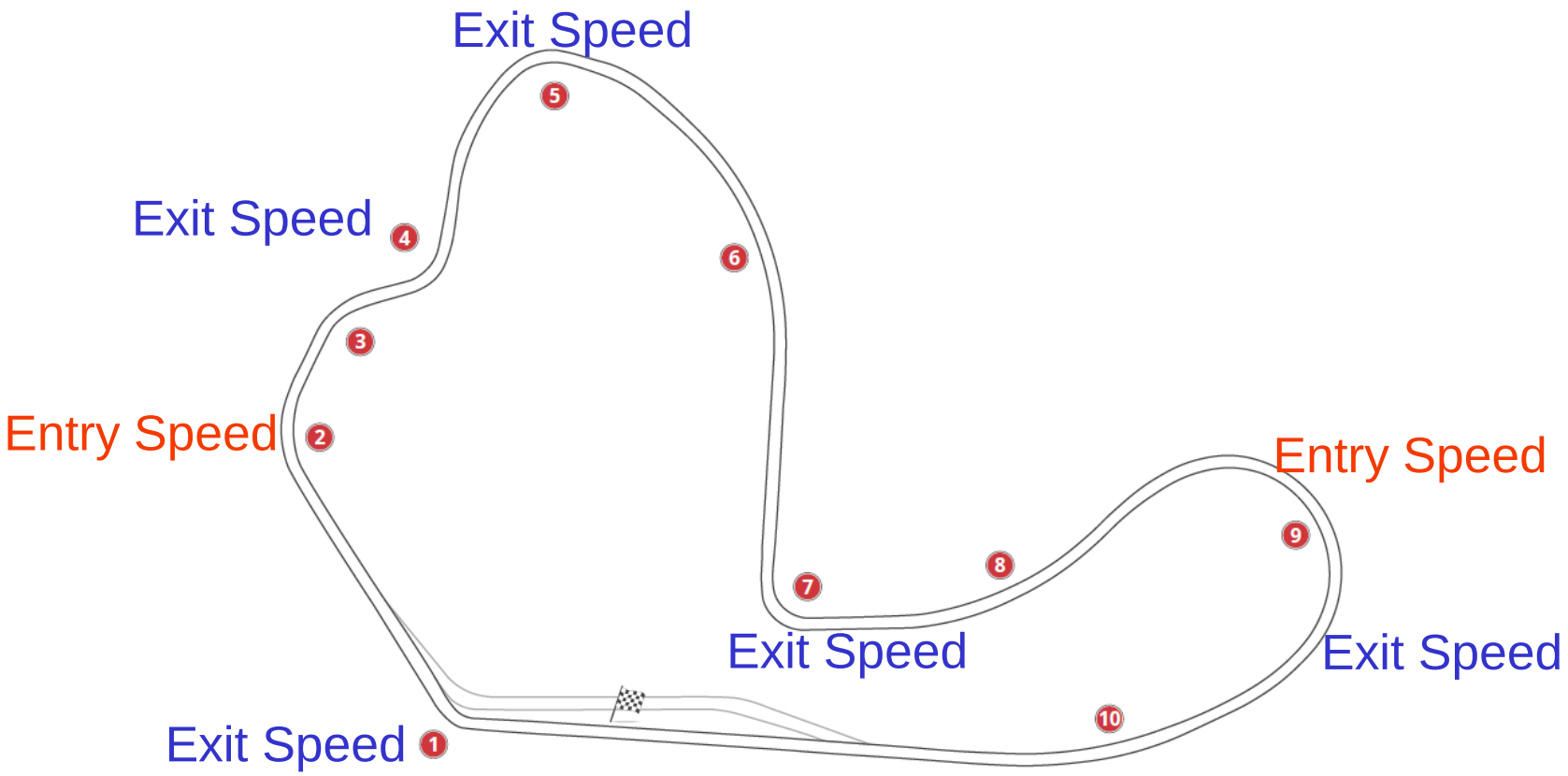

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