

High Speed vs. Family Go-Kart Tracks

By Peter F. Olesen, P.E.

One of the questions I hear rather often today is, “which is the better choice in establishing a concession go-kart track at a new site or in expanding an existing facility. For a typical family entertainment center serving the family and general adult market my response would be would be a family track because of the much larger demographic.

The answer changes when the question is framed around an adult and corporate event concept, based on a realistic review of market demographic, existing and proposed competition and sufficient capital to construct and operate. Given a positive evaluation of these elements, the high speed go-kart concept becomes viable. The ongoing popularity of NASCAR, ARCA, Formula One and Indy racing, coupled with countless ¼ and ½ mile short track “bull rings” dotted across North America generates an urge to go racing. Development of a “high speed” go-kart racing facility as part of a larger corporate meeting center capitalizes on this element of the growing interest in taking the urge to drive “fast” from the highway to the go-kart track.

There are a number of “adult” indoor electric racing tracks being developed around the country today. Most are based on capitalizing on using higher speed electric karts as an added incentive to attracting large corporate meeting and team building events. Hopefully the owners checked out their target markets carefully. Those in large metropolitan areas have a good chance for success, while some in smaller markets may be facing a challenge as time goes on. The first year or so for most well planned and marketed operations are well attended by a large number of people that may not remain as long term repeat guests. This happens for all types of entertainment facilities. The second year and beyond is the real proving period. If they did their homework and really analyzed the target market and its demographics, they should be in good shape.

In the past the history of the indoor karting industry is loaded with “roadkill” or failed operations. History has many examples of people wanting the market to be there when it really wasn't. Think twice, decide once. The old adage “Failing to Plan is Planning to Fail” really applies in this industry. Don't become industry “roadkill.”

Early High Speed Adult Racing:

High speed can mean different things to different people... We will ignore the racing go-karts found at private tracks and in the garages of the kart owners and instead limit our discussion to concession go-karts. For the sake of conformity early indoor and outdoor high speed racing was generally defined as being above 30 mph.

Indoor “kart racing” has been around for many years. Long before electric karts entered the market. A sizable number of facilities opened up in warehouses. They often ran at speeds up to 45 mph with a wide range of track barrier systems. Many of these facilities had very short lives for a wide range of reasons.

Poor locations, low attendance and revenues, limited financial capabilities and injuries and fatalities problems all contributed to the high failure rate. Most failed because the operators

greatly overestimated the size of their target demographic and high operating cost. Some failed because of their inability to address the carbon monoxide generated by gasoline powered karts. Other facilities fell victim to high liability claims.

Defining Today's High Speed Concession Go-Karts:

The advent of dependable electric go-karts has had a sizable positive impact on indoor karting. A sizable number of kart manufacturers have seen the potential, especially for indoor karting, resulting in more kart manufacturers entering the electric arena. While some firms have concentrated on-plug in battery charging, more and more are recognizing the long term cost savings and operational efficiency of floor charging in the pit lanes.

In general high speed tracks would be those with kart speeds greater than 30 mph. Most electric karts are capable of much higher speeds. On tracks with long straight elements electric karts are capable of reaching 60 mph. Unfortunately this could prove suicidal, because there are no energy absorbing safety barrier systems on the market today that can assure kart drivers safety at such speeds.

It is this writer's professional opinion there are still no safety barriers on the market that provide the energy absorption of a properly designed barrier curb/automobile tire/steel barrier rail (plate) system. Even with the great compression distance possible with tires, the kinetic energy becomes a distinct danger as speeds move above 25 to 30 mph.

Most tracks today are operating at speeds less than 40 mph for safety and insurance reasons.

Modern High Speed Electric Go-kart Racing Operations:

Those operators that recognized the potential of building an appeal beyond the karts themselves have seen their revenues continue to grow. Many have added business conferences, food and beverage, catering, team building, game rooms and other attractions into their mix. As a result, these operators see their total revenues grow far beyond the actual kart revenues.

The growth for corporate events (meetings, conferences, seminars and team building) coupled with the go-karts and the added attraction and amenities combine to provide total revenues. For most, the actual revenues generated by straight go-kart ride sales are not the main source of income, the corporate business is. But, without a good karting program, the corporate business wouldn't be there. They depend on each other.

Please recognize that without the appeal of the karting, the other attractions and amenities would have the same problem as stand-alone karting attractions, which is a reduced attendance. As a result many would not survive, let alone be successful. By the same token, many of the tracks would have failed as stand-alone facilities.

Electric Go-Kart Flexibility of Operation:

The use of electric motors has enabled track supervisors to change kart speeds with the push of a button on the track supervisor's controller. Typical controllers can be set up with three or four speeds, permitting a wide age range, including younger drivers. Some karts have adjustable seats and pedals while others utilize removable back cushions.

