The HPDE 1ST Timer's Guide

What to expect & how to prepare for a High-Performance Driver Education event

By Ross Bentley & Ryan Staub

IMPORTANT INFORMATION

Motorsport of any kind is dangerous. Therefore, we provide our advice for you to use in the way you choose. We can't be held responsible for anything that might happen as a result. You're a grown-up — you're responsible for yourself — and by reading on, you are accepting that responsibility.

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Having said that, we love helping drivers – we enjoy sharing what we've been fortunate to learn through experience, study, and observation. With that in mind, please help get this eBook in the hands of more drivers. Please recommend to other drivers that they ***download their own copy****. It's free! All anyone has to do is download it themselves (i.e., don't send them your copy). Thank you.*

Have fun!

Ross Bentley & Ryan Staub

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INTRODUCTION

Welcome to the world of High-Performance Driver Education (HPDE). This will be one of the most, if not the most, fun learning experiences of your life!

We're assuming that since you're reading this eBook you're either about to start your journey in high-performance driving, or you recently have. The purpose of this eBook is to help you with your journey, and specifically to help you learn more in less time — in a safe way. Along the way we hope to address many of the concerns that individuals have as they consider attending their first HPDE event.

HPDE events are non-competitive. In other words, they're not wheel-to-wheel competition. If you're looking to go racing, you can use what you learn from the HPDE events as a baseline, or you can attend a driving school specifically designed to teach competitive racing. You will not find any competitive racing at HPDE events. One of the best parts of these events is that you can participate in almost any street vehicle. In fact, we highly recommend that you begin your HPDE journey in a stock/unmodified vehicle — it will lead to a better learning experience!

When looking at the term High-Performance Driver Education, notice the word "education." A key and critical component of all HPDE events is that they are all about learning. Learning to be a better driver, learning more about what your car can and can't do, learning how to navigate a corner or series of corners that make up a road racing circuit (while these events are not about racing, they do take place on race tracks), and learning to manage yourself.

You'll also learn that the people you meet at HPDE events are some of the nicest, most passionate people you'll ever spend time with. In fact, for many HPDE participants, what once started out as a way to learn how to drive their cars faster is now the most valued part of their social lives. Lifelong friendships and relationships have been built at tracks (and specifically at HPDE events!).

It's been said that motorsport is an extreme sport, and you can look at HPDE events in the same way, since the people you meet are likely to be some of the most extremely welcoming and enthusiastic people you'll ever meet.

Motorsport as a whole, but especially HPDE events, is unique in the sports world. If you're a football fan, it's unlikely you'll ever get to play a game in your favorite team's stadium; if you're a tennis player, it's next to impossible to play on center court at Wimbledon. But if you're a motorsport fan, you can drive your car on the same track that Formula One World Champions and Indy 500 winners race on.

But don't think that you need to be a fanatical fan of auto racing to want to participate in HPDE events. Again, that's what makes these events so great — there's something there for everyone. No matter why you're going to a track to participate in an HPDE event, it's okay. In fact, it's better than okay. It's super-awesome-amazingly-fantastic-cool!

Your Approach to HPDE

Okay, let's start with the important stuff: your overall approach to HPDE. It looks like this:

1. Safety
2. Fun
3. Learning
4. Speed

The number one most important factor to keep in mind at all times is **safety** — your safety and the safety of those around you. True, driving quickly on a race track involves some risk. But, managed appropriately, it's likely to be safer than your commute to work. At least on the track you can count on all the drivers heading in the same direction, having had training, and paying attention. Better yet, the fact that they're there means that they don't know it all and want to improve their driving. That can't be said for most drivers on our roadways today. Plus, because HPDE events have corner/turn workers that warn you of problems, and there's no passing without communication between the drivers (more about this later), it's not difficult to see that driving on the track can be safer than the street.

Inevitably, some drivers will be concerned about the potential for damage to their vehicle. While there is the potential that a driver's mistake might lead to bent metal, it doesn't happen very frequently for beginners. There are affordable insurance options that are available to cover your car while participating in HPDE events (more about this in the Resources section at the end of this eBook).

Having said all that, there's a reason HPDE is relatively safe, and that's because of the emphasis and focus on managing risk. Organizers of these events have evolved the rules, education, and controls for these events over the years. Follow these rules and you're more likely to have a safe event.

It seems unnecessary to even put "**fun**" on this list, doesn't it? I mean, how could it not be fun? Well, it is possible to take what you're doing too seriously, spend too much money, take too big a risk, and forget why you're doing this in the first place. And that's why it's important to remind yourself every now and then that this is always meant to be fun. If it ever stops being fun, then it's time to either reevaluate your HPDE goals, or find another sport.

Learning. Did we mention that already? Well, if we did, there's good reason to repeat it. You will find that there is more to high-performance driving than you ever expected. There is a LOT to learn. Some — those who have been doing HPDE events for decades — will say that it's a never-ending process. And one of the most interesting things you'll learn about high-performance driving is that when you focus on learning, you improve, and that's fun; when you focus on the results — how fast you're driving, what your lap time is — you will not improve as much, and that's not as much fun. Oh, and it's not as safe (remember that one?).

And that brings us to **speed**. Yes, most everyone who participates in HPDE events wants to drive faster than they can on the street. For some, that is a major reason for doing this; for others, it's a byproduct of what they learn (and still, they want to know how fast they're driving and what their lap time is). So, we get it. You will want to drive fast. Obviously, fast is a relative term, and some drivers want to drive faster or slower than others.

The important thing to keep in mind is that no matter how fast or slow you want to drive on track, it's okay. Well, if you want to drive too fast, too soon, there will be people telling you to ease off a little – they want you

to stay safe. And if you're not comfortable driving fast yet, don't worry. It'll come.