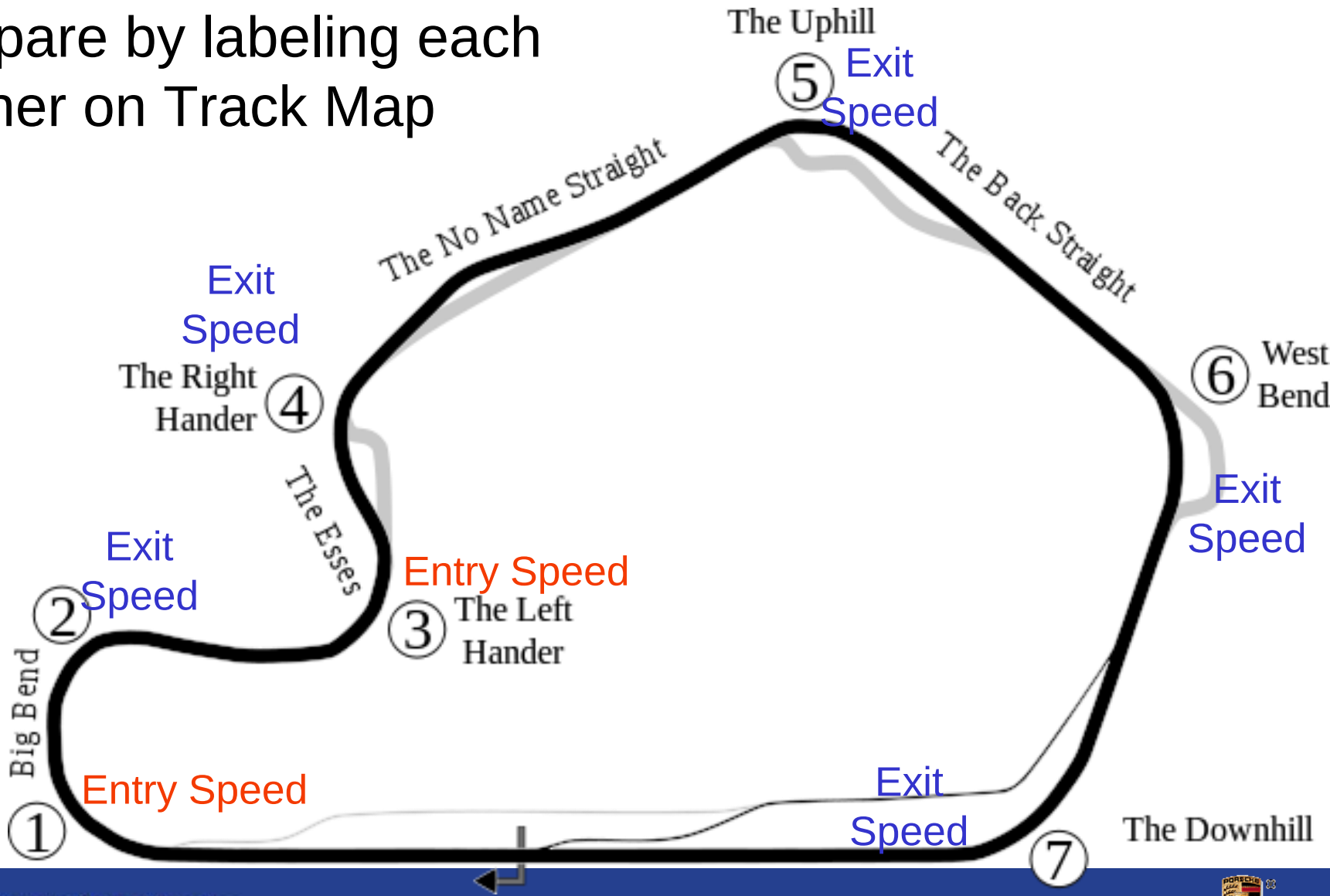
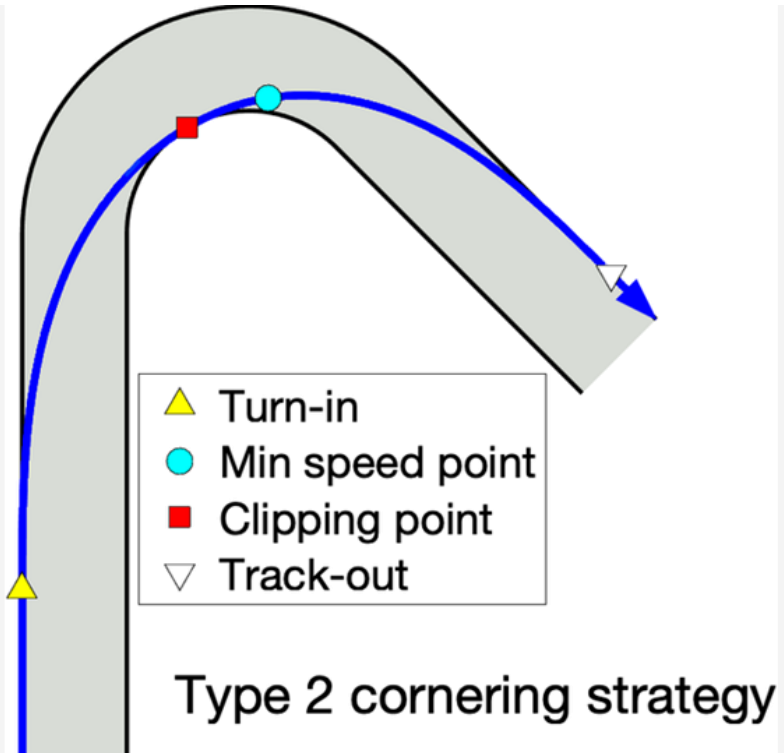


How to Use Corner Types?

