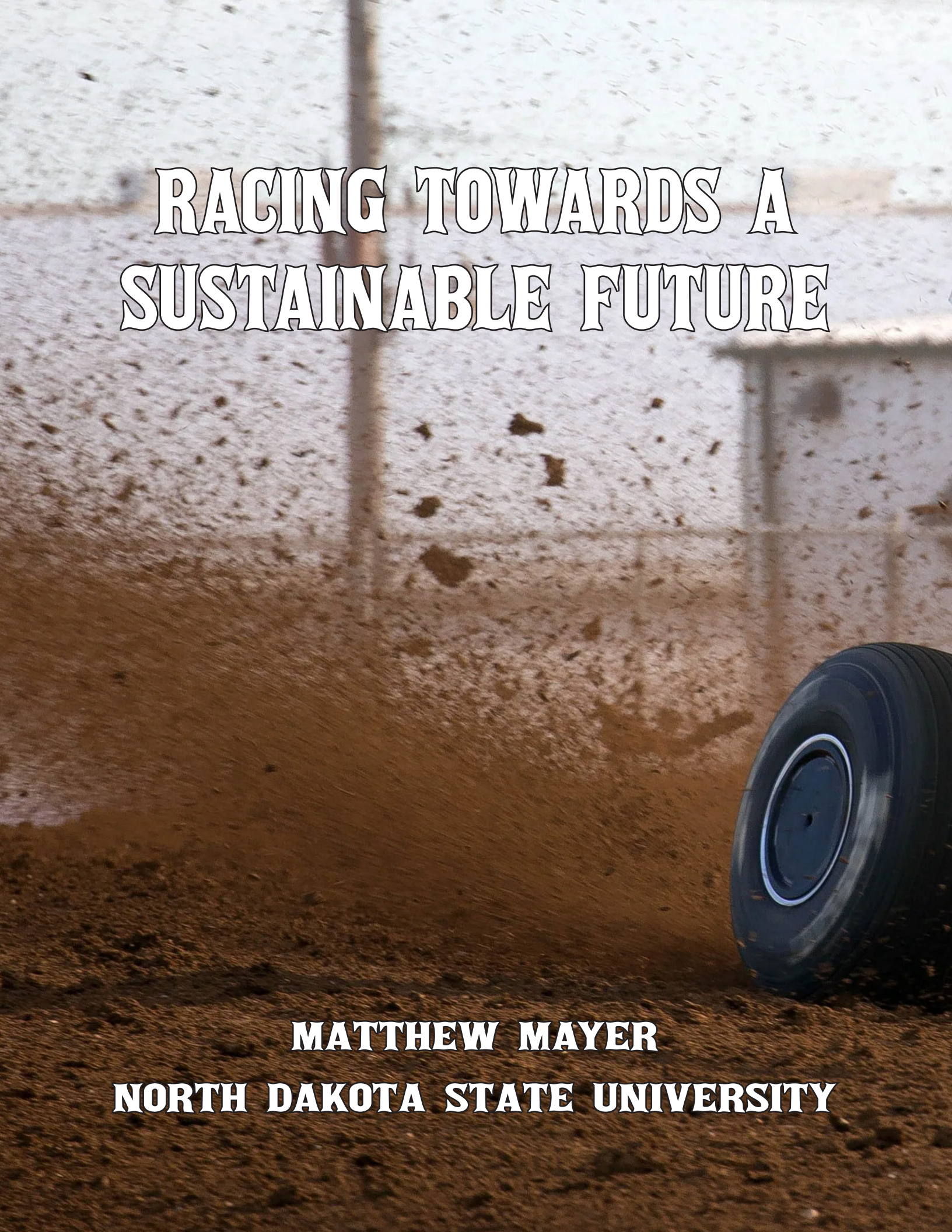

RACING TOWARDS A SUSTAINABLE FUTURE

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RACING TOWARDS A SUSTAINABLE FUTURE

A Design Thesis Submitted to the
Department of Architecture
North Dakota State University

By

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In Partial Fulfillment of the Requirements
for the Degree of Master of Architecture

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THESIS PROPOSAL

THESIS ABSTRACT

The premier series for dirt track racing (World of Outlaws) has 174 races in 31 states across the country each year. With each race comes different fans, drivers, and crew members to these individual communities. While there are many assets that comes with these nights there is also ways that these moments can be more sustainable and provide a better overall experience for those involved. My project will address the concerns that come with dirt track racing across the country by improving upon the existing speedway facilities and installing new lodging and shop spaces on the site. The challenges with these designs will be: how to make the additions multipurpose for different uses of the facility throughout the year, how to develop a plan for other speedways to utilize more sustainable strategies, and how to tie each design element together. The question to be asked in this project is "How could dirt track racing become a more sustainable endeavor while providing a more positive user experience overall."

Title: Racing Towards a Sustainable Future
Typology: Racetrack, Hotel, and Shop Condos
Site: West Fargo, North Dakota

Keywords: Sustainable, Racing, Hotel, Dirt Track, Shop Condos

FIGURE2

PROBLEM STATEMENT

How can dirt track racing become a more sustainable endeavor while improving overall user experience?

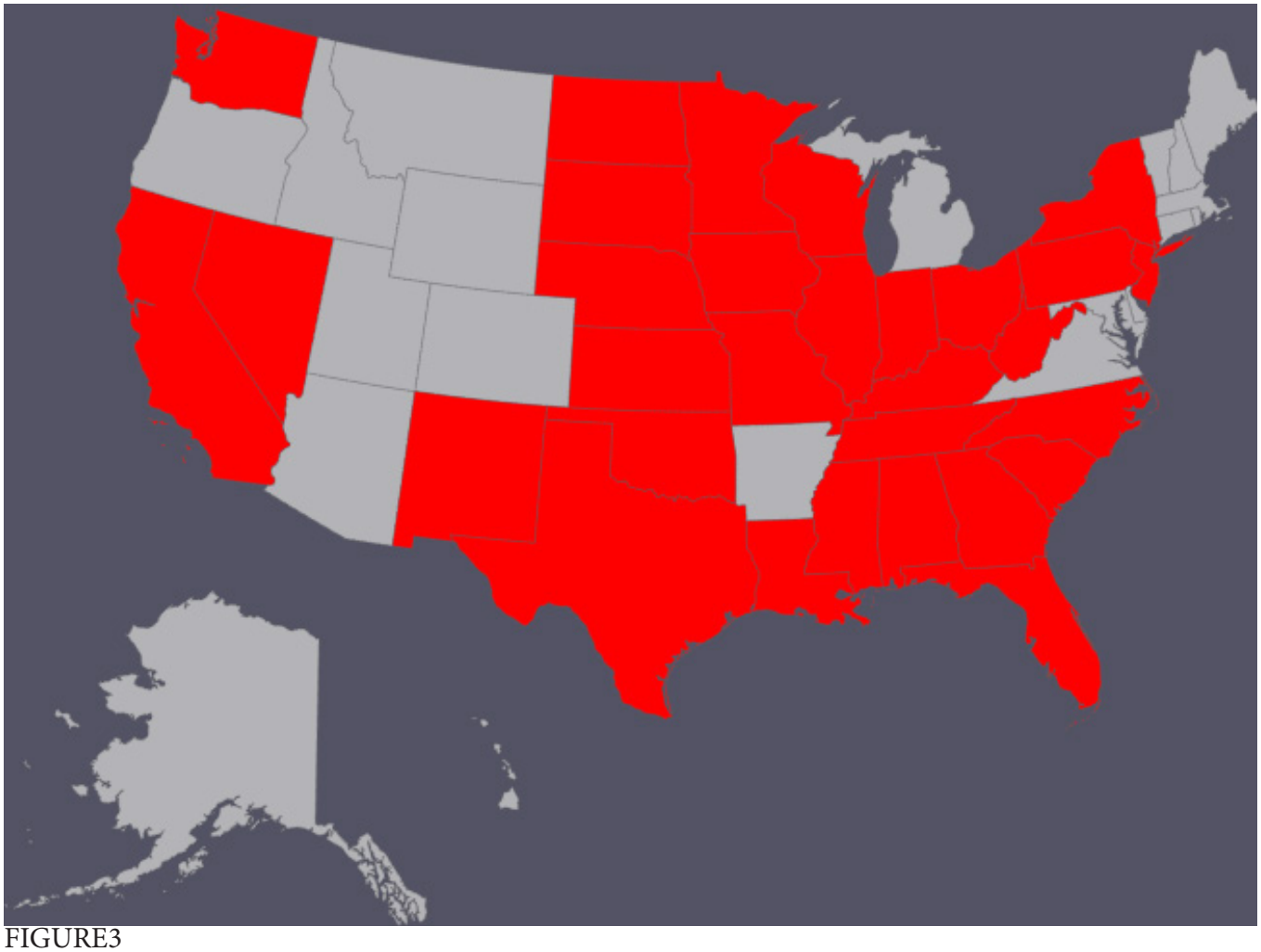


FIGURE3

THESIS NARRATIVE

This thesis is concerned with the following problems; travel distance, lodging, water and energy usage, and architecture that does not provide a positive fan experience. Race teams will travel thousands of miles for just one night and then drive to the next location, thousands of miles away. Dirt track racing uses lots of water on the track to help keep dust down. Multiple times a night, 2-3 water trucks drive a couple laps around the track and lay down water. This study will address these concerns through the following proposed solutions. The addition of a hotel, shop condos, and renovations to the existing buildings will address the above problems. The integration of solar and water sustainable design strategies can help limit the carbon footprint the racing facility leaves behind. These solutions attempt to improve upon the existing site in which the track resides, with the hopes of improving more tracks around the country.

Red River Valley Speedway in West Fargo, North Dakota has a vast site that allows for these site improvements to be installed. It also hosts the premier racing series once a year and weekly racing from May to September. This site also hosts the Red River Valley Fair and brings in lots of guests and lots of use of the building solutions I am proposing.

The research is based on how to make dirt tracks more sustainable and by creating a more positive user experience. Dirt tracks use a lot of energy and water. There is a lot of energy consumed in lighting for when the sun sets and has to light up the pits, the racing surface, the grandstands, and the concours area. Water usage on a dirt track is very high as well, from the water trucks on the track and in the pits to the facilities in place for the fans and drivers. A more positive user experience starts with the drivers and teams. Places for the drivers to work on their cars and places for them to stay when far from home are some of the minimal requirements for this facility. The fans want to have exciting racing and a place to enjoy everything a track has to offer.

THESIS NARRATIVE

The motivation for this research project comes from my passion for dirt track racing and how to improve the facilities to make sure future generations get to enjoy dirt track racing as I have. The design of these facilities are not typically looked at rather than purely a functional aspect.

The goal of the research is to identify what makes each individual building typology successful. Firstly, how to make a hotel effective for drivers, teams, fans, and any other user of the hotel and how the design integrates sustainable strategies. Secondly, how to make effective shop spaces for race weekends that are able to be multipurpose for different events at the facility. Lastly, how to improve the existing buildings on site with more sustainable strategies and what other buildings to include to acheive those strategies.

FIGURE4

BACKGROUND INFORMATION

What is dirt track racing? Dirt track racing is a form of motorsport where the racing surface is dirt or clay oval tracks and the tracks range anywhere from a quarter mile up to 1 mile in overall length. The World of Outlaws Dirt Series is the premier dirt racing series in the United States with three separate tours of Sprint cars, Late models, and Xtreme outlaw and midget tours traveling to 31 states and sanctioning 174 races over the year from February to November. As an example, once the series attends the racetrack in west Fargo, they immediately drive to the western edge of Washington state. This is a typical schedule for the series where it is one night of racing then a full day or two of travelling using lots of fuel and expelling emissions into the air. The racetrack operates from may to September on most Friday nights except for the two weeks reserved for the fair. The race track runs six different car classes every Friday. On a couple of special occasions they will switch out lightning sprints with one of the car classes. On the nights that World of Outlaws are at the track, they typically pick one of the classes as a support class.

IMCA Hobby Stock

IMCA Sport Mod

INEX Legend

IMCA Stock Car

IMCA Modified

IMCA Racesaver Sprint Car

Minn-Kota Lightning Sprint

WoO Late Model

WoO Sprint Car

FIGURE5

FACILITY SCHEDULE

The amount of different events and shows the facility hosts is a vast number. The facility hosts many different small shows and large shows. Multiple small shows include cat shows, toy shows, and salvage shows. The large shows include the red river valley fair, the red river valley speedway, and concerts. The facility is booked throughout the winter as well. A local snocross team builds their practice track on the site for the duration of winter and hosts a national open for snowmobile racing.

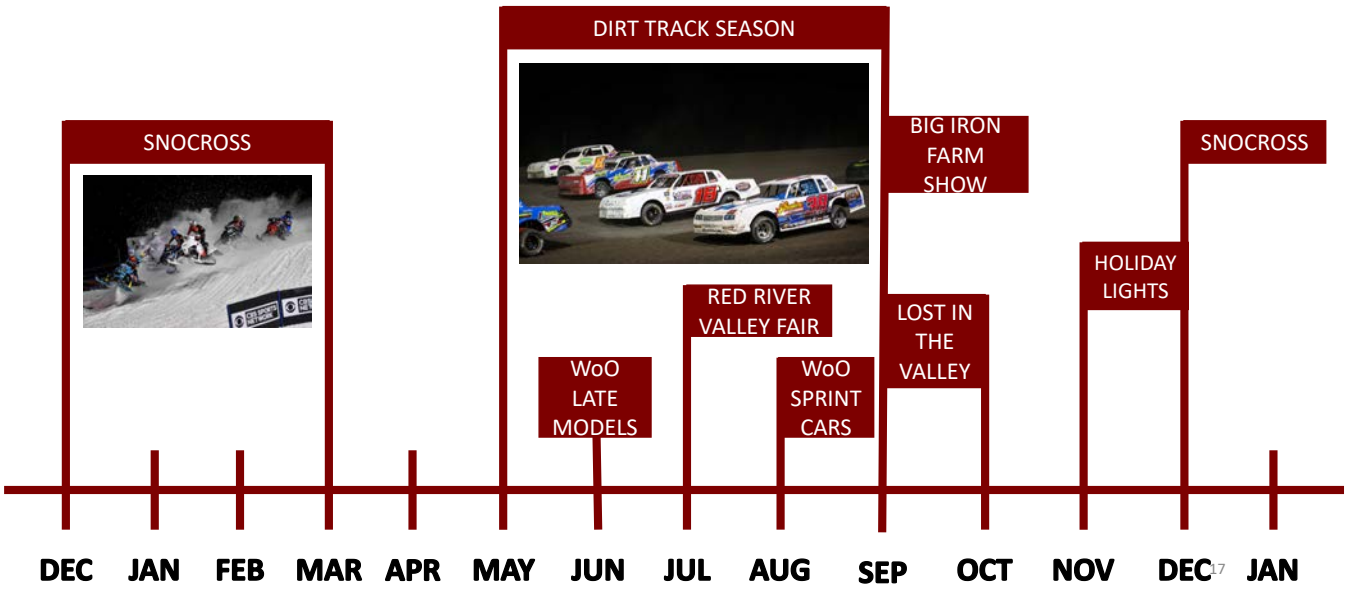
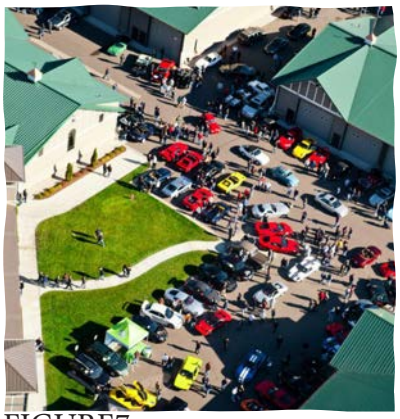


FIGURE6

PROJECT TYPOLOGY

This project consist of three different typologies, racetrack, a hotel, and shop spaces. I envision this project to create a blueprint of sorts for other dirt tracks to incorporate more sustainable strategies and increasing the overall user experience. I chose these typologies to solve the problems of a lack of lodging, lack of sustainable strategies, and no shop spaces.