For practically every driver who has ever participated in an HPDE event, there comes a time when it clicks, when it begins to make sense, when it starts to become easier. It's the Aha! moment when what you know logically begins to sink in and your body just does it. In saying this, it also suggests that there will be a time when it's not "just happening," when it's not easy, when it hasn't clicked yet. And that's true, too. Almost every driver goes through this stage. The good news is that you'll come out the other side a better driver - with a big, satisfied smile on your face.

When learning anything, people talk about a learning curve. But, from our decades of experience with HPDE events, we know that drivers do not learn in a perfectly-formed curve of progression. There are steps to the progression. There are plateaus. And there are bursts of progression. The key is to not let a lack of progression frustrate you; rather, understand that a plateau is part of the natural human learning process and after each plateau is another burst of progress. Progress will happen — if you let it, if you have patience, if you don't force it.

Goals

The goals of HPDE events are to explore the limits of your car in a controlled environment, and to learn and develop the skills of high-performance driving.

While some people will do just one event to check an item off their bucket list, most people enjoy the ongoing challenge of improving their driving skills. Some do HPDE events for decades, some move to time trial competitions to compete for best lap times, and some move to competing in wheel-to-wheel racing. Oh, and some come back to HPDE events after competing in racing, and often that's because of the people, the culture, and the social environment.

Learning to drive on a track is challenging! It's not easy, despite what it might look like from the outside. And yes, there is some risk involved.

Here's the really good news: you're not on your own! No, throughout your time at HPDE events you'll interact and have access to a group of wonderful people known as instructors. There will be classroom instructors (guess where they instruct most of the time?), in-car instructors (bonus points if you figure out where they instruct, too), chief instructors, and quite possibly other instructors.

Oh, and there is another group of amazing people at HPDE events called volunteers. They range from registration people to "tech inspectors" (we'll get to explaining what they do soon), from corner/turn workers (the people who stand near corners at the track and wave flags to warn you of things you should know about on the track) to general organizational people (the world can't survive without people who love to organize events!).

It really is an incredible culture. You'll meet some of the best people in this sport, and someone is always there to help you — whether you need assistance preparing or fixing your car, figuring out where you need to go, learning something new, borrowing a tool, and so on. It truly is a joy to be a part of the HPDE world!

PREPARING FOR YOUR FIRST EVENT

Let's give you some guidance on the steps and preparation you should go through as you plan your first event.

First, you need to find your first HPDE event. You can find out about events through friends, Facebook, event organizer websites, or services like MotorsportReg.com and TrackRabbit.com (that have a very comprehensive calendar of events across the country). All event organizers will require some sort of online pre-registration where you'll enter some information about your background and emergency contact (don't worry, it's just playing it safe), select the event and date you want to sign up for, and pay for the event. Okay, you're registered! And now you'll get some information sent back to you with a schedule for the event — it'll tell you where to show up, when, and what to bring (or not bring).

Your Preparation

Let's say you registered for an event on a Saturday in May at a track called Funville Raceway. Our first suggestion would be to go online and Google "Funville Raceway track map" (or check the Resources page at the end of this eBook). Find a simple layout of the track, print a few copies out, and begin memorizing which direction the cars travel on it, which corners turn right and which turn left, and what each turn is called. Many tracks simply number the corners, but some tracks have a name attached to each corner. You want to know this information well enough so that when an instructor mentions "Turn 5" that you know that is a fairly sharp right-hand corner.

Next, take a little time on YouTube and search for "Funville Raceway in-car video." Here you'll find all sorts of videos of people driving this track from the perspective of the driver. Now, never forget that everything on the internet is not necessarily good! In fact, there's a good chance that some of what you see will demonstrate the wrong things to do. But, some of what you see will be good – in fact, some will be very good. Your job at this point is not to decide what is good and what is bad, but simply to get a general idea of which way the track goes, and a relative feel for which corners are fast and which are slow. Doing this bit of homework will make your experience at the track more fun and productive.

How about some elective work? You know, the stuff you don't have to do, but it's probably a good thing to do. In this case, we suggest you read whatever you can about the general act of high-performance driving. The more driving language you understand, and the more terms and phrases you know the meaning of, the more you'll learn when you're at the track. Every HPDE instructor will tell you that a driver who shows up with some baseline knowledge will have more fun, be safer, and learn faster. In the Resource section of this eBook, we provide some recommended reading.

Car Preparation

Your car needs four things before your first event:

1. Tech inspection by a qualified mechanic to make sure everything is in proper working order.
2. Sufficient brake pad material/rotors.
3. A fresh brake fluid flush (change to high-performance fluid).
4. Sufficient tread depth on the tires.

That's all you need, really! And notice there was no mention of things to make your car faster. A stock/unmodified car in good working condition is all you need to have a great HPDE event.

And it's good to keep in mind the priorities for any and all work done to your car:

1. Safety
2. Reliability
3. Speed

A faster car that is either unsafe or unreliable will be no fun at all. You won't learn much about driving, but you will learn about how to use your credit card! It'll cost you.

At your first event, your focus will be on creating a solid foundation of high-performance driving skills. A reli-

able stock car helps you feel weight transfer and won't mask little mistakes as much as a heavily-modified car. You will have a better learning experience in a stock, lower-performance car.

Many people wait to do their first event until after they've upgraded their car in a variety of areas. It's often best to do the opposite; drive first, modify later. Drivers often realize that they would have modified their car differently had they waited until they had some HPDE experience and knowledge. You will spend your money more efficiently if you start with a stock car and add to it as your personal performance improves, when you can truly identify the shortcomings of your car, and when you can get feedback from peers on the best changes to make to your car. You'll save money in the long run with this approach.

Enthusiasts that start with a $2,000 car often have just as much fun as the person who brings a $150,000 sports car. It's true! It's not about the speed or capability of your car, it's about learning how to maximize the performance of your car through your skill development as a driver.

Have your car checked by a qualified mechanic or shop. The parts of your car that are most important are the brakes, tires, and suspension. For sure, have the engine oil checked (and changed, if it's been a while since it last changed), but the most wear and tear will be on your brakes and tires.