- Entrance speed corners (Type II)
  - Objective: extend preceding straight
  - Early apex (before geometric apex)
    - Slow point is after apex



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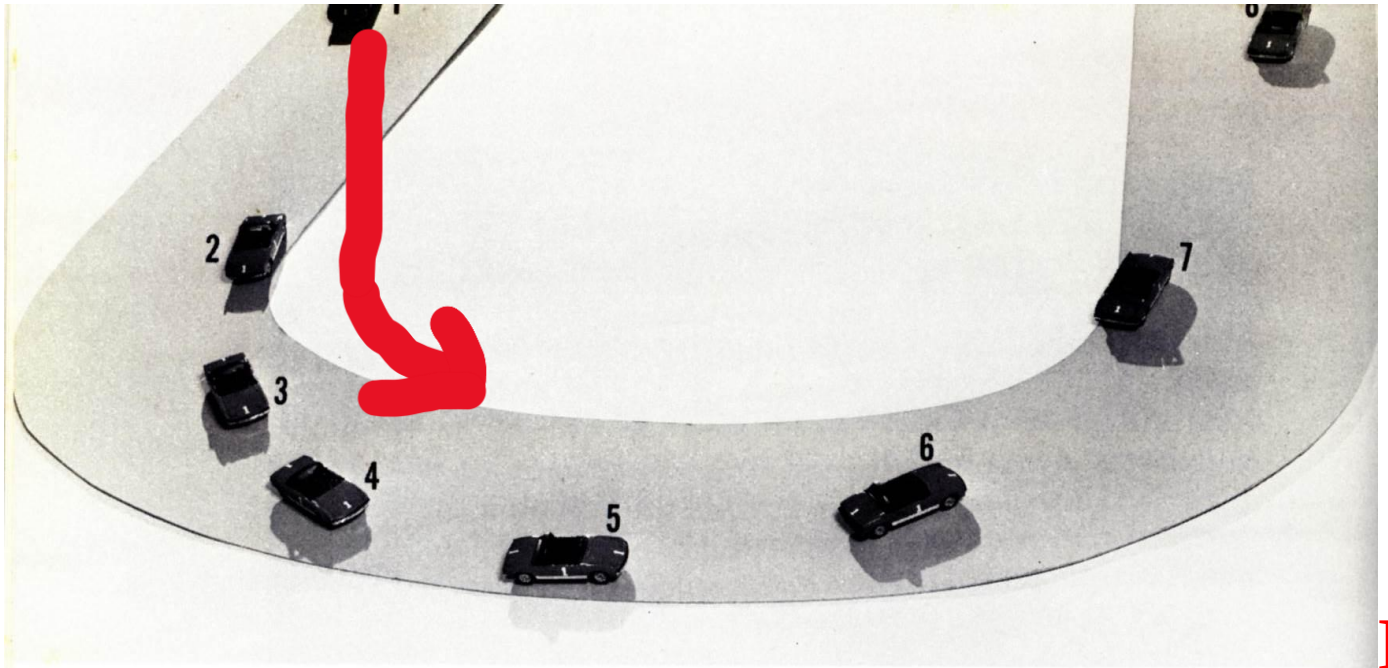
Classic: Type II leads to Type I
Entry Speed leads to Exit Speed



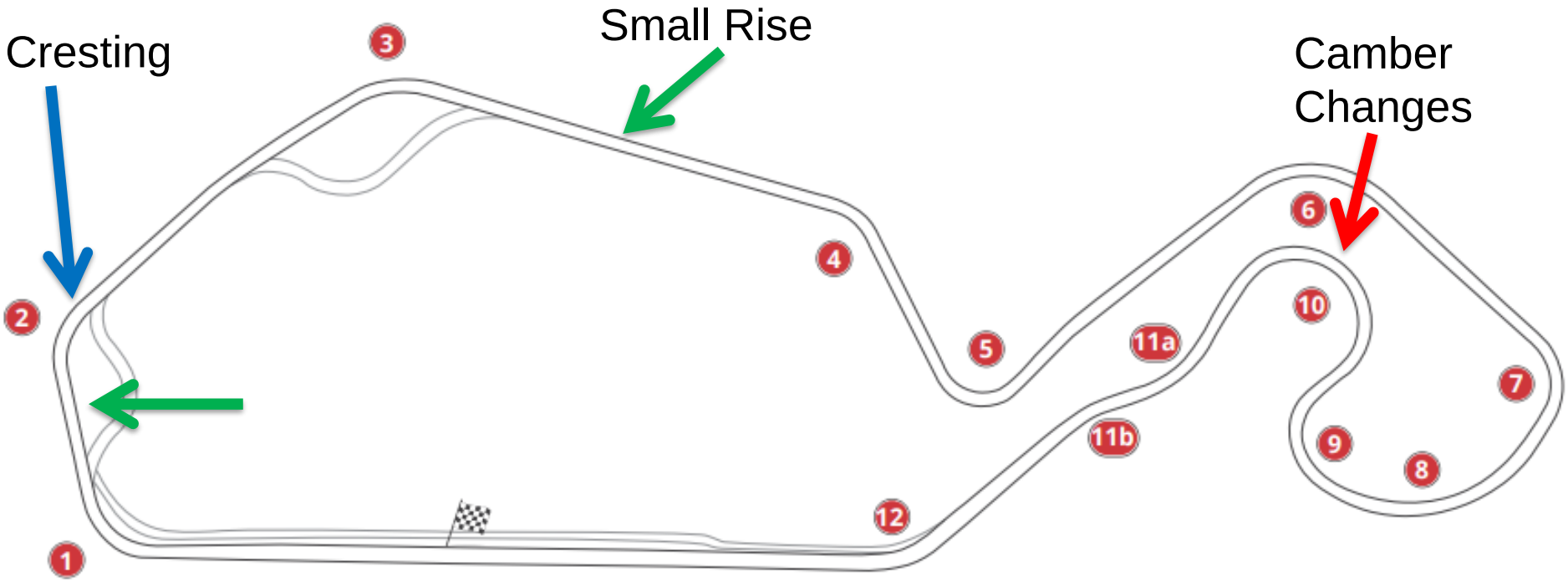
Compound turn that is a typical example of a Type II turn that leads to a Type I turn. Here you brake late coming into the Type II turn, then balance car and get set early for maximum-speed acceleration on to straight that follows.