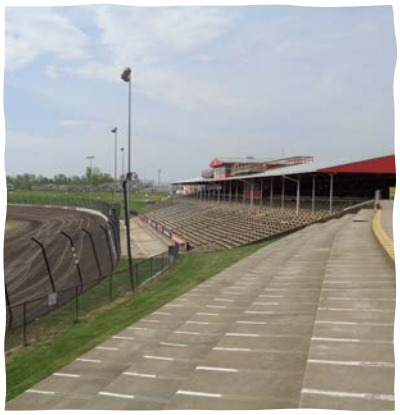


FIGURE7

TYPOLOGICAL RESEARCH

Factors:

Typology: Racetrack, Hotel, Shop Space

Context: Near racing/ automotive facilities

Chosen Case Studies:

1. The Daytona Autograph Collection Hotel	Daytona Beach, Florida
2. Automotorplex Chanhassen	Chanhassen, Minnesota
3. Eldora Speedway	Rossburg, Ohio

FIGURE8

CASE STUDY 1: THE DAYTONA HOTEL DAYTONA BEACH, FLORIDA

FIGURE9

CASE STUDY 1: THE DAYTONA HOTEL DAYTONA BEACH, FLORIDA

The Daytona Hotel in Daytona Beach, Florida is a hotel that is directly across the street from the Daytona International Speedway. The hotel is one of the most popular hotels in the area. This hotel consists of 144 rooms, gift shop, business center, private cabanas, private dining room, bar/ restaurant, pool, fitness center, meeting rooms, outdoor terraces, and slight inspiration in design to motorsports. This hotel draws design influences from motorsports in subtle ways throughout the building, but still has all the feeling of a normal hotel. The hotel sits just outsde the racetrack, making the hotel walkable from the racetrack. This hotel was crucial in the development of the design of the hotel for my project. Learning how hotels next to racing facilities increase usage and which amenities should be included in the programming for a hotel.

FIGURE10

FIGURE11

CASE STUDY 2: AUTOMOTORPLEX CHANHASSEN, MINNESOTA

FIGURE12

CASE STUDY 2: AUTOMOTORPLEX CHANHASSEN, MINNESOTA

The Automotorplex is a 146 garage condominium complex on a 40 acre facility. The Automotorplex sells individual garage condominiums to automotive enthusiasts. These garage units come with shop space and a living space with a bathroom. These garage condominiums come completely empty with the owner able to decide how and where things will be designed. These garage condos also host car shows in them and in front of them giving the facility more foot traffic. A new location of these garage condos are currently being built to have an auto repair shop, window tinting, vehicle wrapping services, and room for retail spaces to help better serve the surrounding community. These garage condos help in the understanding of what these spaces need to be successful with the users of the facility.

FIGURE13

FIGURE14

CASE STUDY 3: ELDORA SPEEDWAY ROSSBURG, OHIO

FIGURE15

CASE STUDY 3: ELDORA SPEEDWAY- ROSSBURG, OHIO

The Eldora Speedway is a half mile dirt track located in Rossburg, Ohio. It opened in 1954. This speedway hosts weekly night racing as well as multiple visits by the premier dirt series, World of Outlaws. This track hosts some of the most prestigious events for the World of Outlaws as well as even hosting NASCAR races in the recent past. The track also has multiple campsites for fans to enjoy some of the week long events that occur over the summer. The track also has a fan zone, rentable suites, a bar, souvenirs area, and a large covered concours. This track hosts over 20,000 fans per race and even has seating on the grass around the track for fans to bring their own chairs. This track is considered by many as the best dirt track in the country.

FIGURE16

TYPOLOGICAL SUMMARY

The three case studies I chose to research were chosen because the typology and the context around them will provide insight into how these facilities are designed effectively. The Daytona Hotel provides a nice lodging facility near a racetrack that architecturally nods to motorsports. The Automotorplex conveys how to design shop condos that inspire interesting design details to create unique spaces for the users. The Eldora Speedway shows how a racetrack can provide a great driver experience as well as a great fan experience providing spaces for both drivers/ teams and fans alike. All three of these case studies provides a ground work to study and learn more as to how design in these typologies effectively.

FIGURE17

MAJOR PROJECT ELEMENTS

Hotel

- Hotel Rooms
  Users of the racetrack and the community need places to stay when they are using the racetrack.
- Lobby
  A welcoming place to allow for a sense of community.
- Restaurant/ bar
  The hotel can use a place to serve breakfast in the morning as well as a place for fans and drivers to go after the races are done
- Pool
  A place to relax and enjoy during the stay
- Rooftop patio
  A community place that lets guests have views of the racetrack
- Laundry
  Both for individual guest use and the use of the housekeeping staff.
- Parking for both cars and trucks/ trailers
  Parking for passenger cars as well as big trucks with trailers and providing enough room to maneuver.

Shop Condos

- Shop space
  Enough space to have multiple cars in one shop space so multiple users can rent one together or teams can have all cars in one place.
- Living space
  A place to relax during the events or before/ after the events.
- Bathroom
  A bathroom in unit
- Parking
  Provided spaces for teams to park trailers and haulers.

MAJOR PROJECT ELEMENTS

Dirt track improvements

- Grandstand
  Making improvements onto the existing grandtands.
- Bathrooms
  Increase the amount of sustainable strategies to conserve water.
- Other Associated Buildings
  Increase sustainability strategies throughout the other facilites on the site.
- Add Fan zone
  Increase fan interest and interaction.

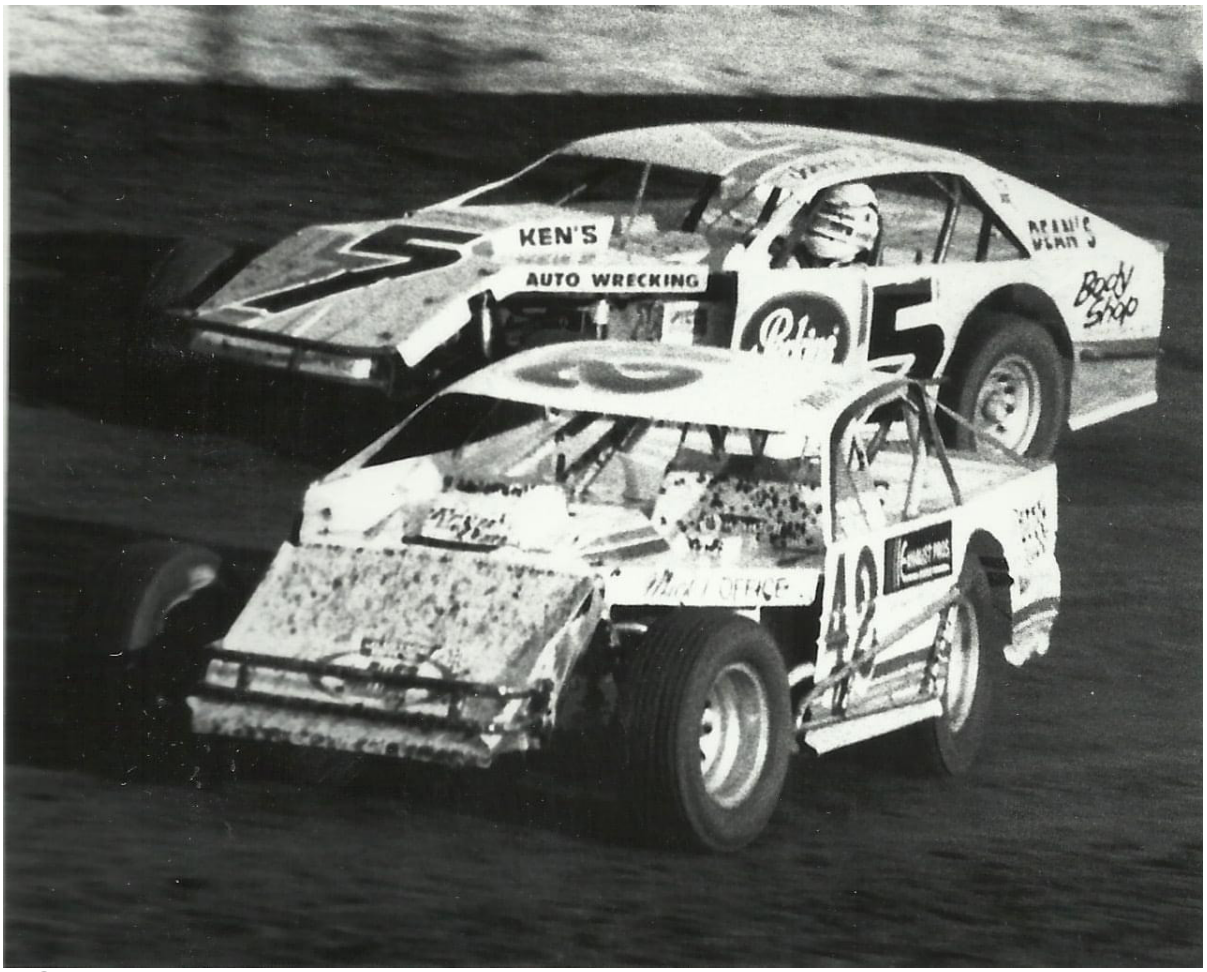


FIGURE18

USER/ CLIENT DESCRIPTION

CLIENT

This project was designed for the Red River Valley Fairgrounds and Red River Valley Speedway.

FIGURE19

FIGURE20

USERS

Hotel guests

People who stay in the hotel and their families.

Hotel staff

Employees that run the hotel.

Shop condo users

Drivers, crew, and any other renters of the shop condos.

Drivers

The race car drivers.

Crew

The mechanics, families, truck drivers, etc. that help work on the car.

Fans

The fans who come to enjoy the facility.

Racetrack employees

Employees such as announcers, concession workers, ticket gate workers, track maintanence crew, etc.

Fairground Association

The people who use the facility during the fair weeks.

THE SITE

FIGURE21

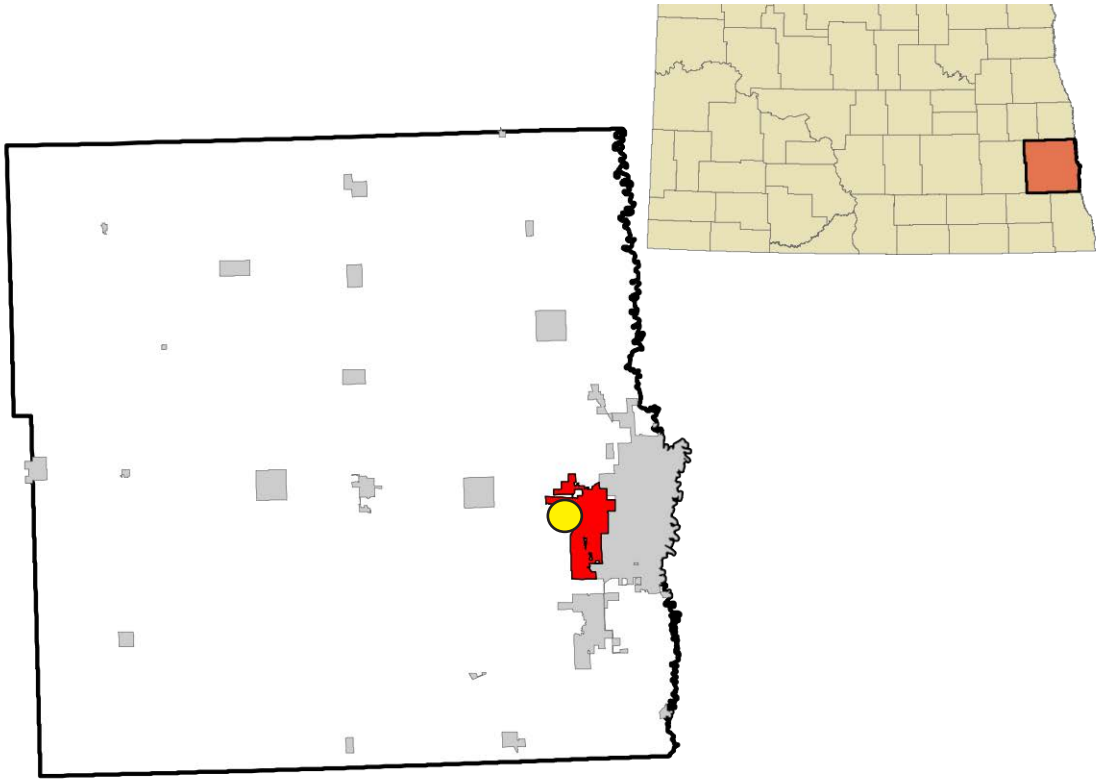


FIGURE22

THE SITE

FIGURE23

The site was chosen due to my familiarity with the racetrack and its' proximity to me. I also chose the track because the racing surface itself produces great racing but there is room for improvement with the buildings site. This site also has the room to accommodate the buildings I plan on placing on the site. In the past there were 2-3 day race weekends at the track and presently there is only one race the whole year for the premier series.