Identifying Target Market:

There are two specific target markets out there and they contain potential guests that have a specific preference in terms of the go-karting environment they prefer.

There is a segment of the adult go-kart market that has a strong desire to travel at high speeds of 40 mph and higher. The reality is that this segment is a very small percentage of the adult target market. Many wannabes drop out after their first try because of the skills and reflexes required and others frankly become frightened by the potential (and real) danger of injury at high speeds. This very real risk taking is part of the appeal that high speed karting has in attracting its enthusiasts.

To this writer's knowledge there are no realistic statistics as to the actual percentage of the potential adult target market that would concentrate their attention to high speed concession karting. Based on personal observations it may well amount to 5% or less. If the top speed were reduced to 30 to 35 mph the percentage may increase to 10% or more.

Within each group there are people that will try the other concept out of curiosity and may occasionally experiment. In most instances there will be more inclined to ride slower karts than the other way. In major metropolitan markets there are definite possibilities for going in either direction. The final determination as to which is the better choice is often dictated by the existing competition in both markets.

For smaller markets, the family market is much larger, and, barring major existing competition, selecting the family market would be a better choice.

Safety Considerations:

High kart speeds on tracks are not the problem. It's the sudden stops. The karts themselves have very minimal energy attenuation in their bumper systems. Kart provided safety elements include a bumper system, roll bars, seat belts, brakes and padded steering wheels. High-speed tracks require drivers to wear helmets. These provide minimal safety, but the primary safety element on a high speed track is the track's safety barrier.

The safety of kart drivers depends on track barrier systems that can effectively reduce the "g" forces" drivers will be subjected to on hard impacts. Modern electric go-karts are heavier because of the added weight of the batteries currently in use, increasing the impacts of contact with the barrier system or other karts.

To date, no one has really devised a truly safe barrier that can be installed in the tight confines of the typical concession go-kart track site. The closest system to-date is still the curb/tire/rail system. Today's faster and heavier go-karts create a greater need to expend even greater efforts to create a system(s) that can withstand these heavier impacts. While the concept remains the same, the components must be adjusted to compensate for the heavier impacts.

This writer has not seen any current plastic or composite barrier system that offers any specific information on the actual impact performance of their barriers, only marketing literature which would lead one to believe that every system out there is the best.

While there is always the possibility for catastrophic accidents under abnormal conditions, such as full speed impacts at acute angle of impact or karts being forced under or over barriers as a result of higher speeds and greater “g” forces generated by heavier karts and drivers. These incidents do happen. Many situations were the result of driver intent, others due to ineffective barrier designs and others the result of poor safety coordination and control by the operating staff. Many could have easily been avoided had more thought been given to the realities of safe kart operation and proper safety concerns. This spans the karts, facility barrier system, driver instructions and staff training.

Any system works until it doesn't. Until a serious impact occurs, every system works. Unfortunately that's too late for people injured and for the facility owner who becomes a subject of litigation. People who put all their faith in signed waivers may also be in the market for a bridge. Even if the insurance shield holds up, the public image may prove to be more destructive in the long run. At the present time the risks seem well worth it both for operators and their guests, based on the expanding success of recent chain and stand alone racing facilities.

At this time, while not as flashy looking, the case for the automobile tire/steel rail barrier system remains strong. The heavier karts and higher speeds will require newer tire and rail specifications, including larger radius tires with stronger sidewalls and wider tread widths and wider and heavier steel barrier rails to absorb the higher impacts experienced at higher speeds and to keep karts from driving under or over the system on impact.

Safety Considerations:

Safety considerations include all of the above listed concerns, plus others that may not have been stressed. No persons under the influence of alcohol or other substance should be permitted to enter or operate your karts. Unruly driving shall not be tolerated. Violators should be removed from the track, and hopefully asked to leave the facilities.

There are additional training elements to be implemented in order to maximize safety. These include instructing staff on what is legal and safe in dealing with unruly guests and the proper chain of command in dealing with them. Know when police support is justified and have appropriate procedures.

Emergency procedures and proper staff training should be established and instituted to address fires, storms, power outages, civil disobedience by individuals or groups, terrorism and related issues.

Liability:

There was a time when major insurers limited liability coverage of concession go-kart tracks to facilities that had maximum speed of 25 mph or less. Current policies may permit higher speeds, but it would be very reasonable and cautious for all track owners to familiarize themselves with the specific language of what is and what is not covered by their current and future liability

policies. The time of a guest making a claim is not the time to find out your carrier has built in exclusions that could void your coverage. If you don't feel comfortable with the language, have an attorney check it out. Any developer planning any track, high speed or not; would be well advised to make certain he/she is fully confident that they have real coverage for their track, equipment, staff and overall physical plant.