1. *Delay braking just as late as possible.*
2. *Early apex.*
3. *Lighter braking as car begins to turn.*
4. *Balancing point. Transition to light throttle to "set" car.*
5. *Apply enough throttle to set up for exit.*
6. *Acceleration.*
7. *Late apex. Now under full throttle.*
8. *Exit turn, using all of road onto straightaway at maximum rate of acceleration.*

Big Bend
Lightbulb
Bus Stop
Keyhole

Alan Johnson: *Driving in Competition*

Adjustments: Camber, Elevation, Cresting



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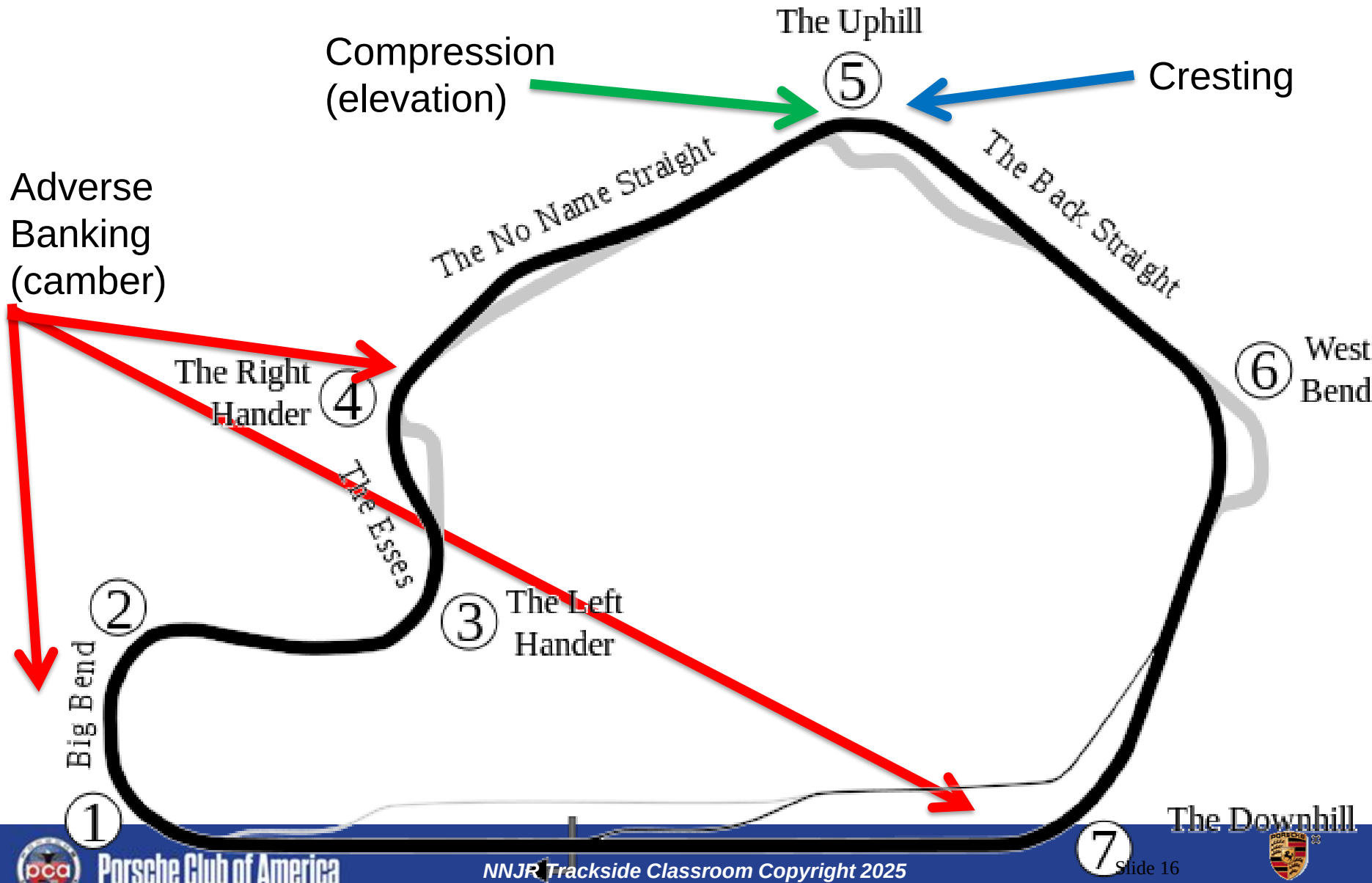