SITE PHOTOS

FIGURE24


FIGURE25

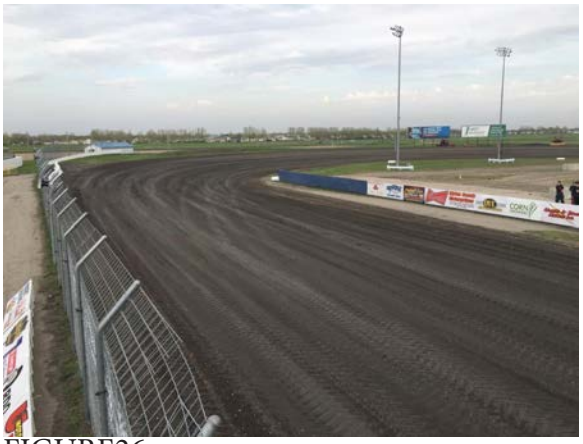


FIGURE26


FIGURE27

FIGURE28


FIGURE29

FIGURE30

FIGURE31

FIGURE32

FIGURE33

FIGURE34

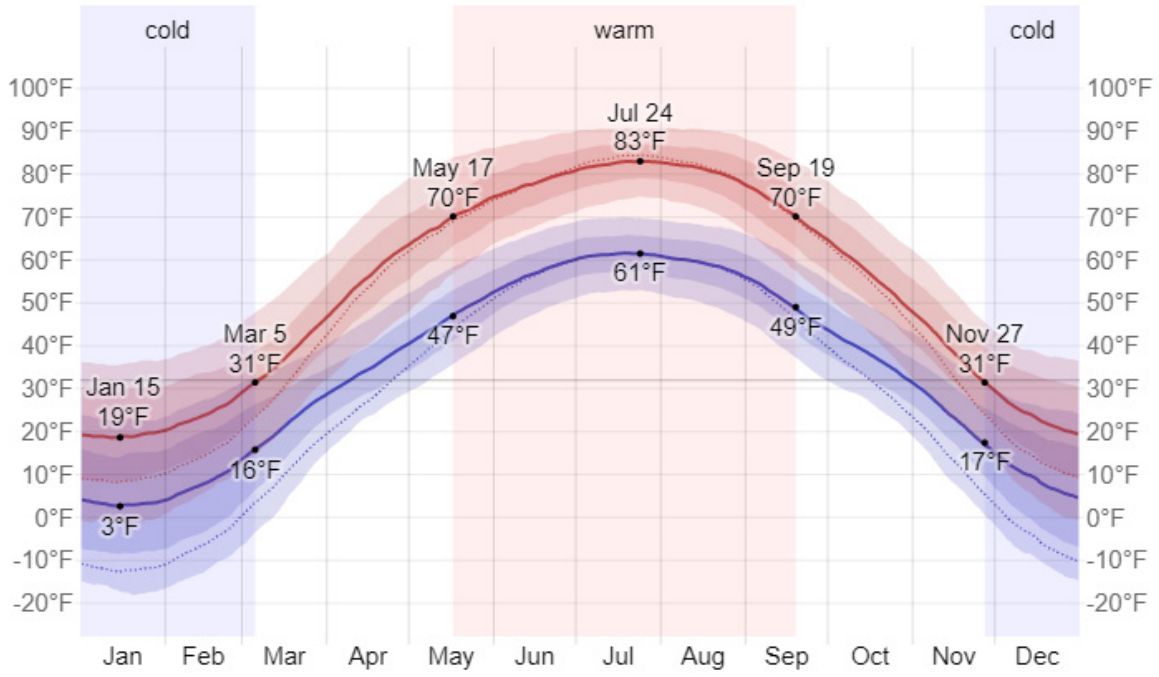
FIGURE35

SITE ANALYSIS

The site for my project is the Red River Valley Speedway and Fairgrounds in West Fargo, North Dakota. The site is located between I94 and Main Avenue. To the north of the site is Bonanzaville and some commercial buildings. To the south and west is I94. To the east is a mix of commercial buildings and both single family and multi family residences. The zoning for the site is classified as commercial and the total site of the fairgrounds is 137 acres, the field to the south is 81.5 acres. The total size of my site that I utilized for my project is approximately 130 acres. The site is relatively flat with minor elevation changes of less than 3 feet. The existing site has multiple fair buildings on the site spread out and the main grandstand surrounds the front stretch of the 1/3-mile speedway. There are multiple ways to access the site. For drivers and crew members the road to the far west point of the site is the main entrance all the way down and around to get into the pit area. Following that path there is another entrance into the pit area from the east on the main north/ south road on the east of the track. There are large closing accesses on the far east in three points. There are power lines that run parallel to the main north south road. There is noise that comes from the speedway anytime the races are taking place. At night, the lights will shine over the trees, and you can see them from Sheyenne Street and even further past that. When the premier series are in town, parking lots completely fill up as well as the grandstands. The people who attend these events on the site come from all over the United States ranging from people who run the fair to top notch music acts.