Your brake pads should have at least 50% of their life (measured in pad thickness), and for many cars they should be closer to 80%. It is not unusual for a car to use up a set of brake pads – ones that had more than 90% of their life in them still – in a single day at the track. These are usually heavier cars that achieve high top speeds on the straightaways, and therefore need to brake harder and longer to slow for the corners. But there are exceptions to that guideline — some lighter, slower cars can wear out their brakes in a day at the track. Therefore be prepared.

Keep in mind that if your brakes do wear out at the track, it's possible that you won't be able to continue to drive (some HPDE events do not refund any of your money if you have a mechanical problem with your car and can't continue). And finally, the consequences of a mechanical problem with your brakes is not something you want to experience!

It's also critically important that your brake fluid is bled. This means flushing the old fluid and replacing with new fluid. Why? Because your brakes will get very hot from the heavy use on the track, and old fluid can actually boil. When that happens you introduce air into the hydraulic system, resulting in the brake pedal feeling soft and mushy – which, not surprisingly, dramatically reduces braking performance. Not good!

Your tires will be used harder than ever before. If they have less than a third of the tread depth, driving them on track is dangerous – especially if it rains. Have your tires checked well in advance of the HPDE event so if you need new ones you'll have time to replace your old ones.

While you're having your brakes, tires and engine oil checked, have the suspension checked as well. Ensure there are no worn ball joints or tie-rod ends, and that everything is tight. We don't need to tell you what could happen if you car has a suspension failure on track. And remember, your car will have more load and wear and tear put on it in one day at the track than it will from years of driving on public roads.

Having said that, let's look at this wear and tear issue logically and with the right perspective. Let's say that your

brakes would last about 25,000 miles of regular road driving, and your tires something similar. A day at the track could use up half of that. But what you learn in one day on the track would take hundreds of thousands of miles of driving on the road to learn – and you would likely never learn it there because of the safety limitations on the road. So yes, you will put some extra wear and tear on your car, but it's well worth it. And what we're talking about here is the kind of wear that you'll experience after you drive on track more (and you're driving even faster). For many cars, the amount of life you take off your brakes and tires during your first day or two of HPDE events is more akin to taking a week off their life during typical road driving.

One last thing we'll say about having your car checked for the track is that it's a good practice to choose a mechanic who knows something about tracking a car. Some very good, qualified mechanics just don't have the experience of working on cars that are driven on track, so they don't know what to look for, and how much wear and tear to expect. Ask around, and find a shop that is experienced with cars that are driven on the track.

Before You Get to the Track

Before you head to the track, you'll need to pack some supplies in your car. While you want to be prepared, keep in mind that all the "stuff" you'll bring will need to be stored outside of your car for the majority of the event.

With your car checked over and ready to go, finally, it's time to go to the track! Yay! Almost. Before you get there, do two things:

1. Fill the gas tank (some tracks sell gas, but it's almost certain that they'll charge a lot more for a gallon of gas than a station away from the track will).
2. Check your tire pressures, and ensure they have at least 5 psi more than you usually run in them (we'll get into the why of that soon — for now, just make sure you have more air in your tires than you usually do, as you can bleed them down when at the track).

Finally, come rested, prepared, hydrated, and ready to learn. This is your escape from real life and responsibilities, so come prepared to make the most of this event! Interestingly, most HPDE drivers will tell you that driving around the track is the most relaxing thing they do in their lives. Why? Because it requires full focus and concentration, and therefore other distractions go away. The track may be the only place where you can totally focus on what you're doing in the moment and not be thinking about what's happened in the past or what you have to do tomorrow! But that starts with being well-rested and ready to learn when you get to the track.

What to Bring

- Personal care: water, cooler, snacks, sunscreen, appropriate clothing, totes/storage (for all the stuff you take out of your car), a change of clothes, jacket, etc. It's good to expect the unexpected with the weather and bring more clothes than you think you'll ever need. I don't think we need to remind you that weather forecasters have been known to be wrong; drivers often regret not packing an extra jacket, gloves, or shorts.
- What to wear: many HPDE organizers require participants to wear full-length pants, and nearly all organizers require participants to wear close-toed shoes. Some require long-sleeve shirts. Pack accordingly… it'd be terrible to travel a few hours, show up with shorts and flip-flops, and then not be allowed to drive on track.
- Tools/car care: a spare bottle or two of engine oil, a tire air pressure gauge, a torque wrench with a socket for wheel lug bolts/nuts, and some basic hand tools. Be sure to bring hand cleaner and towels, as

well as window cleaner for your car's windshield.
- Safety gear: check with the group you'll be participating with, but most require a Snell-rated helmet that has either the current or prior certification. Certifications are done every 5 years. In 2019, most 2015 Snell-rated helmets and 2010 helmets were eligible. See the Resources page for potential safety gear sources.

Even if you forget something, people are always willing to help. More than likely someone will be happy to show you how to torque your wheels or to help you check tire pressures. Remember what we said about there being extremely fun and helpful people in the HPDE community? While you can count on that, don't plan on relying on them all the time (but do plan to be one of those fun and helpful people, yourself, in the near future).

Once You Get to the Track

Even though you have registered for the event (likely online), you will need to check in/sign in when you get to the track. Often you can check in the night before to get the appropriate information needed (e.g. schedule, car numbers, sign waivers, etc.). We recommend checking in early… no one likes to be rushed at their first event (or any event after that!).

Plan your day. Get the schedule and figure out the flow of the day; when and where you need to be for drivers' meetings, classroom sessions, and when you're driving on track. You don't want to miss one of your on-track sessions because you were off-site eating lunch!

When you first arrive at the track (again, give yourself time to get there early), you'll want to find a place to park your car in the paddock. The paddock is the parking lot next to the pit lane, which is the roadway that leads onto the track. At most events, paddock parking is on a first-come, first-served basis, although there are likely to be a few reserved spots for key personnel who require access to certain facilities. So don't be surprised if you're asked to park somewhere else.