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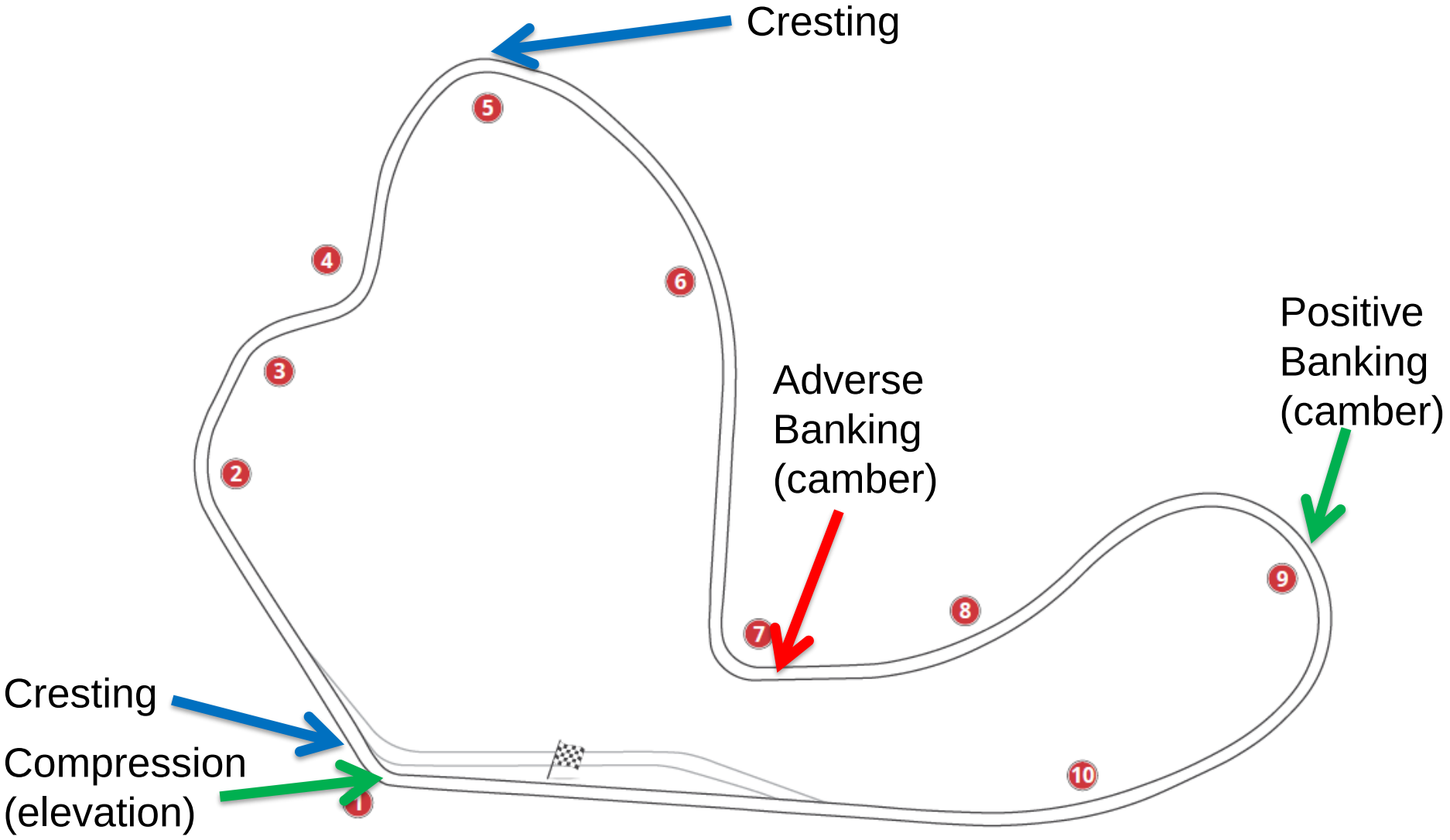
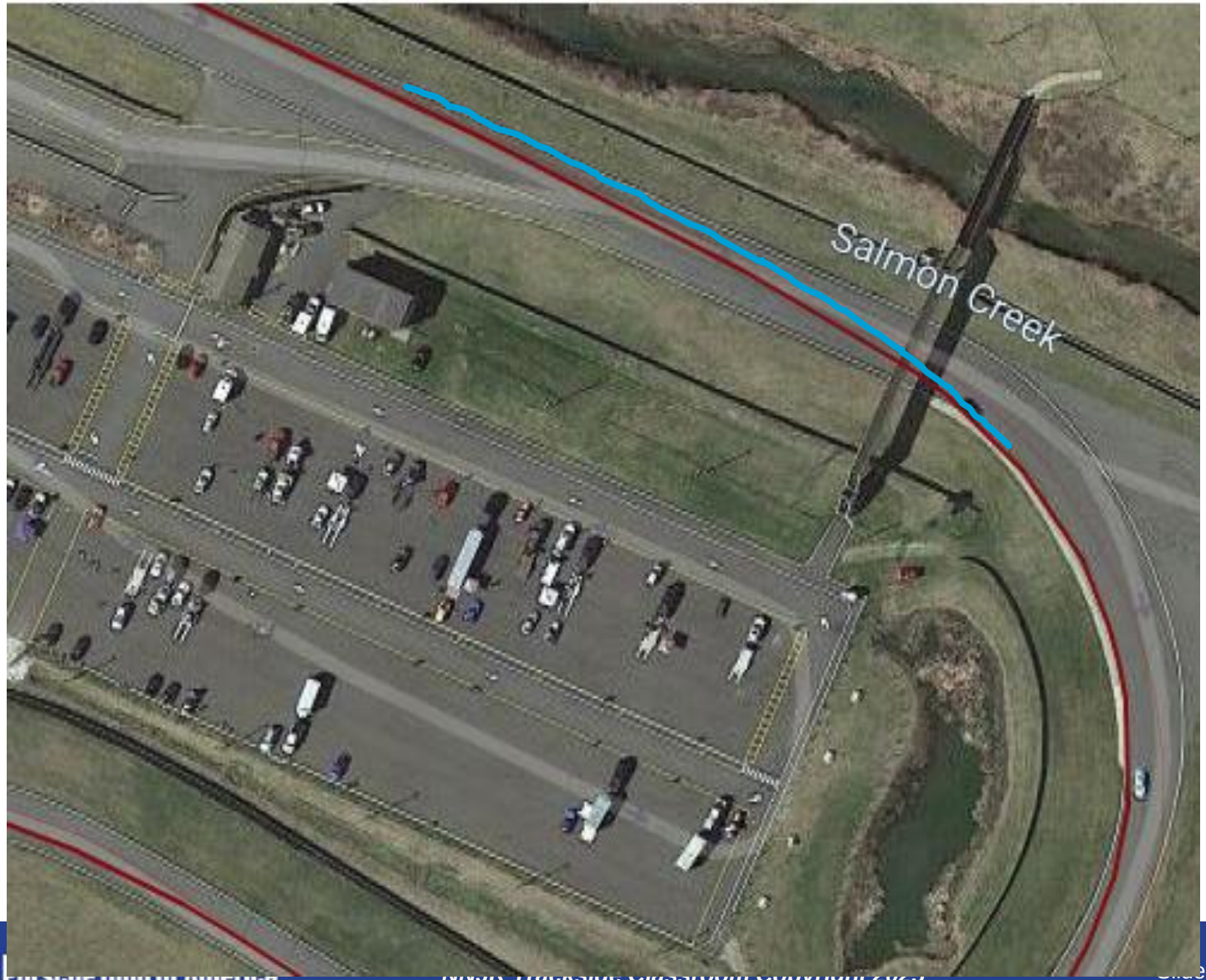