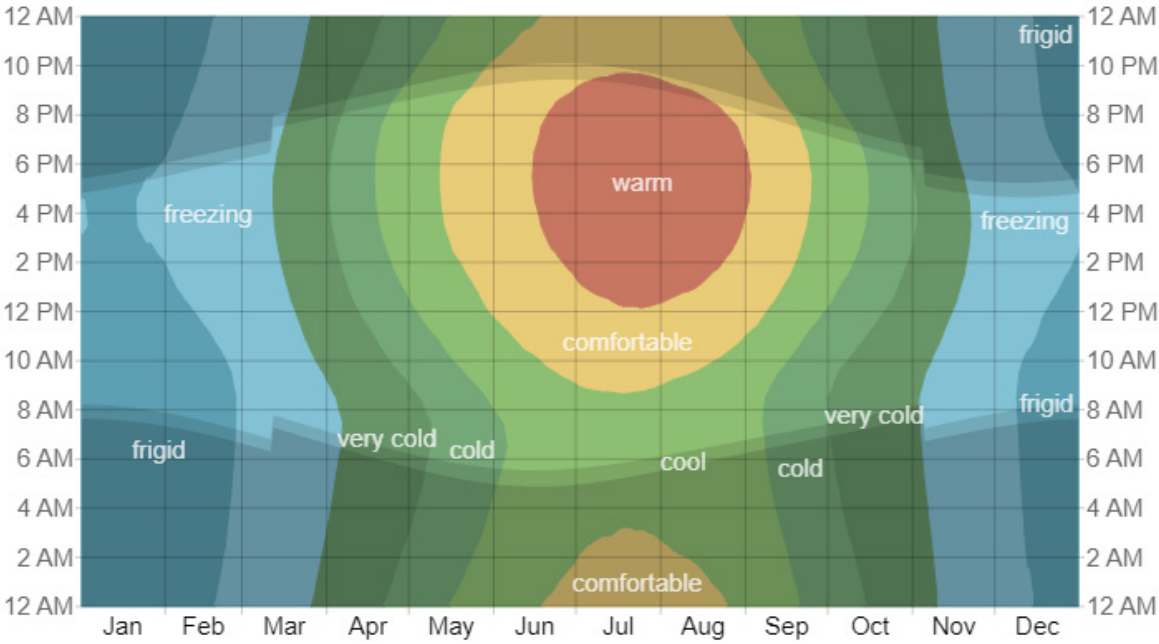
SITE ANALYSIS

FIGURE36



AVERAGE HIGH AND LOW TEMPERATURE IN WEST FARGO

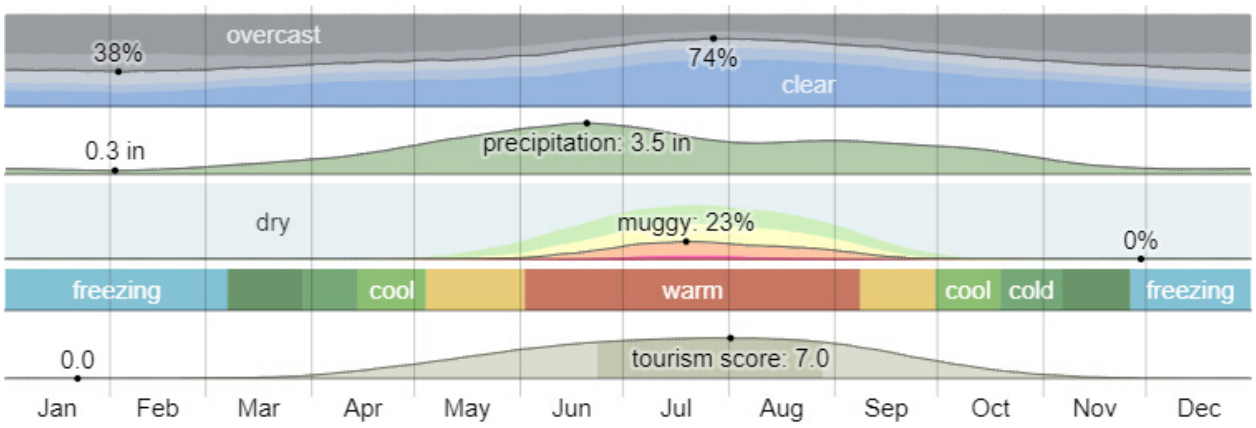
FIGURE37



AVERAGE HOURLY TEMPERATURE IN WEST FARGO

SITE ANALYSIS

FIGURE38



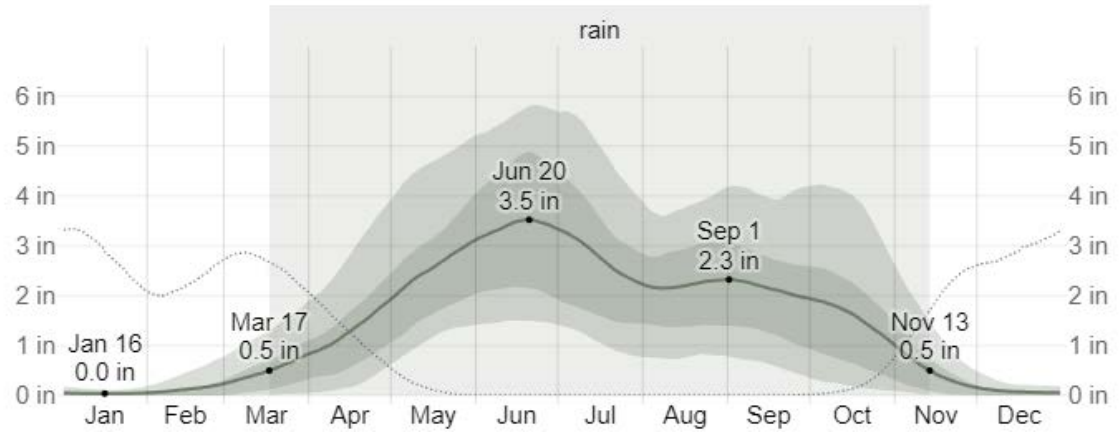
CLIMATE IN WEST FARGO

FIGURE39

DAILY CHANCE OF PRECIPITATION IN WEST FARGO

SITE ANALYSIS

FIGURE40



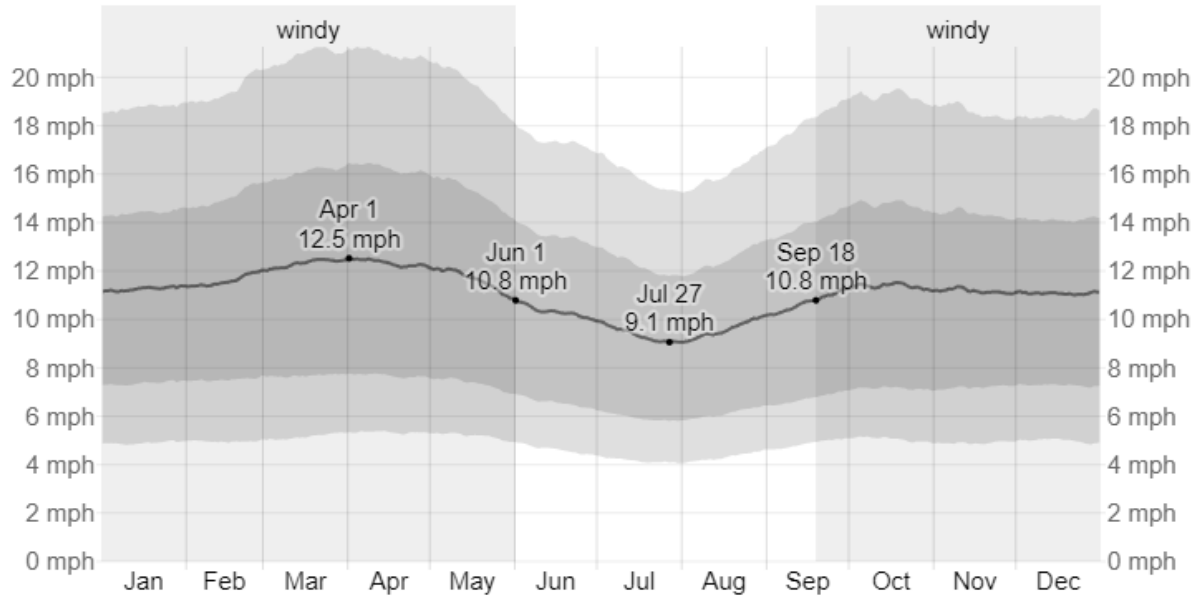
AVERAGE MONTHLY RAINFALL IN WEST FARGO

FIGURE41

AVERAGE MONTHLY SNOWFALL IN WEST FARGO

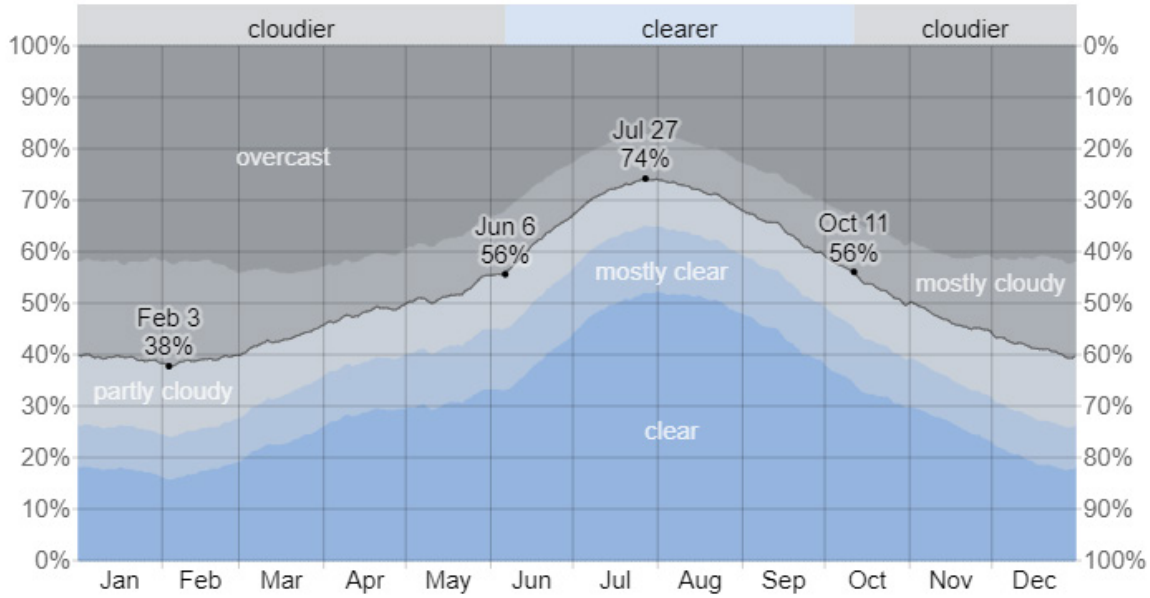
SITE ANALYSIS

FIGURE42



AVERAGE WIND SPEED IN WEST FARGO

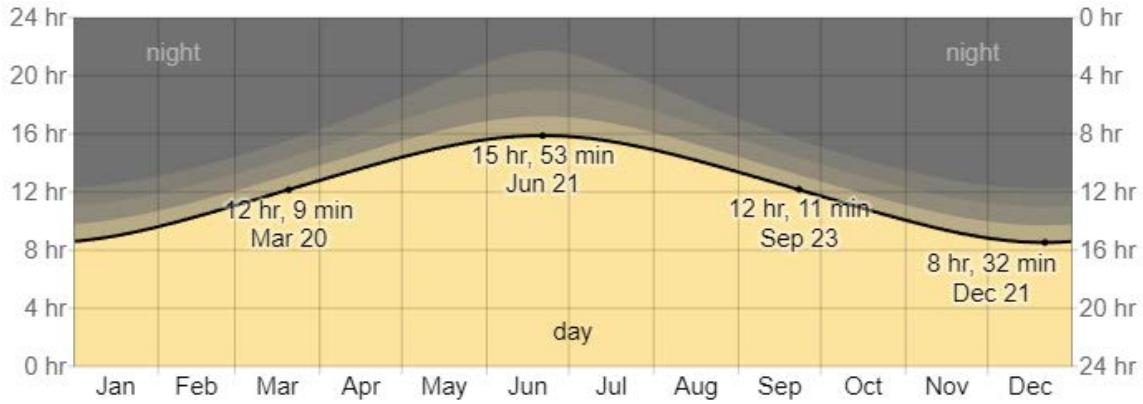
FIGURE43



CLOUD COVER CATEGORIES IN WEST FARGO

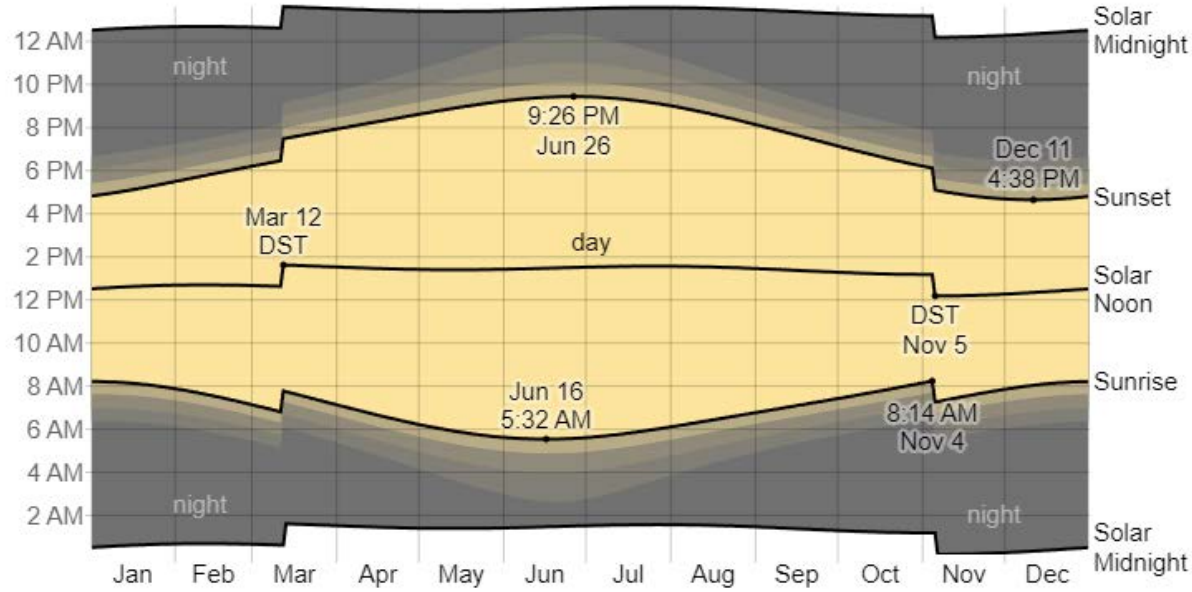
SITE ANALYSIS

FIGURE44



HOURS OF DAYLIGHT AND TWILIGHT IN WEST FARGO

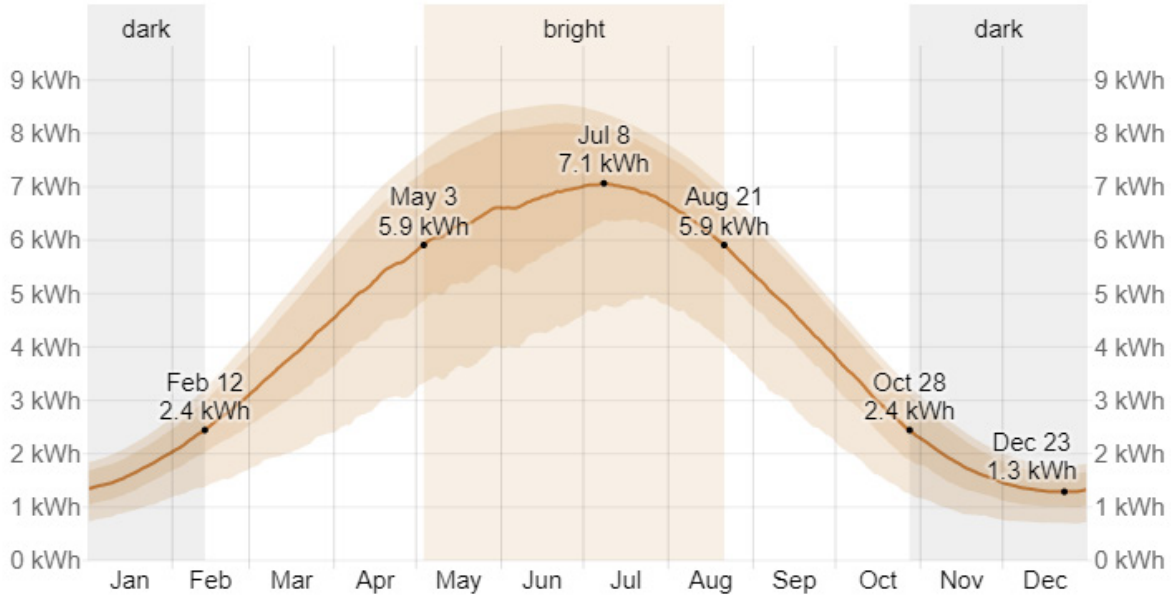
FIGURE45



SUNRISE AND SUNSET IN WEST FARGO

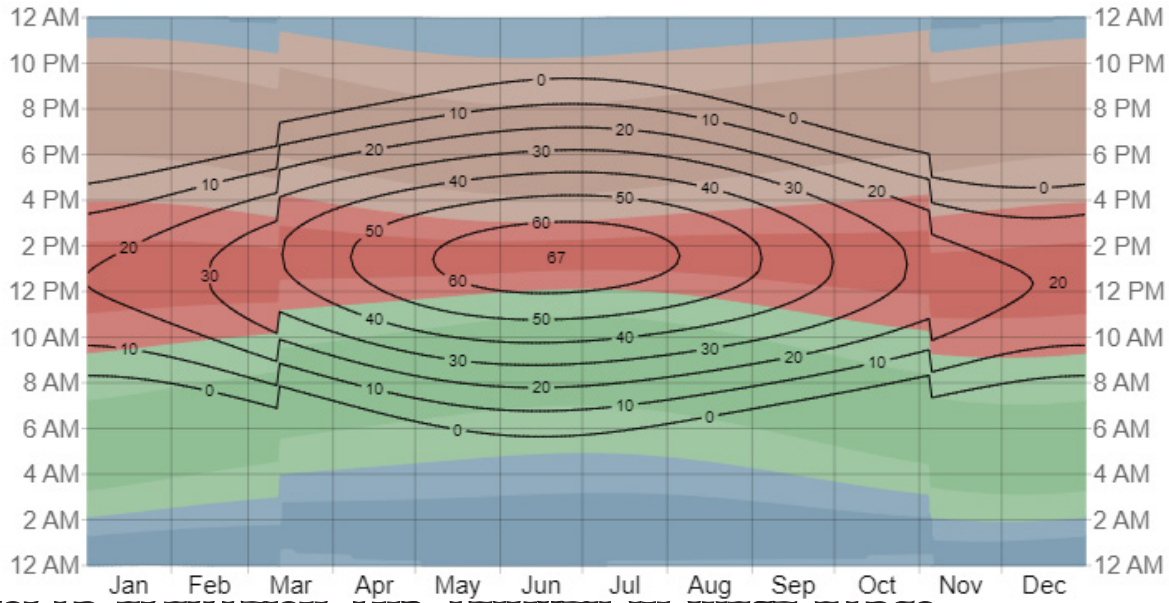
SITE ANALYSIS

FIGURE46



AVERAGE INCIDENT SHORTWAVE SOLAR ENERGY IN WEST FARGO

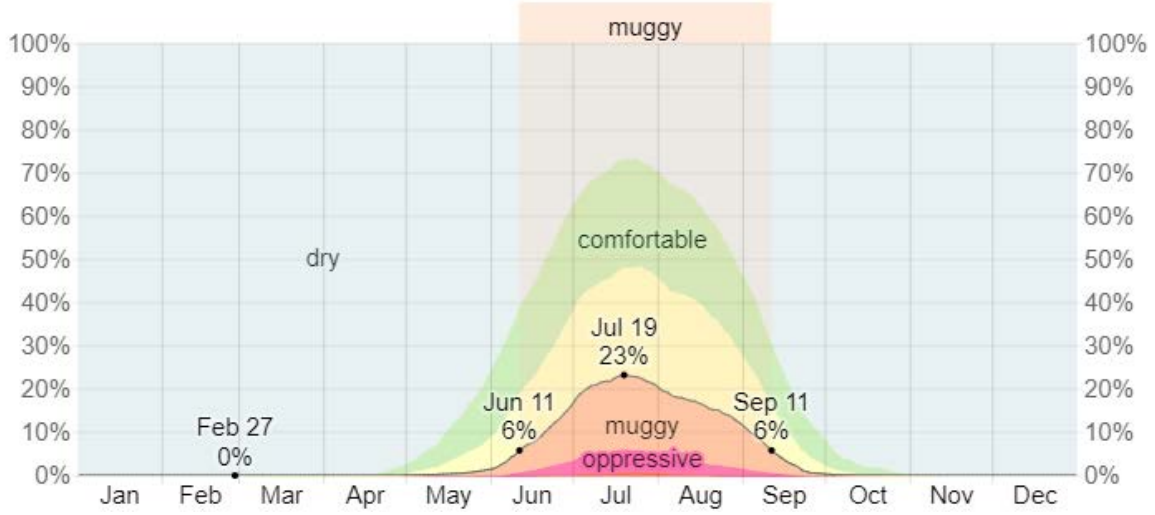
FIGURE47



SOLAR ELEVATION AND AZIMUTH IN WEST FARGO

SITE ANALYSIS

FIGURE48



HUMIDITY COMFORT LEVELS IN WEST FARGO

PROJECT JUSTIFICATION

Dirt track racing has been around since the first and second car were rolled off the production line. Most tracks around the United States up to 1970 were dirt tracks. Now, the most televised and most attended races in the country are on asphalt. Dirt track racing is now a more affordable form of racing as compared to its asphalt counterpart. Dirt tracks typically aren't designed as asphalt tracks are. The asphalt tracks typically have some sort of an extravagant design that people flock to, from Indianapolis' pagoda to Circuit of the America's observation tower. Dirt tracks typically are a simple grandstand, a press box, a baathrrom building, and a concessions building. Very little architectural thought is put into the design of these facilities other than function.

Architecture can be brought into these spaces not only for function but can be aestheticly pleasing as well. Architecture can be helpful in the design of dirt tracks to provide a positive user experience, increase sustainablity factors, and become a destination area. Utilizing architectural strategies to improve the site will help with making a destination area out of an otherwise typical fairgrounds, increasing fan involvement both on typical and atypical days, and improving the use sustainable energy rather than the use of external non-renewable energy. Utilizing these design ideas can help offset the typical connotation that racing is bad for the environment.

FIGURE49

PROJECT JUSTIFICATION

According to a study done by Enovation Consulting LTD. in 2022, which reviewed racing facilities around the world on sustainability factors, 10 tracks recieved a low rating, 17 tracks in the United States recorded a medium low rating, 3 recorded a medium rating, and 1 recorded a medium high rating. No track in the US recieved a high rating. This study took into account the following criteria: Environmental Criteria, Social Criteria, Economic Criteria, and Sustainability Approach and Engagement. these main categories get broken down even further into minor categories, for example, renewable energy and energy efficiency and philanthropy. This study shows that there are tracks throughout the world that are utilizing sustainable design strategies and the report states that even from the year prior that multiple racetracks are stepping up their response to the world we live in and even more tracks are starting to join in the movement of sustainable design. NASCAR recently announced a plan to be net zero by 2035. In 2013, NASCAR launched the Race for Green Campaign. The green campaign included hybrid pace cars for the event weekends, and brought in brand partners to assist in varying different sustainable strategies: recycling, planting 600 trees per race, and utilizing the massive fan base that NASCAR has to make donations to the varying different campaigns endorsed by NASCAR. In 2011, NASCAR adopted a blended fuel that is 15% ethanol that has a 20% carbon emission reduction but still produces the same power.

FIGURE50

NASCAR GREEN™

FIGURE51

PROJECT EMPHASIS

1. The number one focus of this project is the hotel. The hotel is the most important as it can provide lodging for fans and drivers to allow for multiple day events. By having the ability to have multiple day events, there will be less traveling for teams and fans, which will also eliminate the amount of fuel used and harmful toxins emitted into the air. The addition of a hotel would also increase the amount of traffic to local businesses in the community.
2. The second focus is the shop condos. The shop condos are important because it limits the amount teams have to travel to repair cars. It also provides a place for teams to store race ready cars rather than loading them into trailers.
3. The third focus is on improving the existing buildings on the site. Improving the existing buildings improves the driver and fan experience at the track. Improving these existing buildings can allow for implementation of solar, wind, and water sustainable design strategies.

GOALS OF THE PROJECT

The main goal of this project is to improve upon the existing site in which the dirt track resides, with the hopes of improving more tracks around the country.

By expanding upon the design of the site, another goal would be to expose more of my community to dirt track racing so that they can experience the excitement of this motorsport.

My final goal for the project is that when people think of racing, they connect it with sustainability rather than with the negative effects on the environment.

PLAN FOR PROCEEDING

Research Direction

Theoretical Premise

To research the theoretical premise, the main idea of how each individual element works with the overall design concept.

Project Typology

With the project having multiple typologies, multiple case studies were done, each with an different typology. The typologies to be researched are a hotel, shop condos, and a racetrack.

Historical Contex

To research the historical context, the research must direct as to how the speedway provides a positive user friendly experience.

Site Analysis

The site analysis will look at how each part of the year the amount of events that occur at the site change and how can the design bring more events to the site.

Design Methodology

Case Study Methodology will be used the most in the research of this project. Each case study has a different typology giving each individual design element its own case study to pull information from.