Once you find a spot, it's time to unload your car. And by unload, we mean unload everything. Actually, this unloading should have started at home by bringing as few things in your car as possible. When you go on track, there should be nothing in your car. Not in the back seat, not in the floorwell in front of the passenger seat, not under the seats, and not even in the trunk. Empty everything. Even the spare tire if it's not very securely bolted in the trunk. Imagine for a moment your car in a crash… and anything left under a seat, in a door pocket, on the back window shelf, or wherever flying around inside the car and hitting you or an instructor sitting in the passenger seat. Safety first! Empty your car.

You can often tell a seasoned HPDE driver by the fact that they have brought a plastic tarp or a number of totes/bins with them to the track. They spread their tarp out on the ground next to where they've parked in the paddock, unloaded everything out of their car (including the small toolbox they brought with them) onto this tarp, and then pulled part of the tarp back over it all to protect it from the weather. Don't wait to be a seasoned HPDE driver to do this – bring a tarp or some plastic bins. While it can't hurt to bring some basic tools with you, you can usually count on someone else having what you need at the track if you don't. Again, hopefully some day you'll be that go-to person that others will count on for a tool, a bottle of engine oil, some brake fluid, and an ice chest with cool water.

Speaking of water, drink lots of water throughout your time at the track. It's especially important to remind

yourself to do this on cold or cool days when you're not as thirsty. Driving takes physical and mental energy. More than you'd think. And physical energy uses up fluids in the body, so unless you replenish them, you're going to get dehydrated before you know it. Drink water throughout the day and before you feel thirsty. Your body and brain need water.

Let's go back to the comment about tools. We said it's possible to come to a track without any tools, but there's one exception we'll make here. Bring a tire pressure gauge. They're inexpensive to buy, and you really should own one anyway. At the track, checking tire pressures becomes an activity done as often as breathing. Okay, not quite, but almost. Remember we recommended showing up with at least 5 psi more pressure in your tires than usual? Once you're at the track, and before you drive on track, you want to check and adjust these pressures. What's most important in the beginning is that your tire pressures are higher than you would use when driving on the road, and that they are equal side to side (and often, front to rear).

Why the higher tire pressures? Because you'll be putting more load on your tires when cornering than you ever do on the road. If you can't find someone to give you some advice on what pressures to run in your tires, then just start with them 5 psi higher than usual. Over time, with experience, you'll learn more about tire pressures and find out what's ideal for your car and tires.

At some HPDE events you'll have to have your car officially checked. This is typically called Tech Inspection, and is meant to give your car a quick check to see if it's mechanically safe to be driven on track. If you've done your homework and had a qualified mechanic/shop check it over, this should be a formality. But every now and then, the volunteer "tech inspector" (we told you we'd come back to this person!) will find something that you or someone else missed. Don't look at this as a bad thing; look at it as a good thing. It could be as simple as a loose battery connection, loose wheel nuts, or unequal tire pressures.

Something very important to keep in mind with the tech inspection process and the people volunteering to help: they are not responsible to ensure your car is safe. Only you are! They're there to help you, but it's ultimately your responsibility to ensure your car is safe and prepared to be driven on a track.

Don't be shy! If you need help with anything, ask for it. You'll be amazed at how people will go out of their way to help people new to this sport. And guess what, you might make some great friends at your first track event.

Drivers' Meeting

For most HPDE events, the first thing you'll do is attend a drivers' meeting. You must attend these meetings, and some organizations will not let you drive on track if you've missed it. It's at these meetings where event leaders will provide a general overview of the event and the rules, as well as the overall schedule for the event.

These meetings are usually very early in the day (did we mention how important it is that you get to the track early?). Be on time! Usually run by the chief instructor or event organizer, these meetings will cover the objectives for the day, the rules and overall tone of the event, and the etiquette for on-track behavior. Some of the key topics discussed include:

- Lay of the land: where classroom instruction will take place, where you will meet your instructor, where you will line up (grid) prior to going on track, etc.
- Getting on and off the track: pit speed limits, where to pit-out to get on the track, and where to pit-in to get off the track.
- Passing: typically only in designated zones (straights), and the "point-by" rules (we will cover these shortly).
- Flags: a quick overview (which is why it's important for you to read and learn the information we provide in the Resources section at the end of this eBook).

Classroom Instruction

As you are new or relatively new to HPDE, the classroom session is likely to be next. Here, the classroom instructor will talk through information such as:

- How to sit in your car so you can use the controls (steering wheel, pedals, transmission, mirrors) properly.
- How to manage the traction of your four tires.
- What to do if your car begins to slide.
- Where to look when driving on track.
- How to determine the right path or line to drive around the track and through corners.
- What the various flags mean that corner/turn workers use, and what you must do when you see them.
- What to do in an emergency (such as unintentionally driving off the track).
- How best to communicate with, and get the most out of your in-car instructor.
- What the overall schedule for the day/event is.
- Who you should go to for information and to ask questions.
- What the traffic flow is in the paddock area, and how to get on and off the track.
- What the rules are regarding passing (can you pass, and if so, where).

As you see, there's a lot of information that is covered in this classroom session, and that's why the more you can learn before you arrive, the better. Fortunately, some organizations break these classroom sessions up into shorter sessions so your brain doesn't get overloaded – most offer several classroom sessions throughout the day, with varying levels of information presented. But even so, it's a lot of information to learn and remember.

The classroom sessions are a great opportunity to understand the theory and physics behind high-performance driving, which help you get more out of your on-track sessions. The more you understand the driving techniques you'll be practicing on track, the more you'll learn in the all-too-valuable time behind the wheel.

The classroom sessions are also one of the best times to ask questions. You know what the only dumb questions are, right? The ones you wish you'd asked when they first popped into your head (and you're now in a stressful situation wondering what to do). Ask questions.