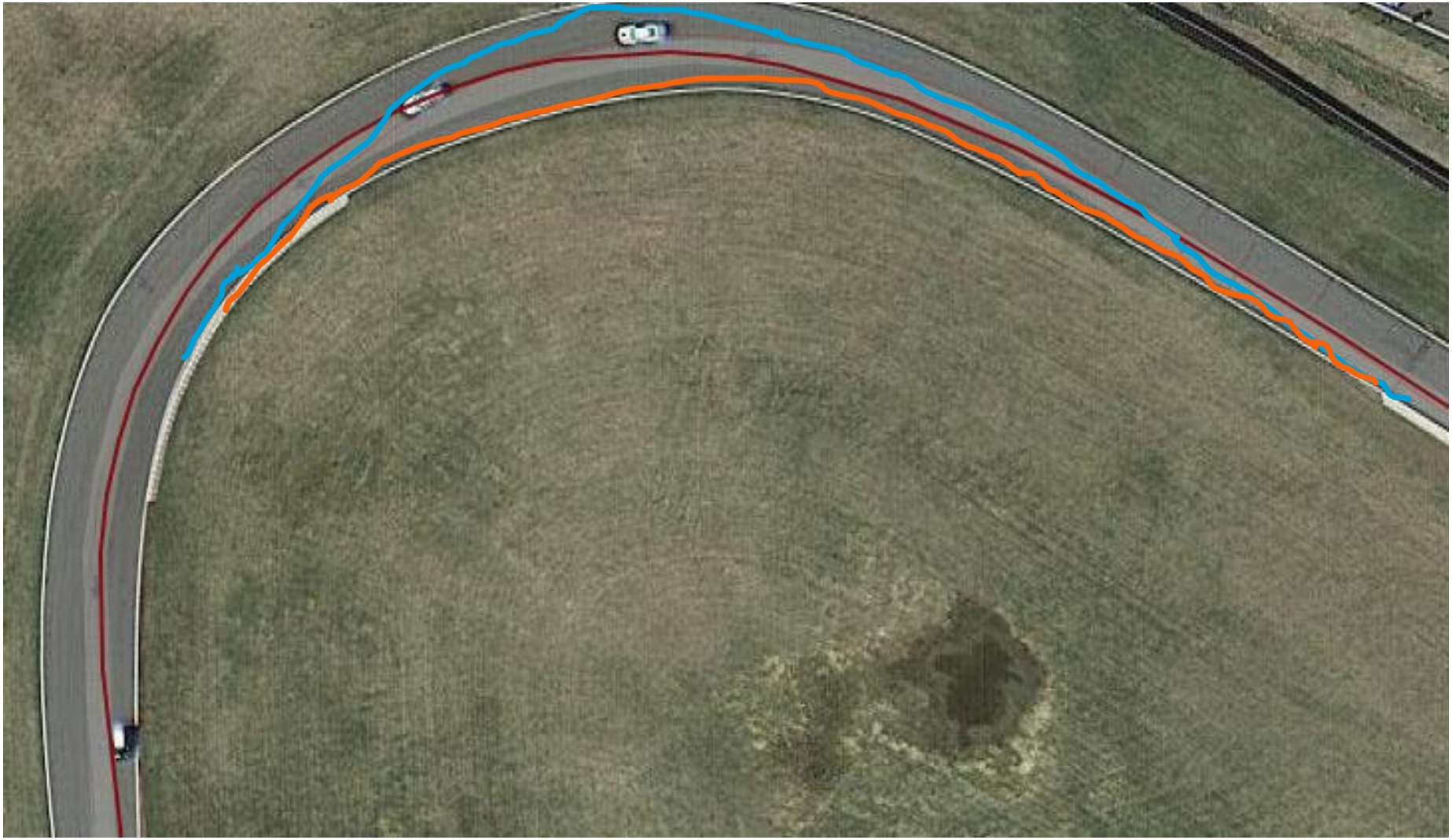
Possible Line Variations

- "The line is the line" has occasional variations
- Lime Rock
  - Approach to Big Bend
    - Diagonal vs. Later Turn In
  - Turn 3
    - How far right to enter?
- Lightning
  - Entry to Lightbulb
    - High vs. low
- Thunderbolt
  - Entry to Turn 5
    - How far right on entry?