The design documentation will be through hand drawings, through computer design software, and showing the final design through computer design software.

The project will stay on track through the thesis advisor and the direction of the advisor will be used to help guide the project to be the best it can be.

PLAN FOR PROCEEDING

The final result will be included in the final thesis book. The final product will be displayed as a powerpoint presentation, presentation boards, and a final model.

The schedule of completing each task will be as follows: thesis research to be completed by mid-December, thesis design to be completed mid-April, and book to be completed by mid-May.

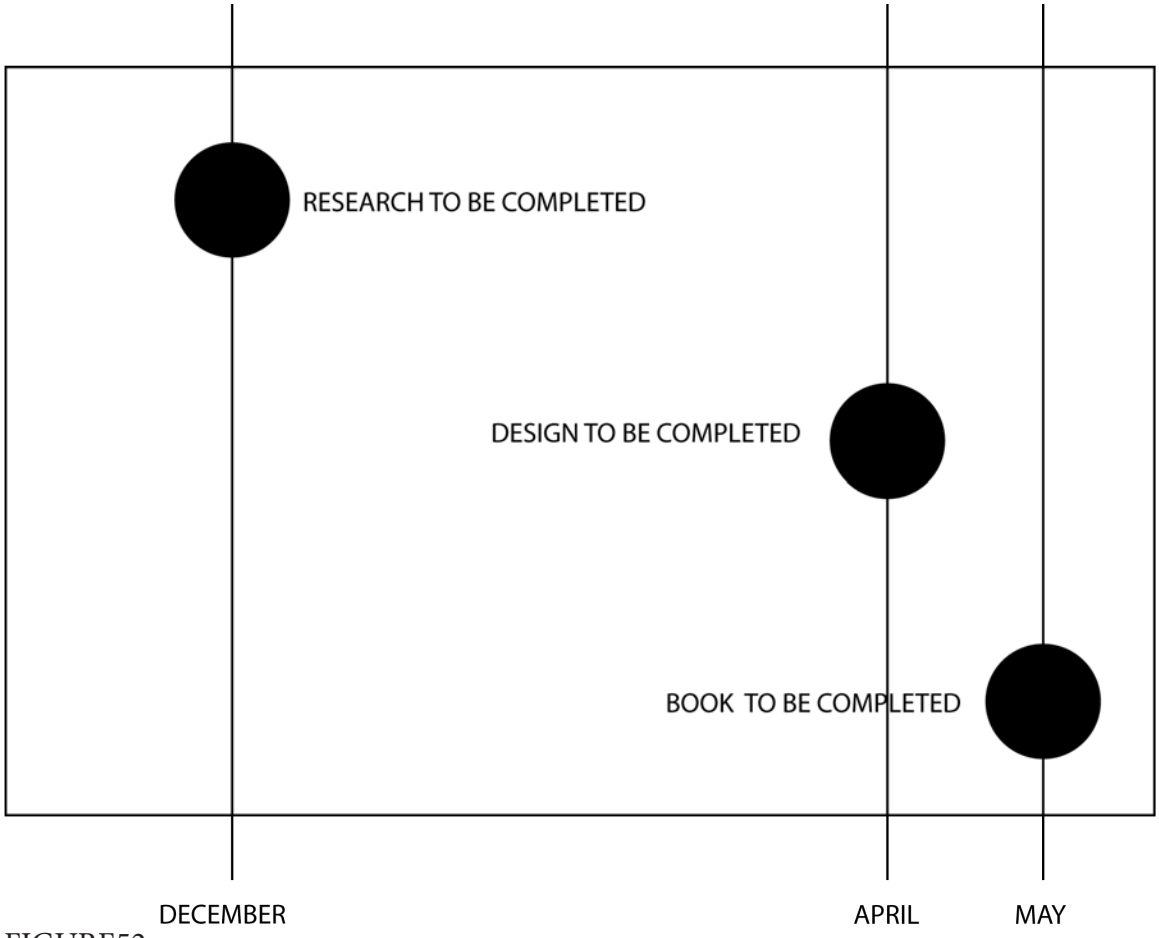


FIGURE52


THE CUSHION
HOTEL | RESTAURANT | BAR

DESIGN SOLUTIONS

AREAS OF OPPORTUNITY

The first area for opportunity is the distance between each race night. As I mentioned earlier, the main touring series spent typically only one night a year at the track in west Fargo then drive to Burlington, Washington for a 2–3-night event. The second opportunity area is a lack of lodging in the area for people traveling to the site. During last year's World of Outlaws race, getting a hotel for the weekend even a couple of months in advance was difficult as many options were unavailable or unaffordable. The third are of opportunity is the water and energy usage on the site. Dirt tracks use multiple 2–4000-gallon water trucks to help keep the dirt moist and to keep dust down. Multiple times a night the water trucks will make a couple laps around spraying water over the track and in the pit areas. Another big use of the water is the bathrooms. The facility can accommodate almost 5000 people when completely full and that's a lot of water that gets used, especially during intermission. Energy usage is big, especially when it comes to all the lighting around the track and the surrounding facilities. The last area of opportunity is user experience. The racing surface and the racing that comes from the track is superb, but the experience from a fan's perspective can be a more hands on approach. On six nights of the year there is a brief meet n greet with drivers and team but no permanent area to increase fan interest in the sport itself.

FIGURE54

DESIGN SOLUTIONS

The design solutions I'm implementing will help solve the highlighted areas of opportunity. My design solutions include: a hotel, restaurant, and museum; shop condominiums, a grandstand canopy, facelifts of existing on the site, and a fan zone.

FIGURE55

FIGURE56

MASTER PLAN

1. Fan Zone
2. Existing Building Facelifts
3. Grandstand Canopy
4. Shop Condos
5. Hotel | Restaurant | Museum

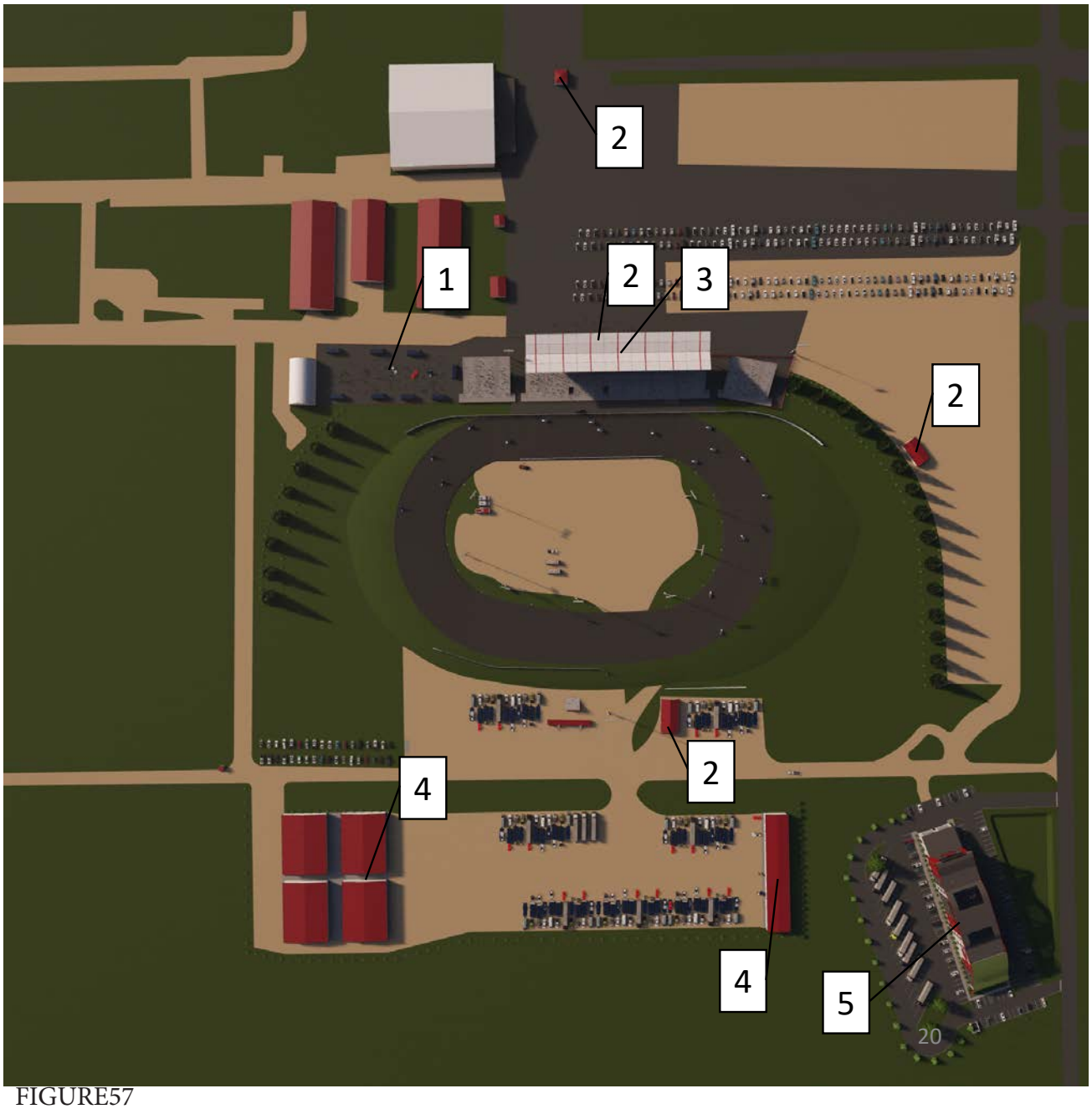


FIGURE57

THE CUSHION HOTEL | RESTAURANT | BAR

FIGURE58

The Cushion hotel, restaurant, and museum is located just south of the race-track. The name “the cushion” comes from both the typical meaning of a cushion being a comfortable place to rest and also in dirt track terms refers to the mounds of dirt that get kicked up from the tires that allow a car to gain speed. The silhouette of the building is inspired by the profile of a dirt late model. How the building flows in and out from a plan view mimics the curves and slants of most purpose-built dirt race cars.

FIGURE59

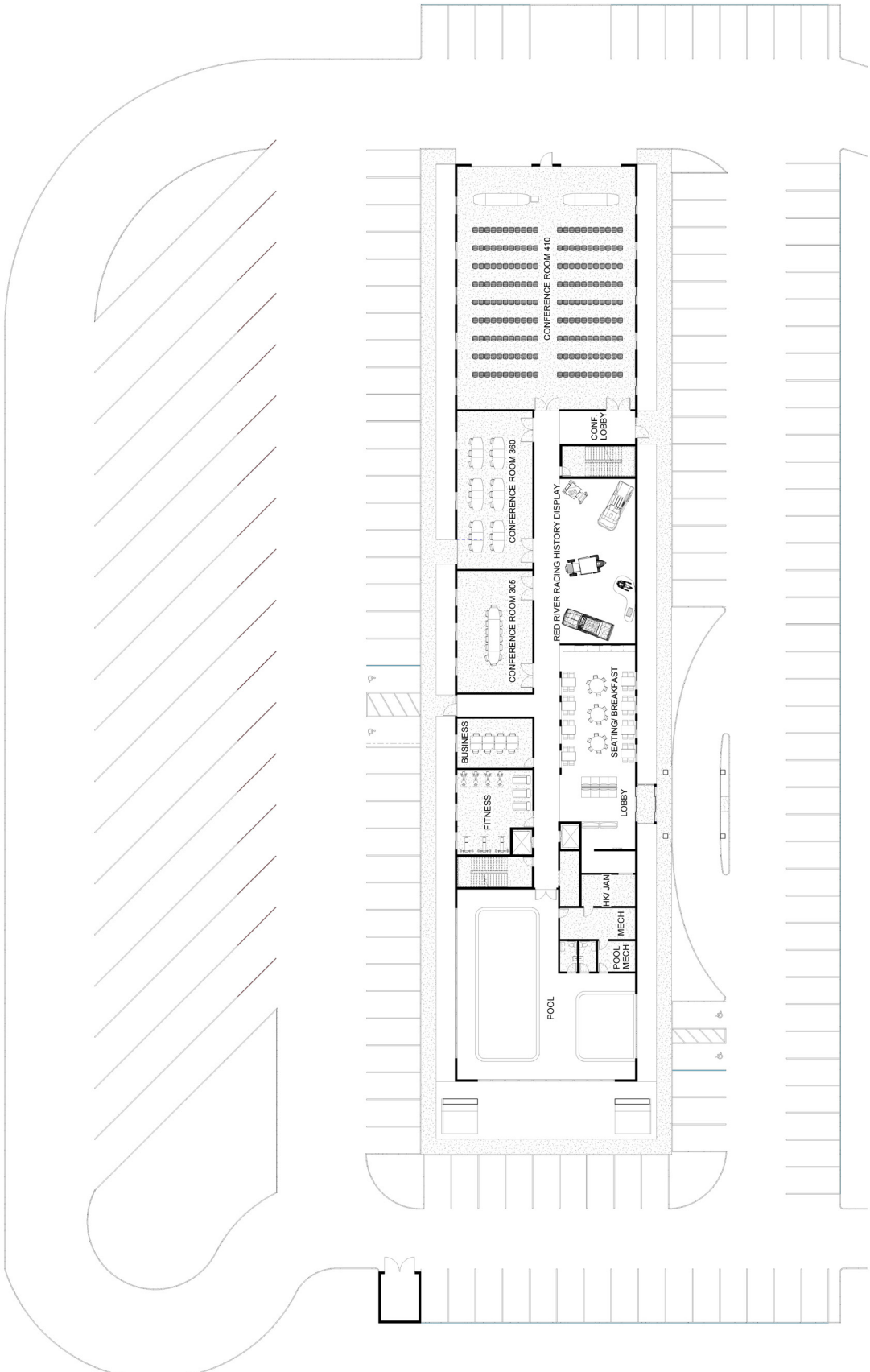
FIGURE60

FIGURE61

THE CUSHION HOTEL | RESTAURANT | BAR

The first floor of the hotel consists of typical hotel amenities such as a pool, fitness center, buffet style breakfast area, and business center. Three differing size conference rooms with nods to the three different sized engine classes sprint cars use (305, 360, & 410) can be set up for multiple events with modular furniture. The largest conference room has a high enough ceiling to accommodate large vehicles such as farm equipment during farm shows. With the hope of these additions creating multiple day events, another use for this space can be for at track Sunday morning worship services. The red river racing history museum increases the overall user experience of the site and generates more interest in the sport.

FIGURE62



SITE & FIRST FLOOR PLAN

FIGURE63

FIGURE64

The main focal point in the design of the ceiling is a sprint car rim. The design of the wall between the hallway and seating area is derived from the engine heads of a sprint car engine.

FIGURE65

Floors 2-4 taper as they go up of the left side of this image by removing the two end units up to floor 4 giving a total room count of 69. There are multiple room types to accommodate the different users of the hotel from families, drivers, and large teams. Each room showcases photos of the history of the speedway.