At long last, it's finally time to drive! Depending on the event, you'll either head straight on track or do some form of driving exercises (skid pad, emergency braking, slalom, etc.) to get warmed up. In most situations, you'll have an in-car instructor with you, guiding you. This person should now be the most important person in the world to you. Treat them like your best friend, and as if your life depends on them (in some cases, it does).

Working With Your Instructor

Your in-car instructor will likely start off by asking you some questions to learn about you, your driving, and your car. Give them as much information as you can, as this will help them help you. The relationship you have with your instructor will make the biggest difference as to how safe you stay, how much fun you have, how much you learn, and ultimately how fast you drive.

Help your instructor help you. While your instructor is the one instructing you, they need feedback too. Instructors can sometimes use terms/jargon that you might not be familiar with – stop them and ask them to clarify. If they're talking too much or too little as they are instructing you, let them know. Always make sure that they understand what you want to get out of this event. Nearly all instructors want nothing more than

their students to have a safe and fun experience. The more feedback you provide to help them instruct you effectively, the more you'll both enjoy the event.

In rare cases, the connection and communication between you and your instructor just doesn't quite work. Again, it's rare, but it can happen. Give it some time, but if it's not improving do two things:

- First, explain to your instructor – politely – what isn't working. Give them a chance to adapt to your needs.
- If that doesn't work, go to the event's chief instructor and politely explain the situation. In many cases, the chief instructor will swap your instructor with another one. If the same thing happens again, you have to look at yourself and think about whether you can adapt to the instructors.

Keep in mind that most HPDE instructors are volunteers and are doing this to give back to the sport, to help others, and for the joy of seeing you "get it." Treat them with respect and they will look after you.

When we say that your instructor will look after you, never forget their priorities:

1. Safety
2. Fun
3. Learning
4. Speed

Instructors use their experience to constantly prioritize what the right things are for you to focus on and practice at any particular time. Your instructor's priorities for you may not agree with your own priorities. For example, you may want to try accelerating sooner coming out of a corner to get up to speed on the straightaway, but the instructor may have noticed that the line you're driving is not yet correct. The incorrect line with too much speed can quickly lead to disaster, and it's your instructor who will help you stay safe. Listen to them, even when you think you know better. Your instructor's priorities for you are a priority over your priorities!

If your instructor is asking — or telling — you to do something, there's a reason for it. You may not understand the reason yet, but go along with them. Then, when it's appropriate (usually after the session when you're back parked in the paddock), ask them why they instructed you to do what they did. Not in an accusatory way, but in a "I want to understand why so I can learn" kind of way. Remember the HPDE priorities (safety, fun, learning, speed).

On-Track Driving
Did we mention that on-track driving is all about learning? And it's fun?!

Over the course of your first HPDE day, you'll likely get anywhere from three to six sessions of on-track driving. Sessions are typically 15 to 30 minutes in length. You will have an instructor in your car who will help direct you around the course and provide feedback and direction on your driving inputs and skills.

When you first start driving on track, you'll probably feel a little overwhelmed. There's a lot going on: knowing where to drive (the line through the corners); apexes; cones to aim the car at, knowing when to brake and when to accelerate; looking further ahead; changing gears (if you're driving a manual transmission car); being aware of the cars ahead and behind you; knowing when you can pass and when you can't; applying and releasing the gas and brake pedals smoothly; turning the steering wheel with two hands; noticing the flags that the turn workers are waving; and more.

That's a lot for your brain to process! In fact, it's too much. And that's one of the main reasons for your in-car instructor. They will help you prioritize these tasks, and even take some of them away from you. For example, if you're driving a manual transmission car, your instructor may suggest keeping it in fourth gear. Do it. It'll make driving so much easier because you can focus on where the car should be placed ("the line") and being smooth with the other controls. Your instructor may also tell you not to worry about looking in the rearview mirror, as

they will keep an eye on the rear for you and let you know if a faster car is going to pass you. This is one of the many reasons your in-car instructor is your best friend on the track.

In the beginning, your main focus will likely be on driving "the line." This is the path that allows you to get around the track – a lap of the track – in the least amount of time. It also happens to be the safest way to drive. Some of this line will make sense to you, and some will not. Sometimes you just have to trust your in-car instructor, as they will tell you to drive a path that does not seem natural. Never forget that your instructor wants to stay safe and get around the track as fast as you do! They will not lead you wrong.

It's important that when the line your instructor is telling you to drive doesn't feel or seem right to you, you figure out why that's the case. Ask your instructor to explain. Have them draw you an illustration on one of those track maps that you printed out weeks ago (remember those – you did bring them to the track, didn't you?). If it still doesn't make sense, you can ask the chief instructor or the classroom instructor for clarification. Every now and then something will still not make sense, but do what your instructor tells you anyway. In 99.99% of the cases, at some point you will have an "Aha!" moment and it will make finally make sense. Trust that will happen.

An absolutely critical part of driving on track is being aware of, and responding to, any and all flags shown by the corner/turn workers. The reason for these flags is to keep you and the other drivers on track safe. While you're on track, flags are the only way that officials, organizers, and track workers can communicate with you.

In the simplest terms, flags are a way of warning you of what's ahead. Corner/turn workers are strategically placed around the track in a way that they can see from station to station. Workers stand at these stations so they can visually be aware of anything that happens on track, and communicate that information to you with an appropriate flag and action.

It is critically important that you know at a very deep level what every flag means, and what actions you need to respond with. To make things just slightly difficult, different HPDE event organizers may or may not interpret the flag rules differently. Therefore, you must know the rules for the event that you're participating in. Fortunately every HPDE event holds a drivers' meeting, and flag rules are typically reviewed. More important, these meetings are an opportunity for you to ask questions and ensure that you are clear on what every flag means, and how you need to respond.

Do not wait until the drivers' meeting or the classroom session to learn the meaning of the flags. Learn them now, and then review them and clarify them at the event. One of the resources we've provided at the end of this eBook is a complete list of the flags, their meanings, and how you must respond to them. Read this resource as many times as it takes for flags to become second nature to you.