Battery Charging Systems:

There are two types of battery charging systems in vogue today. Both have been around at least 20 years. To this writer's knowledge the plug-in charging was the first to be used in American facilities being around since the middle 90s. This writer designed both indoor and outdoor tracks in 1999 using a floor charging system with Lintec electric go-karts manufactured in England.

Dealing with Age Restrictions and Waivers:

Most high-speed tracks require signed waivers. This good idea and may well be a requirement for your insurance coverage to be valid. Be aware that many if not all states may rule that a waiver signed by a minor has no validity. Make certain you and your liability insurance carrier are on the same page and that you're aware of any potential conflicts and or exclusions.

Training for High Speed Operations:

Operating any track requires constant staff observation and control of all elements of the driver experience, beginning with the maintenance and safety of the karts, barriers, pavement, safety equipment and lighting. It also includes proper training of the staff in terms of loading and unloading guests in the pits, checking that seat belts are properly fastened, all loose hair and clothing secured in a satisfactory manner, giving proper driving and safety instructions to all drivers and any related requirements of you insurance coverage.

Getting the best of both worlds so to speak is attainable to an extent. This is the result of the typical track supervisor's hand held remote being programmed to provide a junior speed up to 8-12 mph for the younger birthday crowd, an intermediate speed of 15 mph for younger teen agers, a family or adult speed of 18 – 22 mph and a late night testosterone speed of 25 mph (depending on your insurance carrier and the track geometrics).

There are modern track geometric concepts that can be introduced into safe and exciting driving experiences through the creation of an illusion of higher speeds by introducing more curves and much shorter straight elements. This concept directs driver attention and concentration to the track rather than buddies in other karts.

Using modern track design can provide challenging and exciting geometrics that can safely accommodate higher speeds, thus appealing to the broadest target market possible.

Family Track Operations:

The vast majority of the operators entering the concession kart industry will undoubtedly enter the general family track type facility because of the target market size. This market has continues to expand both for outdoor and indoor operations. With the largest market potential, well run facilities can count on the popularity continuing for many years to come.

“Innovations” Currently Seen in the Industry:

The introduction of sound to go-karts is partially novelty and partially safety oriented. This is an innovation we feel will continue to grow, unless kart manufacturers discontinue offering this option. Being able to communicate safety instructions to all kart operators at one time is definitely a boost in communications between the operators and drivers.

Some trends that may or may not prove to become popular are the introduction of black lighting, misting and laser tag elements into a number of indoor facilities. There are concerns with respect to the safety of reducing visibility and introducing additional operating functions (distractions) for drivers. Conservative thinking considers both concepts to be potential problems for operators. Time will tell.

Outdoor Vs Indoor Tracks:

This question has many answers depending on the market being considered. Indoor operations offer year around operations. The cost of constructing buildings can be a sizable investment and introduces certain constraints in terms of design creativity. Depending on the local market size and competition from other attractions, the cold weather market may not be large enough to justify the added costs of developing an indoor track.

For some locations the prime market season may be too hot or too wet for outdoor facilities. In some areas local planning and zoning restrictions may prevent the development of a sound outdoor facility. There is no single answer to the question.

Making the Final Decision:

For many situations the answer may be immediately obvious. For these situations the major challenge may be which kart to purchase. The decision then may narrow down to price, delivery time and personal preference with respect to kart style and appearance.

For others it may involve further research and discussions with industry experts. Keep in mind an “expert” is far more that someone claiming to be one. The broader one’s experience in the range of go-kart operations, the better. Existing operators can certainly give good insight as to their own experience. Getting several different inputs is always better than one.

Always remember, each site and market has its own set of conditions that can have significant impacts on the final decision.

Good luck and may your decisions always be fruitful and profitable.

*Peter F. Olesen, P.E. is president of **Entertainment Concepts, Inc** (formerly Peter F. Olesen and Associates, Inc.), a firm with more than 34 years of experience in the design of family entertainment facilities, including more than 550 projects spanning 45 States, Angola, Brunei, Canada (Alberta, British Columbia, Ontario, Quebec and Saskatchewan), Cuba (Guantanamo Bay), Kazakhstan, Mexico, Puerto Rico, Saudi Arabia and Vietnam. These services have included site selection, concept development, feasibility studies, master plans, final design, preparation of construction plans and specifications, construction engineering and the renovation and upgrading of existing facilities for family entertainment centers, outdoor and indoor go-kart tracks, miniature golf courses, theme parks and other entertainment industry projects.*

A licensed Professional Engineer in Illinois and Wisconsin, he holds memberships in numerous professional and technical associations. He has written hundreds of articles for numerous industry publications, presented seminars at various industry tradeshows and has been a member of the Foundations Entertainment University "faculty" for 46 seminar presentations over the past 16 years. You can get more information at our web page: www.fecdesigners.com, peteolesen@yahoo.com or 847-561-7013.

Copyright Entertainment Concepts, Inc. 2018