FIGURE66

SECOND - FOURTH FLOOR PLAN

FIGURE67

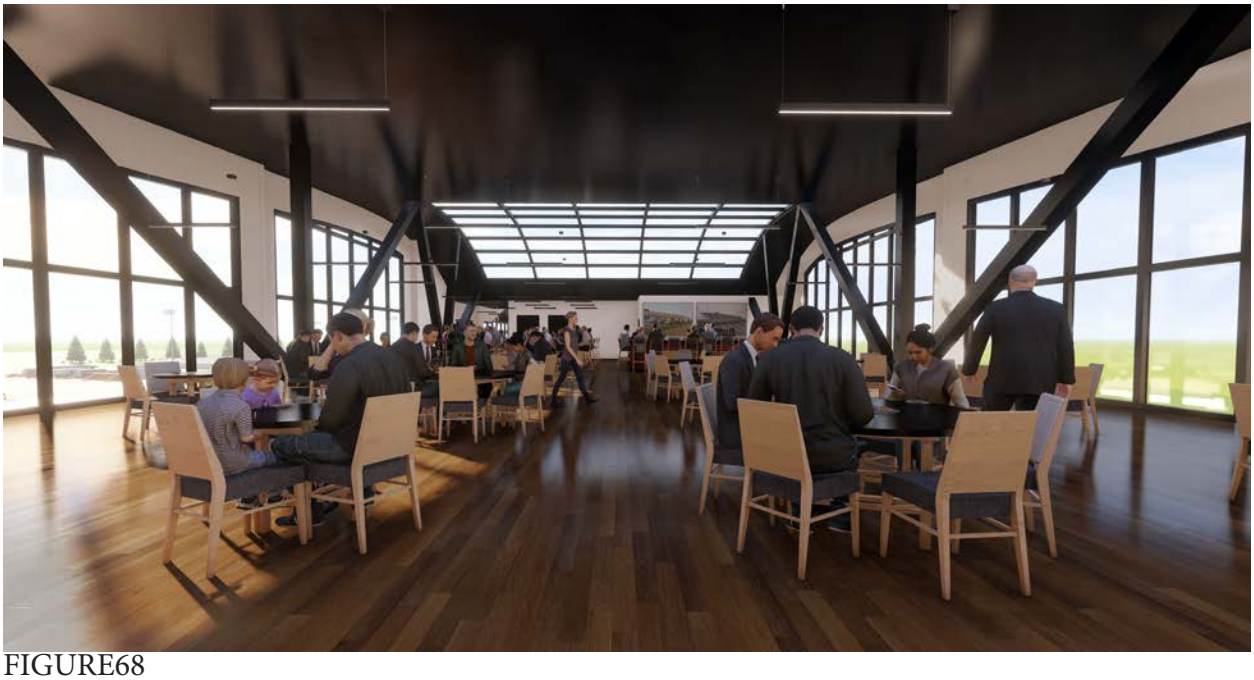
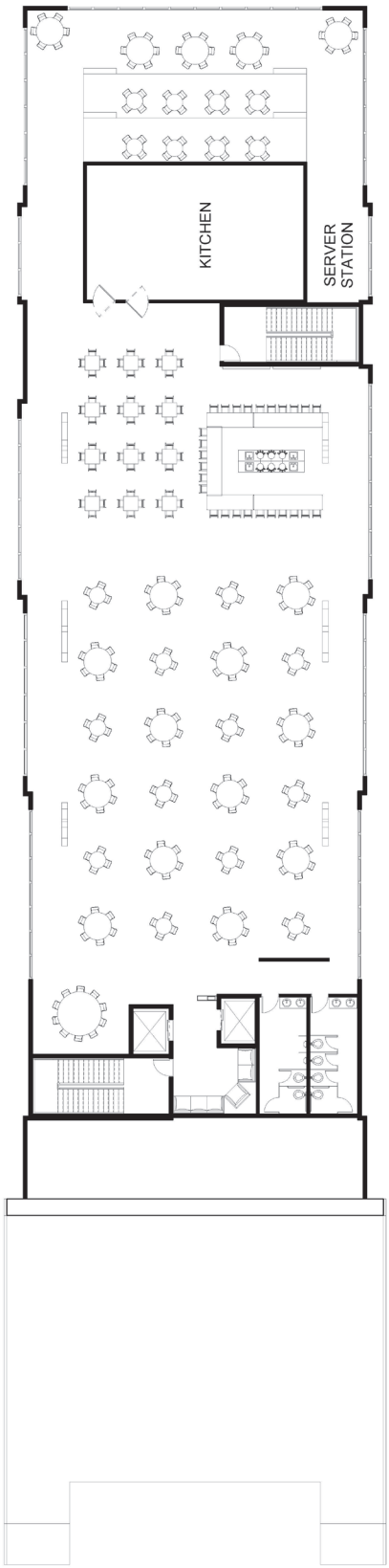


FIGURE68

The 5th floor restaurant has two separate seating areas. The main dining room consists of differing sizes of tables to accommodate families and large teams. The bar area has high top tables and u-shaped bar utilizing materials from the racetrack buildings. The second dining area has a tiered seating area aimed at the racetrack. During race nights the tv's would be broadcasting live versions of the racing event.

FIGURE69

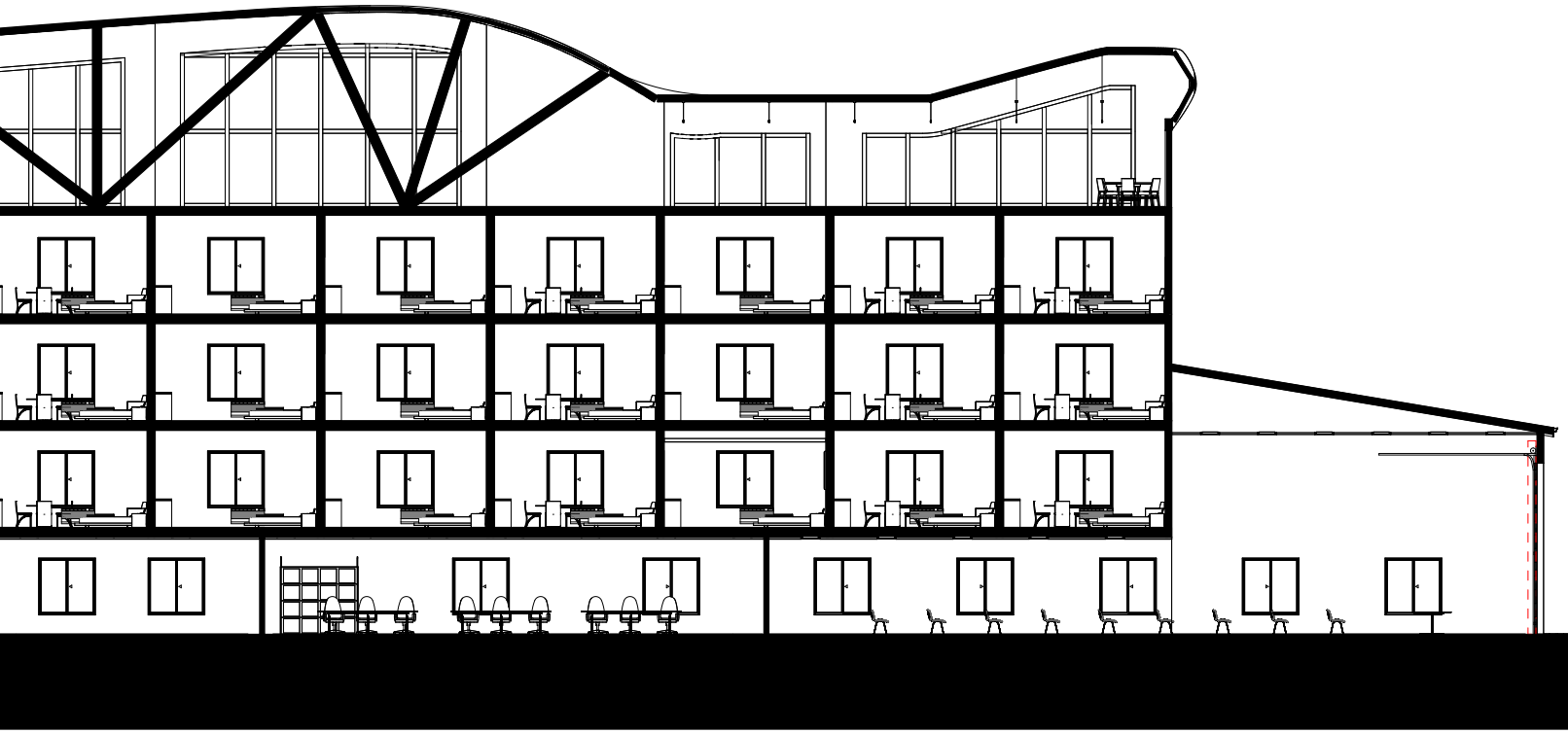
FIGURE70



FIFTH FLOOR PLAN

FIGURE71

FIGURE72



RED RIVER RACING HISTORY MUSEUM

The Red River Racing History Museum displays different race cars and artifacts. The walls of the Museum are a timeline of the history of the red river valley speedway. The Red River Racing History Museum allows fans and hotel guests up close and personal access to different race cars and various artifacts allowing people to become more interested and add a hands-on aspect that the younger generation can appreciate and continue to grow the sport.

FIGURE73

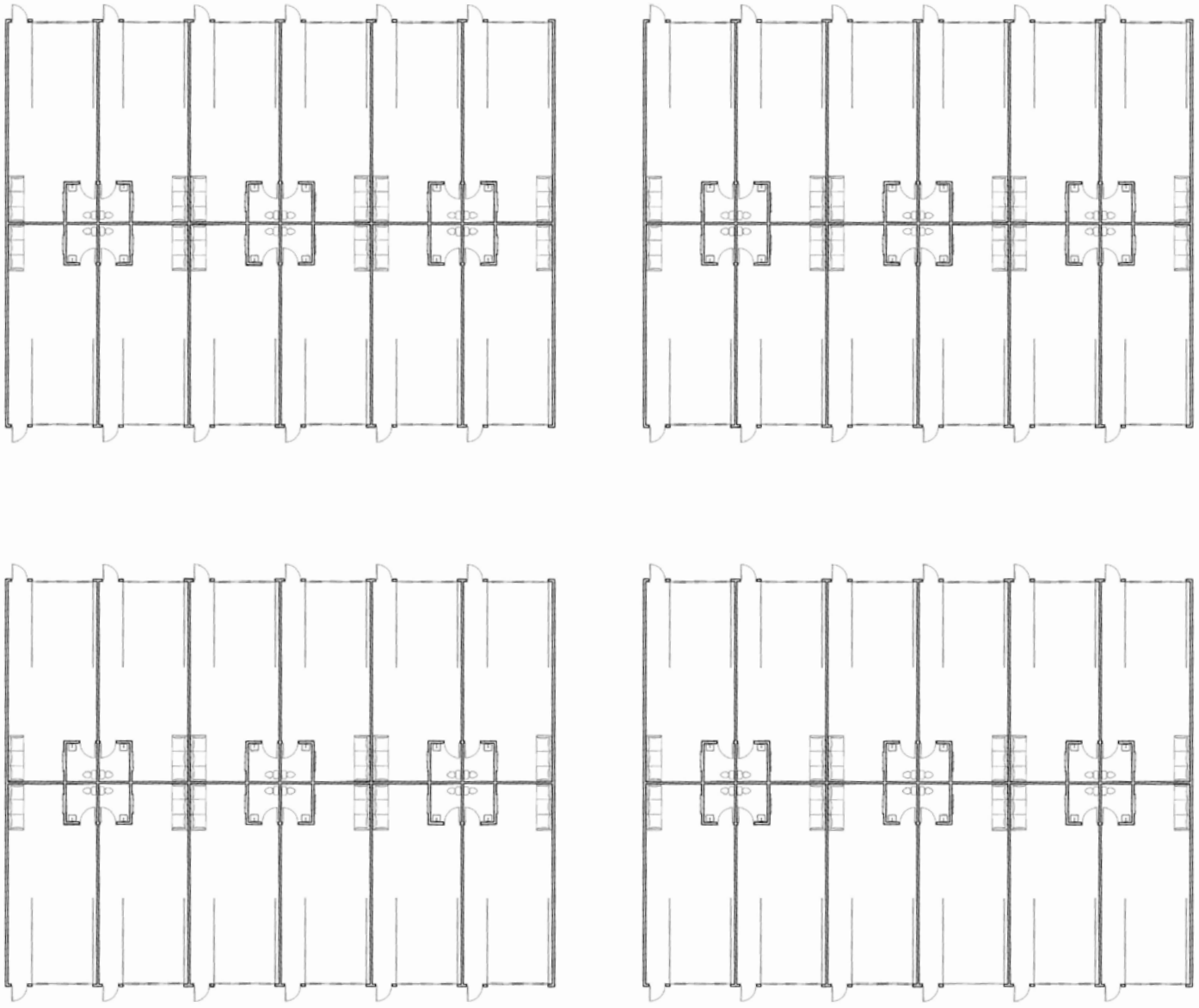
FIGURE74

SHOP CONDOMINIUMS

FIGURE75

There are two spaces of shop condominiums in the pit area. A one-sided row of units at the end closest to the hotel and a set of 4 double sided pods of units. 30. Each unit consists of a bathroom and lounge area. The units are climate controlled so teams can store vehicles, tools, and equipment without worry. These lounge areas, similar to the restaurant track viewing area, would be able to broadcast a live stream of the race to help teams with time management. These units could also be used for shows, the fair, markets, and can be a central meeting place for car shows.

FIGURE76



SITE & FIRST FLOOR PLAN

FIGURE77

GRANDSTAND IMPROVEMENTS

The Main grandstand received a canopy to help protect from the sun and from the varying precipitation that comes from our climate. The canopy also collects rain-water to be used in the different buildings on the site. According to a calculation I did, the canopy can collect about 59,000 gallons of water in a typical month, not accounting for evaporation or runoff.

FIGURE78

FACILITY IMPROVEMENTS

The fan zone allows fans to get an up close and personal look at the cars and teams to improve fan interest and hope to increase the interest of the younger generation to help keep the sport alive. A fan zone would provide a permanent area for teams and fans to interact in a more accessible way. The fan zone would be just west of the grandstand on the front stretch.