Passing & Being Passed

When you're on track, you will not be alone. There will be other cars! Some will be slower cars driven by slower drivers; some will be faster cars driven by faster drivers; some will be slower cars driven by faster drivers; and some will be faster cars driven by slower drivers. If you get the idea that it might be a little challenging to manage yourself with these other cars and drivers, you're right. But again, you're not alone – you have your new best friend, your instructor, with you.

When we describe a driver as being "slower," that's not a negative thing. In fact, some of the best drivers began as "slower" drivers. It may just be that they're slowing down a little to fine-tune and practice a specific driving technique. It may be that they're struggling with a certain part of the track, and have backed off a little to focus on the right line. It may be that they're slower to learn something new, but once they get it, they take off.

If you're one of those "slower" drivers, don't worry about it. Again, some of the best drivers began as "slower" drivers.

Which brings us to "faster" drivers. That might be you, or maybe not. If you're one of the "faster" drivers to begin with, don't let that go to your head, because experience tells us that this will not always be the case. Practically every "faster" driver went through a period – a plateau – where they had to slow down to improve a certain technique, or they struggled with a specific part of a track. It will likely happen to you.

There are no "naturals" in this sport. Learning to drive is a process, and no matter where you are today, you can and will improve. As we said earlier, the only time drivers don't improve is when they get frustrated from a lack of progress and try to drive too fast.

Okay, so there will be cars and drivers of differing speeds. At every HPDE event, drivers and cars are divided up into different groups. Typically, and mostly, this is done by driver experience and ability. Being new to HPDE events, you will be in the Novice group, which means that you'll be on track with other novices. Fortunately, that means there will not be a lot of faster drivers on track with you.

No matter what, there will come a time when you will need to let a faster car pass you, or you will want to pass a slower car. There are rules and there is etiquette for how to do this (a distinction we'll get to), and every HPDE organization has slightly different rules.

Because HPDE is not wheel-to-wheel racing, a pass should never occur without the car being passed being both aware of it and having given "permission" for the pass to take place.

If you have a faster car behind you, you should allow it to pass — give the overtaking driver permission when it's safe to do so. You will be told in the drivers' meeting, as well as in the classroom session, where those safe areas (or passing zones) are. They will be on the straightaways where there is enough room for a car to move past another.

To give the overtaking car permission, you must give the driver a "point-by." Different HPDE organizations have different rules as to what this "point-by" should be and how it's used – again, another reason why the drivers' meetings and classroom sessions are critically important for you to attend. This "point-by" may be a physical point of your finger out the window, either to the side you want the overtaking driver to pass on, or to where you're going to drive your car so the overtaking driver can pass on the opposite side of the track. Or this "point-by" could also be the use of your car's turn signal.

Again, make sure you know the rules of the organization you're driving with.

If you're looking to pass a slower car, you cannot do so until the driver of that other car gives you permission, either with a physical point or the use of their turn signal.

There will come a time on the track where one car is faster on the straightaways and slower in the corners, and another is faster in the corners and slower on the straightaways. This makes the passing rules a bit less cut and dried, and it's where etiquette comes in.

If your car has lots of speed in the straightaways, but less speed in the corners, and you have a car behind you that is the opposite (but could lap the track faster than you), let it go. Give this driver permission to pass you on the straightaway, and then ease off on your straight-line speed to give the car time and space to do pass. Blasting down the straightaway and getting a gap between you and another car, only to have that car right on your rear bumper through the next corner(s) is not only frustrating for the following driver, but it doesn't allow you to learn as much. Just ease off a little speed on the straight, give the following driver a "point-by," let them pass, and then follow them. You may learn something from that other driver.

And remember, just because another driver passes you, that does not say anything negative about you. It may just mean that the other driver has more experience than you, and you'll be as fast – or faster – at some point in the future. In some situations, drivers might actually pass each other back and forth multiple times in a session. When there is a speed discrepancy in different portions of the track, drivers can often learn by following another driver.

You and the other drivers on track are all in this together. It's how you interact with the other drivers that will make the most difference in how safe you stay, how much fun you have, how much you learn, and ultimately how fast you drive.

End of Day

Wow, what a great experience your first HPDE day was, right?!

We recommend doing four things at the end of a day at the track:

1. Review what you learned: take time to make notes on a track map (make note of the various

references you used, such as: "turn in at the end of curbing on right" (you'll learn more about this when you work with your instructor, but basically, this is describing where you begin turning the steering wheel to enter a corner); "brake at the 400 marker"; draw the line through corners; write down in what gear you drove each corner; write down the key things you learned and what you want to work on the next time. The process of writing things down will help you remember things so you don't have to learn something twice. The best drivers use a notebook or journal to keep track of their driving progression.

2. Check your car: if you're going to be on track the following day, this means checking the brakes, tires, engine fluids, and making sure your car is refueled. The time to do this is now, and not at 10pm. And even if you're just going to drive your car home that evening, make sure it's up to the task. At the least you're going to want to lower your tire pressures back to what they were pre-track day, and check the fluids (yes, more gas – you'll learn that you go through a lot of gas at the track).
3. Socialize: a big reason for doing HPDE events is to enjoy the company of other people with a common interest. Take time after you've made your notes and checked and prepared your car to get to know your newfound friends. Some of the best learning at HPDE events comes from having discussions with fellow drivers about the line, driving inputs, and high-performance driving theories.
4. Recover: as tempting as it may be to enjoy the socializing too much (time-wise, alcohol-wise, etc.), think about what you have to do later that evening or the next day. If you're coming back for an other day of HPDE, you need rest. And your body and mind need certain things to replenish themselves from a long, exhausting day. Take in the appropriate foods and liquids to ensure you're in good shape for the following day. If you have to drive home, to a hotel, or anywhere else that evening, think. Make sure you're wide awake and engaged in your driving, and not drifting off to sleep. And speaking of that, it's critical that you get a good rest that evening. Understand that much of what you learned during the day on and off track will be "cemented" into your brain overnight as you sleep. If you don't get enough sleep, your brain will not have enough time to make permanent all of what you learned during the day (isn't it a shame to have learn the same thing twice!). Finally, some of the most dangerous, risky driving you do all day will be that evening. Why? Because you used up more mental and physical energy than you realized, and too many drivers have found themselves nodding off to sleep while driving home from a day at the track. Take a short nap if that's what it takes to drive home or to the hotel safely.