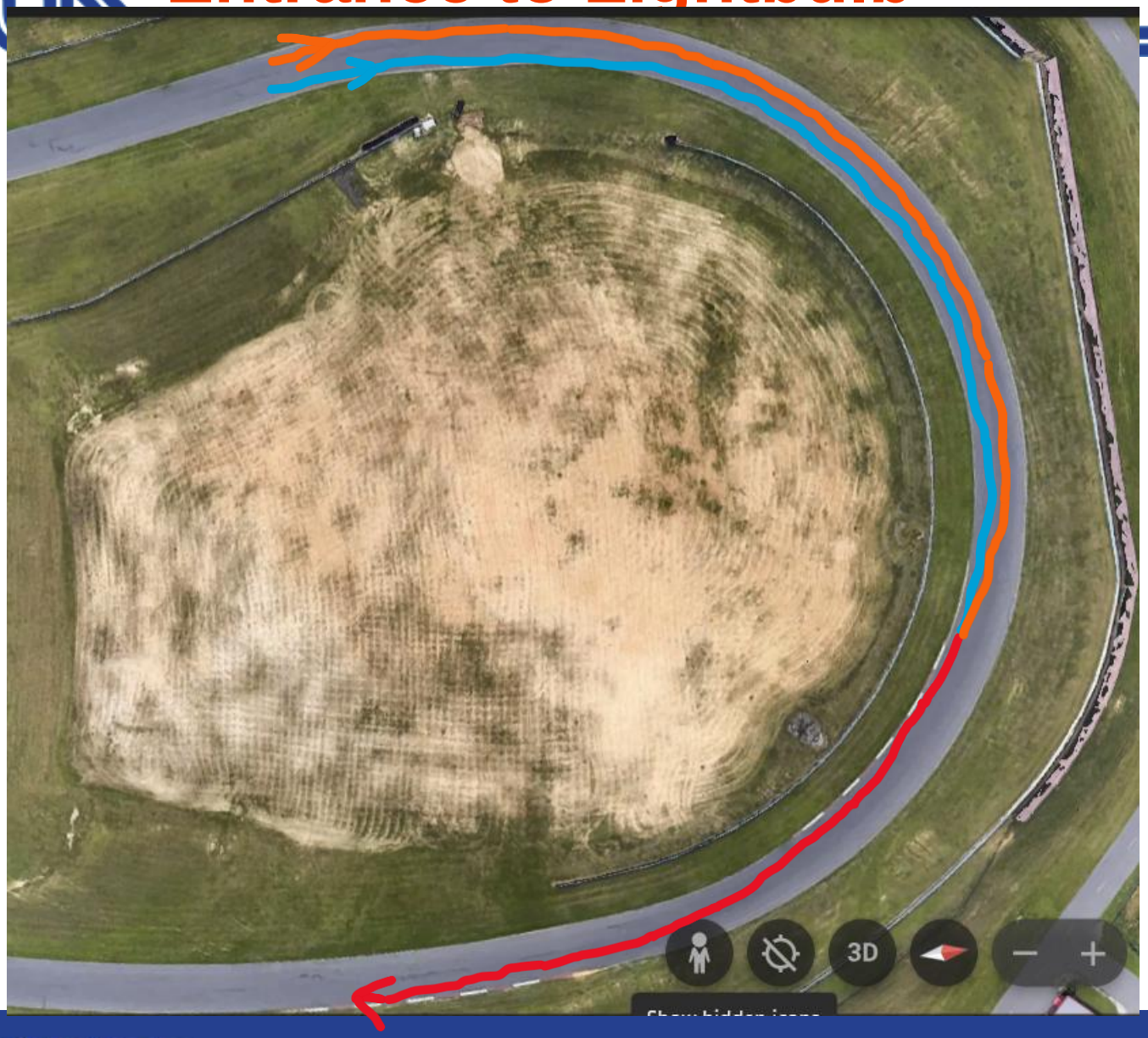
Approach to Big Bend



Turn 3

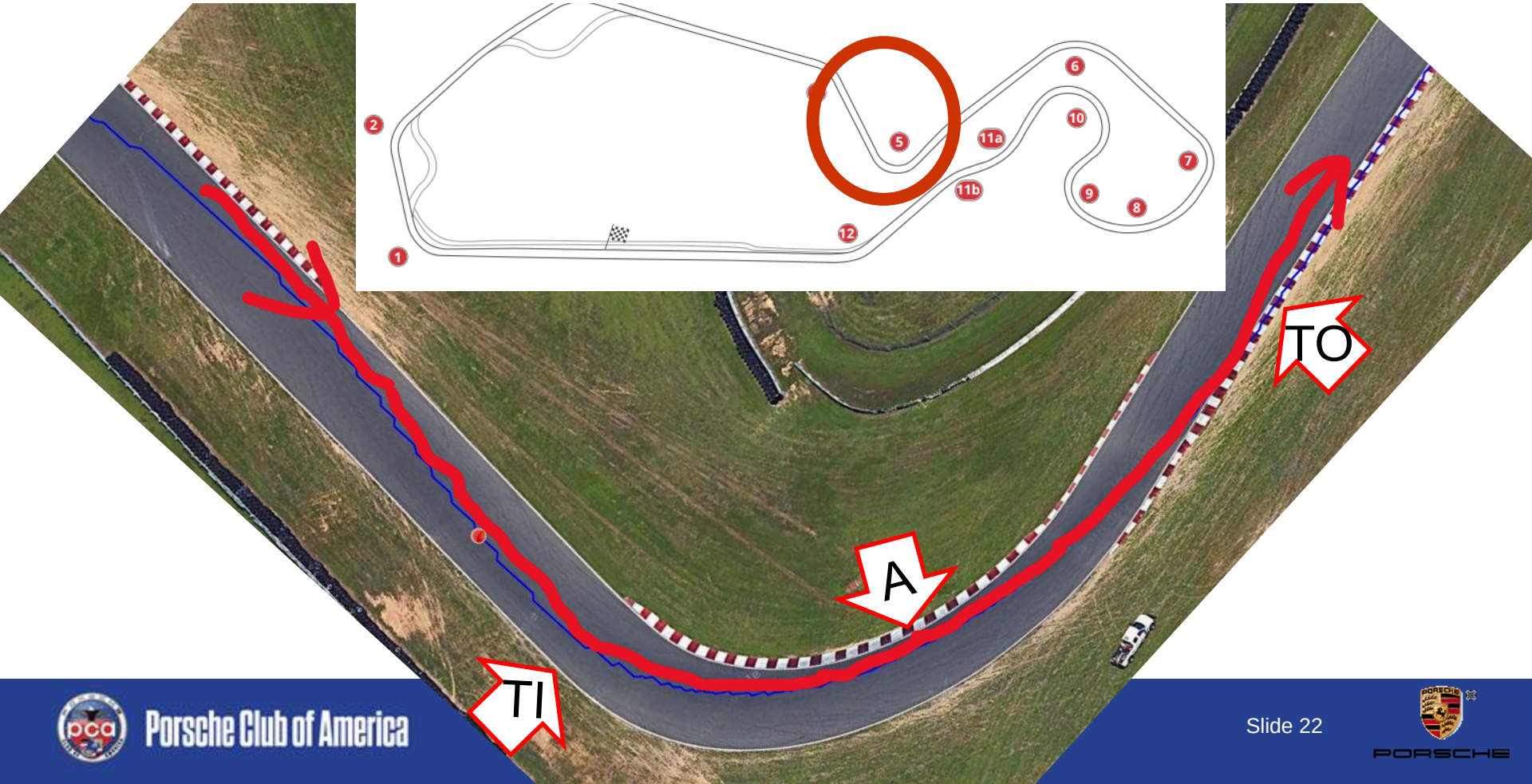


Entrance to Lightbulb



Turn 5: Mid Track Entry

- Allows faster Turn 4 Exit
- Favorable camber minimizes the penalty



Summary

- Approach “the line” as a learning challenge
  - Why this apex? Turn in?
  - Where is slow point? And WOT?
- Adjust line using corner type
  1. Type I: Exit Speed
  2. Type II: Entrance Speed
- Make adjustments and observe their effect
- Keep it safe!
  - Emphasize learning, not speed

Questions?

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