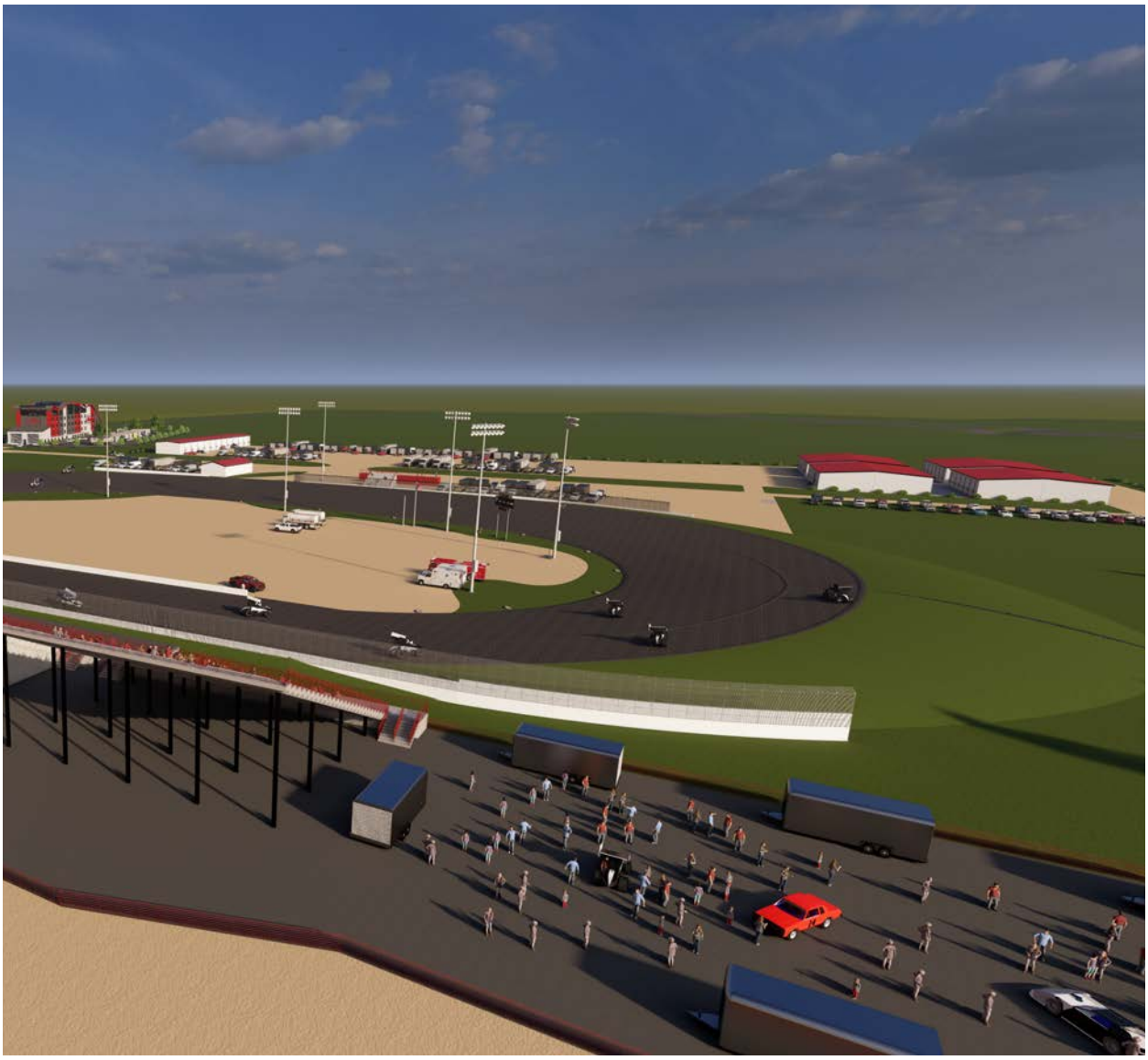


FIGURE79

FACILITY IMPROVEMENTS

The ticket building received canopies over each window. The canopies are made from sprint car top wings with the speedway logo to help create a sense of identity.

FIGURE80

FACILITY IMPROVEMENTS

The existing buildings on the site were updated to match the shop condominiums. The buildings all match the color scheme of the racetrack. These updates will help create a sense of identity.

FIGURE81

SUSTAINABILITY

Water collection of the canopy and in the roof of the hotel allows for less outside water to be used and to help with consumption. Collecting the water on the site will help with water runoff and help with managing the flooding of the site. The water from the canopy is stored in the following tanks under the grandstand. The water collected from the hotel roof is stored under the green wall.

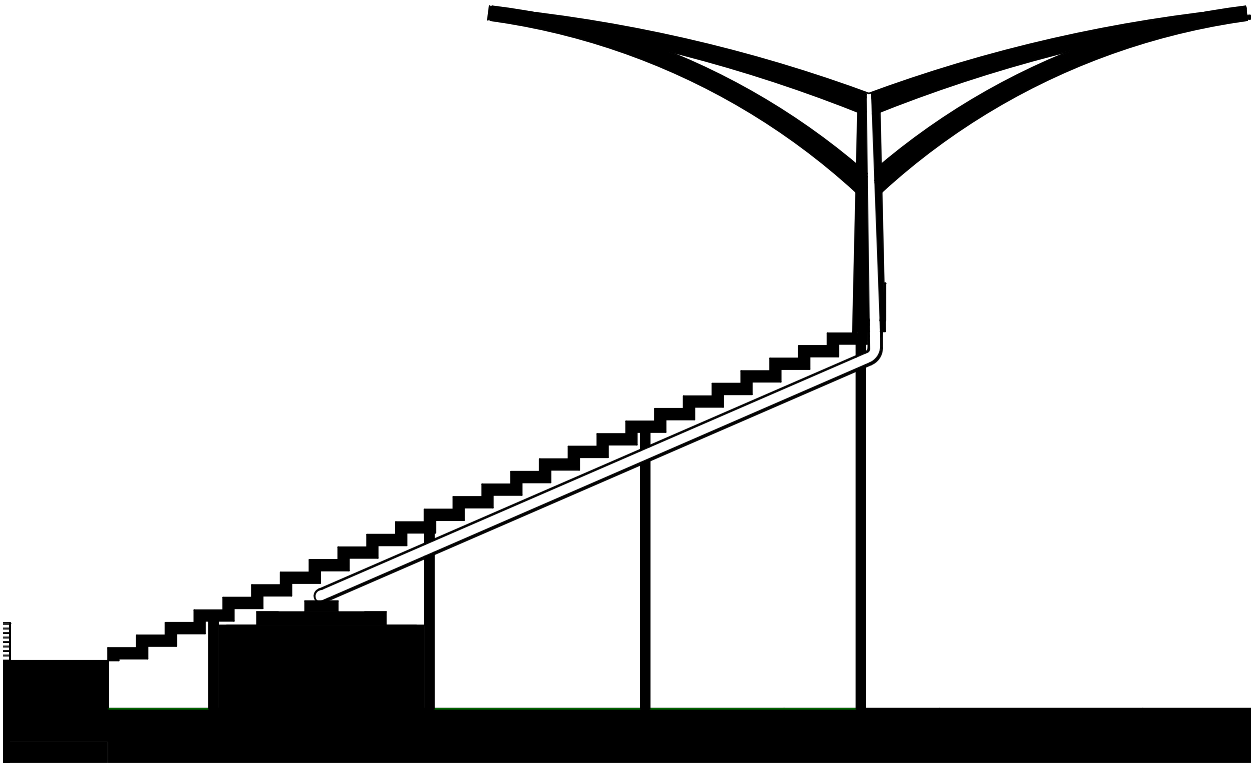


FIGURE82

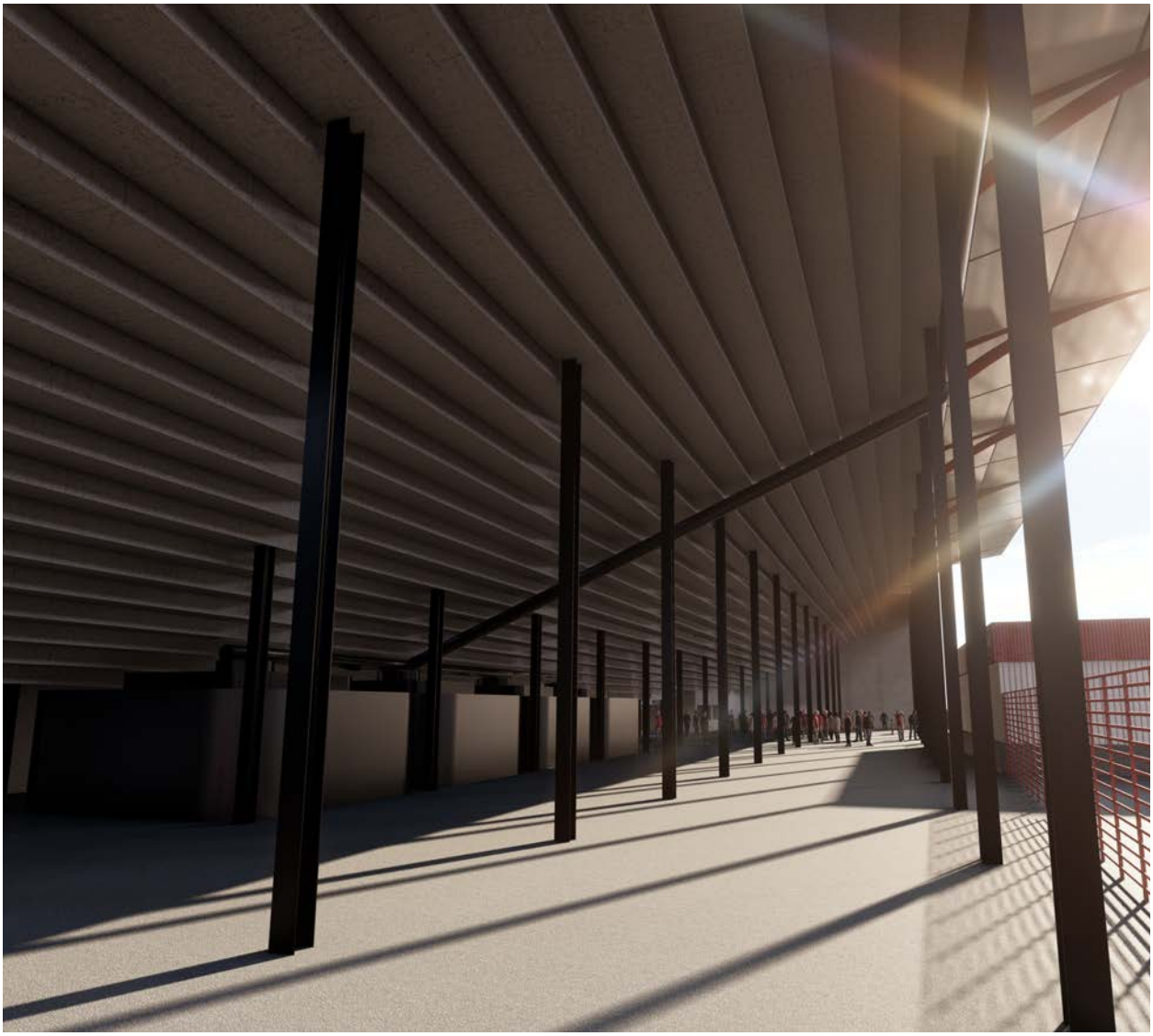


FIGURE83

SUSTAINABILITY

The green wall on the hotel can help absorb the emissions from the racecars. The green wall can also help by absorbing some of the sound from the racetrack. Having this green wall also can absorb water to help with flooding that occurs every year.

FIGURE84

SUSTAINABILITY

The solar assisted lighting around the track will help with the amount of external, non-renewable energy used and will collect large amounts of solar energy. Utilizing solar assisted rather than purely solar powered lighting provides a safety element to make sure lights don't go out when cars are reaching speeds over 100 mph.

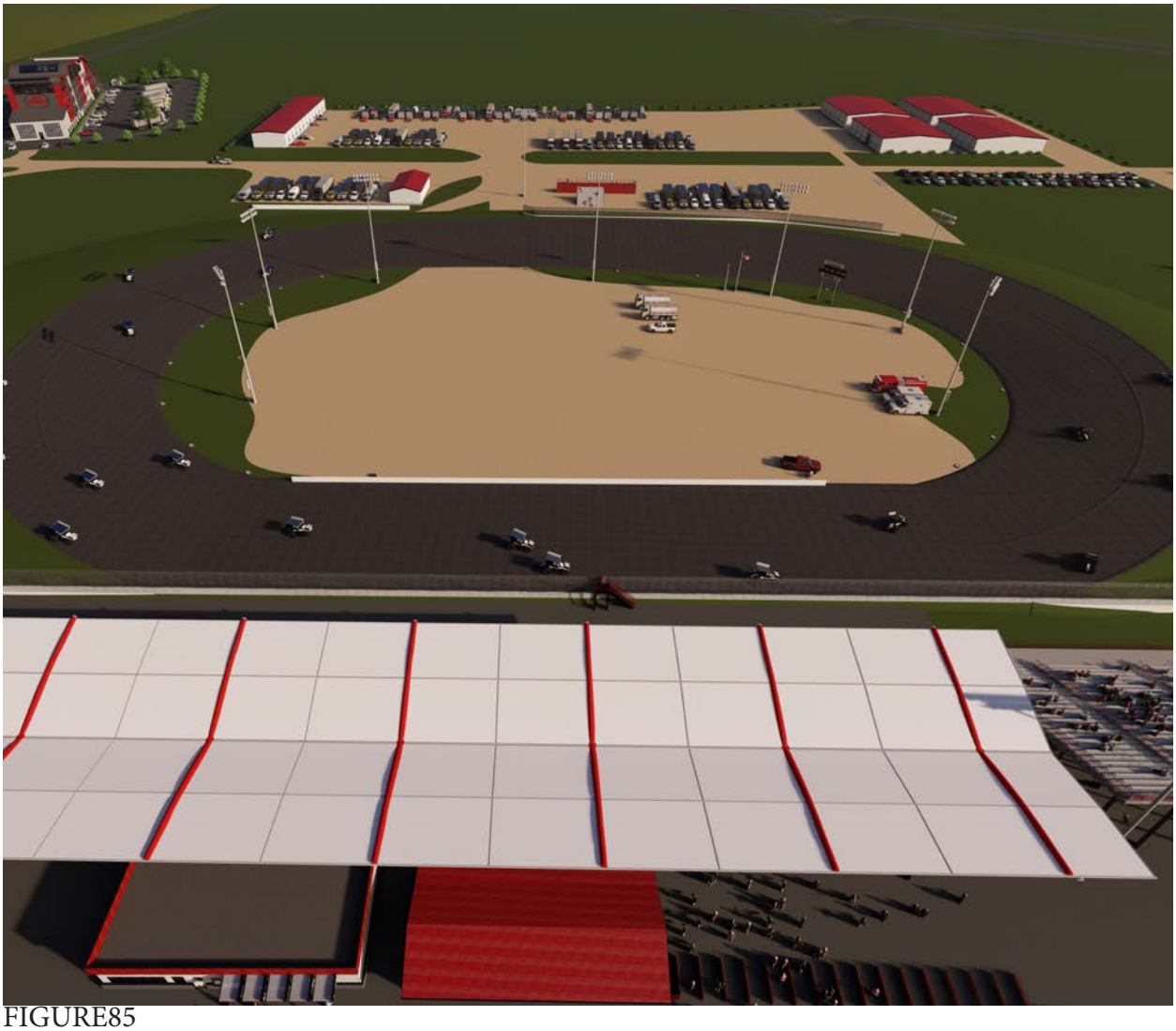


FIGURE85

SUSTAINABILITY

Daylighting is used in the design of the roof of the restaurant. The windows are oriented to maximize the amount of sunlight in the winter and minimize in the winter. Shades are also used to help with glare in the spaces.