Congratulations, you've done it! You completed your first day of HPDE. You are now a different driver than you were the day before. Of course, this newfound knowledge and experience must be used for good, and not evil. This does not make you more skilled to drive faster on the road. In fact, most drivers will tell you that they actually drive a little slower on the street after getting HPDE experience. They will tell you that they now understand their limits better, and realize that they hadn't left enough room for error in the past.

One of the main things that high-performance drivers learn through their track-driving experience is that there is always more to learn. Track driving opens your mind to the idea of never-ending improvement. And that's a good thing.

WHAT TO KNOW ABOUT DRIVING

The purpose of this eBook is not to provide an in-depth tutorial on high-performance driving technique. There are plenty of resources for that. Having said that, if there were just a few pieces of advice we could stress, it would be these:

1. Focus on smoothness and accuracy, and your speed will come.
2. Smooth is fast.
3. Look further ahead.
4. Look where you want to go, not where you don't want to go.
5. Use all the track surface.
6. The more corner references you have, the better you'll drive.
7. Get a clear mental picture of what you want to do before attempting to do it.
8. Your tires can only provide 100%.
9. In slow and out fast is great advice.
10. Have fun!

Language

Like most activities, you'll soon discover what may seem like a new language! You'll hear words, phrases, and acronyms that might make sense to you, or not. Do not assume that what seems like a logical definition for something that someone said is accurate. And even more important, if you're not sure what is meant, ask about it. No one — and we honestly mean no one — will ever look down on you for not knowing something. Everyone — and especially the instructors — have been in your shoes at some point and had to ask what is meant by different words, phrases, and acronyms.

Ask questions!

Rather than overload you with dozens and dozens of definitions, here are the most-used words or phrases that you'll hear almost immediately upon spending time with HPDE instructors and other drivers:

Line — The line is the pathway that is driven to minimize the overall amount of time it takes to complete a lap of a track, from the start/finish line and back to it again. It's also the safest path or line to drive. The line through an individual corner is one that results in the fastest lap time around the entire track, and not just the fastest through that one single corner. There are ways to drive through a corner that will get you through it in less time than from driving a different line, but if it doesn't help you tackle what comes after that corner (usually a straightaway), it often results in a slower overall lap time around the track.

Corner references — There are three main references — the Turn-in, Apex and Exit or Track-out points — that are used to define the line you drive through a corner.

Turn-in — As the name suggests, it's where you initiate the turn into a corner. The point you turn in dictates much of what happens through the rest of the corner, which is why getting it right is so important.

Apex — The Apex can be thought of as the point in a corner where you are no longer entering, but transitioning to exit it. It's the place where the car clips the furthest most inside point or area of the corner. An Apex can be right in the middle of the corner (geometric Apex), earlier than that (early Apex), or after that (late Apex). The Apex is also sometimes called the "clipping point."

Exit or Track-out point — Both terms are used to define the point where the car comes out to the edge of the track at the end of the corner.

Throttle— When someone refers to the throttle, you can substitute "gas pedal" for it, as they're one and the same. The gas pedal is the throttle; the throttle is the gas pedal.

Threshold braking — Braking with the tires at their limit, or threshold, of traction; any additional pressure on the brake pedal will either result in the activation of the Anti-lock Braking System (ABS), or a locked-up and skidding tire (in a car without ABS). Threshold braking results in stopping or slowing in the shortest distance (although some cars with super-high-end ABS can match it).

Unwind — This is the act of straightening the steering wheel as you exit a corner on a progressively larger radius. Your in-car instructor will often remind you to "unwind" coming out of a corner. This means straighten the steering (they are not telling you to relax, even though that might be a good suggestion!).

Weight (or load) transfer — When you apply the brakes, your car "nose dives" – the front of the car drops. That's because a percentage of the weight of your car has transferred forward, compressing the front suspension. It also puts more load or weight on the front tires. When you accelerate, weight transfers to the rear, causing the rear suspension to compress, and the back of your car to squat. When you go around a corner, weight transfers to the outside, causing the suspension on the outside of the turn (the left side tires when going around a right-hand corner) to compress. Every time you brake, corner, or accelerate, you cause weight to transfer.

Contact patch — As you drive down the track, there is just a small amount of your tires that is in contact with the track surface at any one moment in time. If you look at your tires while your car is sitting still, it's easy to see that the amount of your tire touching the road is relatively small. It's this part of the tire that is referred to as the "contact patch." If you push down on a tire harder, putting more weight on it, its contact patch grows larger (think of pushing a balloon against a table surface – the more you push on it, the larger the area becomes where the balloon touches the table). And, generally, the larger the contact patch, the more grip or traction the tire has with the track surface.

Understeer — Understeer is when the front tires have less traction than the rear tires, and the car does not turn as much as you'd like – it pushes or ploughs on a larger radius than you'd like. In other words, it "understeers," not turning or steering as much as you'd like. Another way to think about it is this: the rear tires

are driving your car straight ahead; the front tires are trying to change its direction; the rear tires "win" – they drive the car straighter than you'd like.

Oversteer — Oversteer is when the rear tires have less traction than the front tires do, and the car turns more than you'd like – it's loose, and has the effect of having the rear slide out and make the car almost spin out. Taken to an extreme, the car will spin. If you've ever played around in a snow-covered parking lot in a rear-wheel-drive car, you've likely experienced oversteer. But that was mostly "power oversteer," where you kicked the rear-end of the car sideways by trouncing on the gas pedal, breaking traction at the rear tires, and causing those rear tires to have less grip than the front tires. This power oversteer is different, but similar, to regular oversteer that is mostly caused by how you're driving and how your car handles.

Passing Zone — A place on the track where you can make a pass, as it's less risky to do so here. For example, a long straightaway is a good "passing zone," as there is more room to position your car next to another. In most HPDE events, the organizers will designate allowed "passing zones" — these are the only areas on the track where passing is allowed.

Point-by— When a faster car is looking to pass you, you give it a "point-by" to tell the following driver which side you'd like to be passed on. In most HPDE events, point-bys are mandatory; a pass cannot be made unless there is a point-by. If you want the faster car to pass you on the left, you point to the left out your open driver's side window; if you want it to pass on the right, you either put your arm out the window and point over the roof to the right, or point to the right inside your car. Keep in mind, though, the following driver sometimes cannot see your arm/hand in the car if there is glare on the rear window; this is why pointing out the window is more clear. Some HPDE events require drivers to use their turn signals rather than a hand signal. However, some events have you point-by the passing car by putting on the turn signal on the side you want to be passed on, while other events have you put on the the turn signal on the side you're going to stay on. Be sure to know the rules of the event you're participating in.

Breathe — This could apply to either one of two things. First, the act of easing up on the throttle in a gentle manner, rather than lifting the throttle. Drivers typically "breathe the throttle" to make subtle speed and/or weight transfer adjustments. If you're told to "breathe it," be clear as to whether this is referring to what to do with the throttle, or your body… and that's the second use of this word. When a driver holds their breath, they tense up, reducing the amount of sensory feedback they get through their body, which is not a good thing. The places most drivers hold their breath is in scary, challenging sections of the track, like fast corners and heavy braking zones. Drivers sometimes need to consciously be reminded to breathe until it becomes a habit to do so in those tough areas of the track. And that's why your in-car instructor may say, "Breathe" to you over and over again.

RESOURCES

Track Insurance For Your Car
- Lockton Motorsports: LocktonMotorsports.com/hpde-insurance/
- Ryan Staub: RStaub@locktonaffinity.com

Driver Education
- Speed Secrets: SpeedSecrets.com
- Ross Bentley: ross@speedsecrets.com

Safety Gear Suppliers
- WindingRoad.com
- HmsMotorsport.com
- WineCountryMotorsports.com
- OGRacing.com

Note: There are often smaller, local retailers who offer the same products and services as the ones listed above. Check online.

Registration & Information on Events
- MotorsportReg.com
- ClubRegistraton.net
- DLBRacing.com
- TrackRabbit.com

Google your favorite car marque (brand!) as you'll most likely find a car club that puts on HPDE events. (Note: For most, you don't need to own the brand of car the marque is all about.)

FLAGS

Flags are used by corner/turn workers to communicate with you as you're driving on track. You must understand the use and meaning of all flags; they are used in every and all HPDE on-track sessions.

Green

- The session has begun, the track is clear, and passing is allowed in the designated passing zones.
- A green flag is implied when there is no flag displayed.

Yellow

- This flag has two meanings:
  1. Stationary: when held stationary, this flag means that there is a problem on the track ahead, after the next corner/turn worker station. Caution.
  2. Waving: when waved, this flag means that there is a problem immediately ahead on the track. Extreme caution.
- Whether stationary or waved, reduce your speed and be ready to avoid any obstacle in your path.
- Passing is prohibited until you are past the next clear flag station. Do not give a point-by or accept one from another driver while in a yellow flag zone.
- If you see yellow flags at every corner station, that is referred to as a full-course caution. If this occurs, all drivers on track should reduce speed significantly and no passing is allowed (even if you get a point-by).

Debris (Yellow & Red striped)

- There is debris on the track. Debris may be mud, dirt, a part from a car, oil, antifreeze, or even wildlife! Reduce your speed and be prepared to take evasive action.

Red

- Something serious has occurred and the session is being stopped.
- You must come to a complete stop on the edge of the track.
- Do not slam on your brakes; instead, check your mirrors to see if anyone is close behind you. Then signal other drivers that you are slowing by making a fist and holding your left arm straight up and out of your window. Reduce your speed and stop within sight of a flag station (either in front of or behind you). Stay in your car with your seatbelt and helmet on until directed by a corner/turn worker.
- Avoid stopping in a blind spot (e.g. just over a hill). If necessary, drive forward slowly until you are visible to approaching cars.

Black

- This flag has two meanings:
- Displayed to all drivers: when this flag is displayed to all drivers, the track session must end early to take care of some problem on or near the track (e.g. a disabled car).
- Displayed to you only: when this flag is displayed to you only, something is wrong with your car or your driving.
- In either case, acknowledge that you've seen the flag with a wave to the corner/turn worker, reduce your speed, and come into the pits (whether you understand the reason for, or agree with, the flag); you will be told what the problem is.

- If you ignore this flag, you will likely be penalized.

White

- A slow-moving vehicle is ahead on the track, either a car with a mechanical issue or a safety/service vehicle.
- You can pass the slow moving vehicle only if a yellow flag is not also being shown, but do so with caution.

Blue (sometimes with a yellow stripe)

- A faster car is behind you and should be given an opportunity to pass at the next designated passing zone.
- If you repeatedly ignore blue flags, you may be black-flagged for a discussion with the chief instructor.

Checkered

- The session has ended.
- Acknowledge the flag with a wave or a flash of your headlights, reduce your speed, and return to the pits. This last lap is a cool-down lap, not one final opportunity to set your fastest lap time!

Not responding appropriately or ignoring a flag is a serious matter. Any infraction will result in a discussion with the event chief instructor. You could be asked to leave the event, therefore it's critical that you are clear on what the flags mean and how to respond to them. If you have any questions, ask your in-car instructor, the classroom instructor, or the chief instructor.