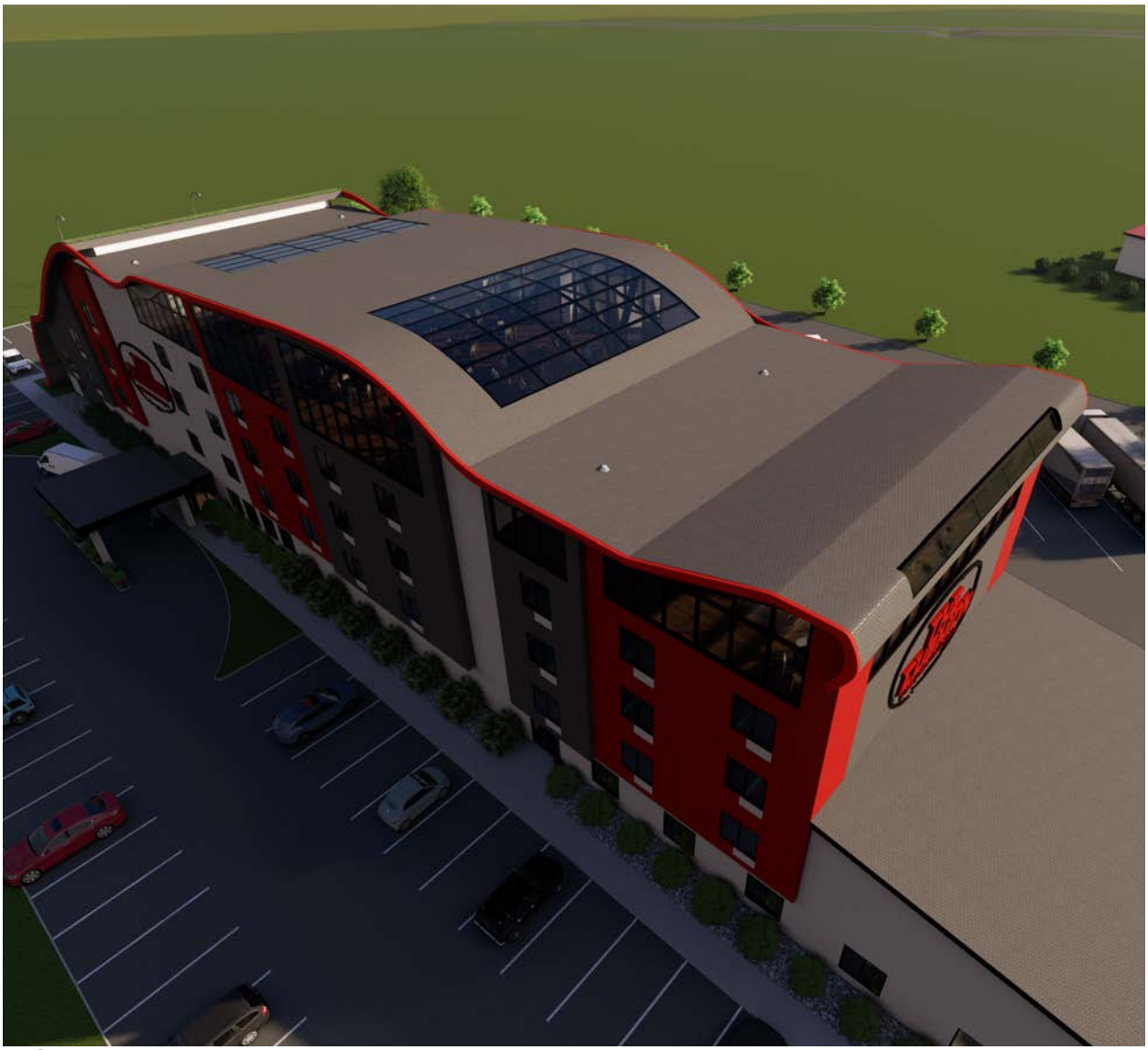


FIGURE86

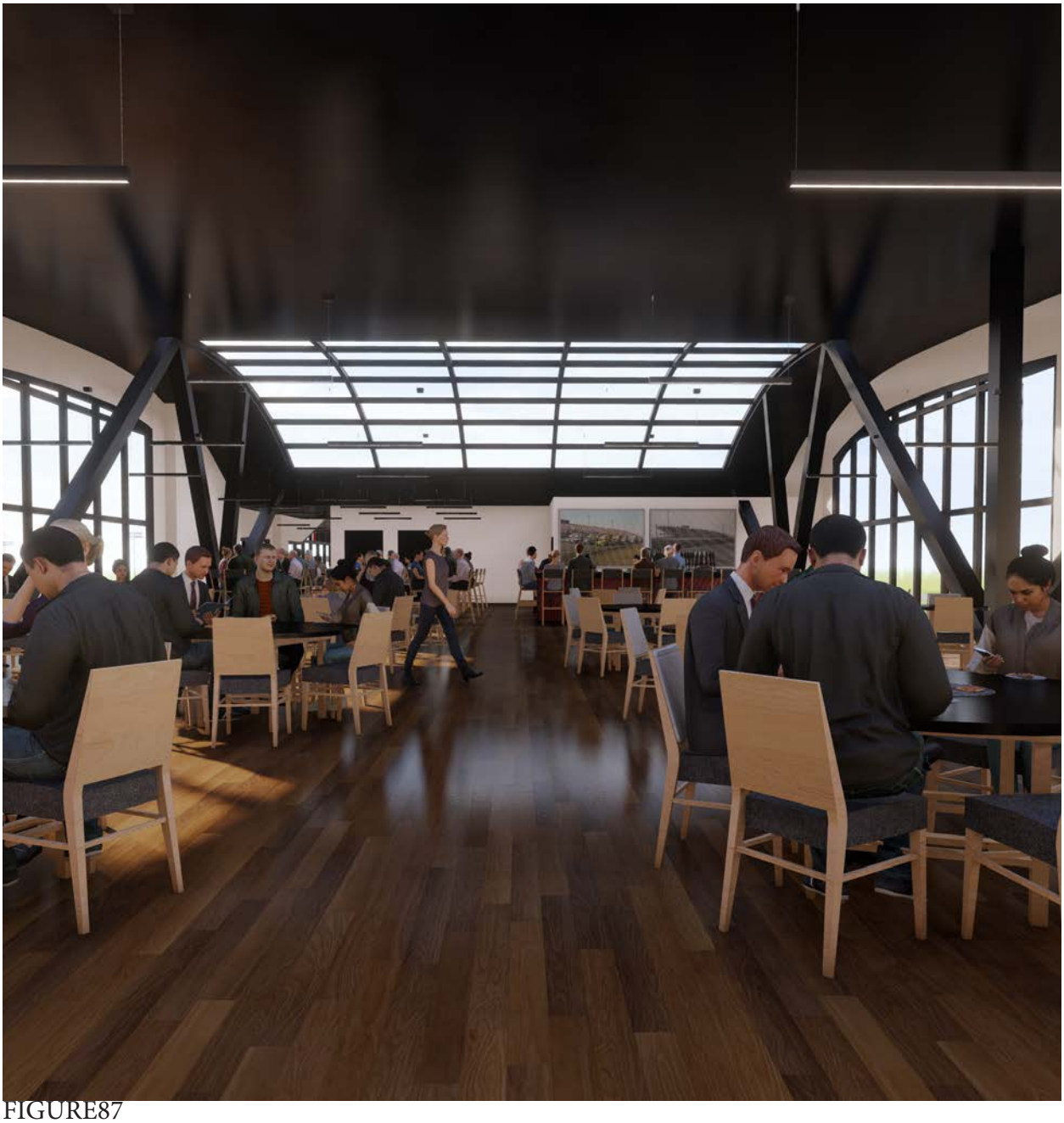
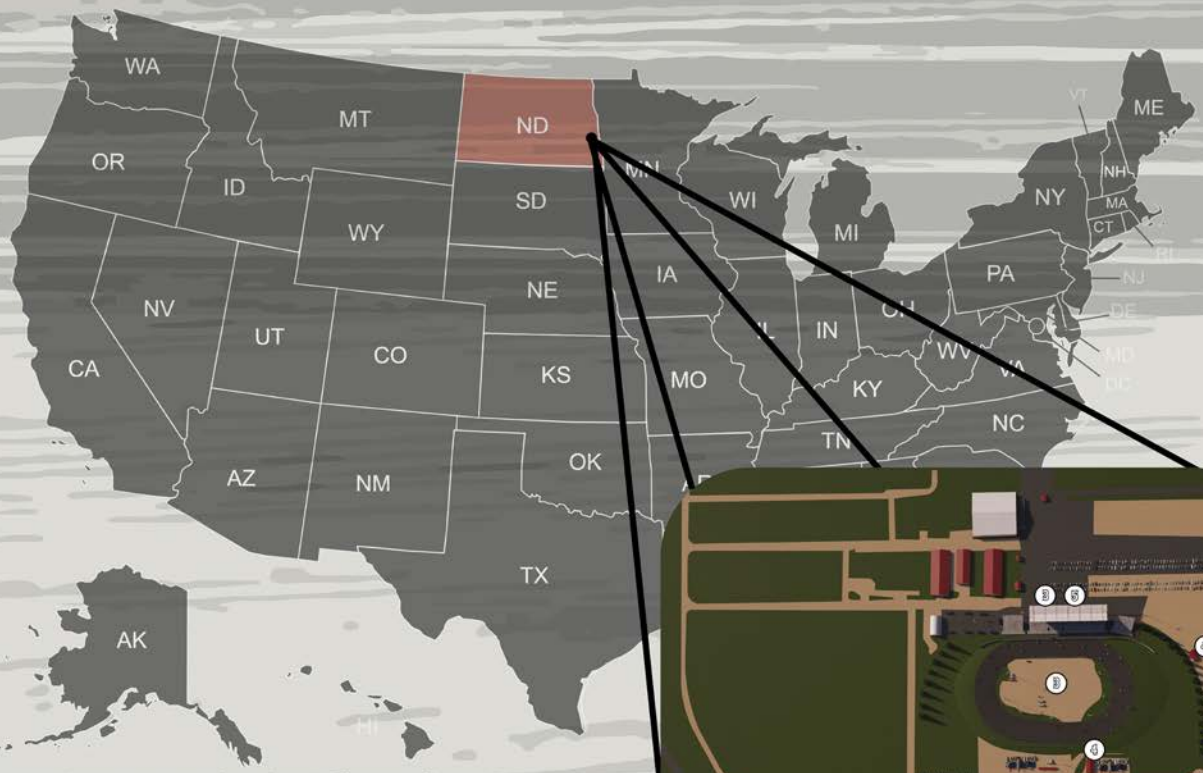


FIGURE87


RACING TOWARDS A SUSTAINABLE FUTURE
HOW DIRT TRACK RACING CAN BECOME A MORE SUSTAINABLE ENDEAVOR WHILE IMPROVING OVERALL USER EXPERIE
THE CUSHION
WATER COLLECTION INTEGRATED INTO DESIGN OF GRANDSTAND CANOPY TO CONSERVE WATER, LIMIT COSTS, AND REDUCE FLOOD RISK
GREEN WALL DESIGN TO HELP WITH AIR QUALITY, TEMPERATURE CONTROL, AND A REDUCTION IN NOISE POLLUTION
SOLAR ASSISTED LIGHTING AROUND THE RACETRACK WILL HELP BY REDUCING CARBON EMISSIONS AND CONSERVING ENERGY
DAYLIGHTING IN THE RESTAURANT WILL MINIMIZE ENERGY COSTS AND LIMITS THE NEED FOR NON-RENEWABLE ENERGY SOURCES

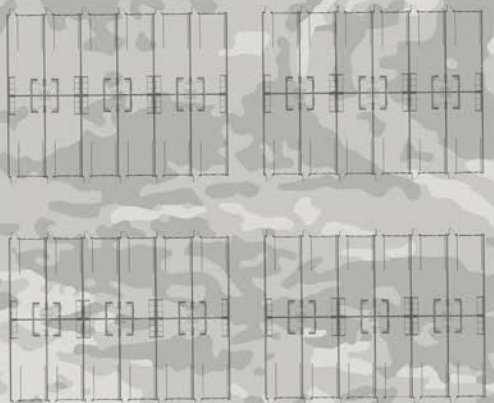
FIGURE88



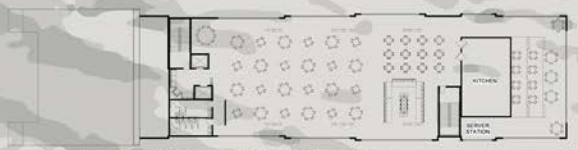
The site is located at the Red River Valley Speedway and Fairgrounds in West Fargo, North Dakota. The design consists of racetrack facility improvements, shop condos, and a hotel. The hotel contains a restaurant/bar on the top floor and a racing history display on the first floor.

1 - Hotel/Restaurant/Bar/History Display
2 - Shop Condos
3 - Racetrack Facility Updates
4 - Facelifted Existing Buildings
5 - Grandstand Canopy

The shop condos will provide drivers and teams with places to store and work on their cars. They can also be utilized year round for various events on the site. Each unit consists of a bathroom, lounge area, and open garage space.

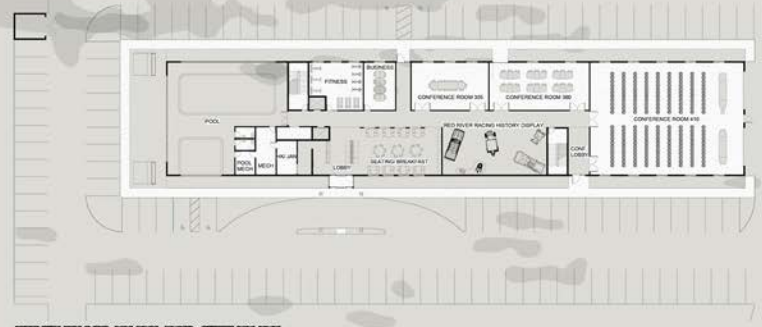


BOARDS & INSTALLATION



RESTAURANT AND BAR FLOOR PLAN (FLOOR 5)

TYPICAL HOTEL FLOOR PLAN (FLOORS 2-4)



FIRST FLOOR PLAN AND SITE PLAN

The Cushion contains 69 hotel rooms, a top floor restaurant an bar, 3 conference rooms, a pool and hot tub, a seating/ breakfast area, and a Red River Racing History Display. The hotel utilizes daylighting strategies in the restaurant with t glazed roof to maximize sunlight in the winter and minimize it in the summer. The restaurant has a tiered eating space with views to the racetrack. The Racing History display showcases multiple racecars and a mural of historical picture of the racetrack and cars from the early 70's to the present. The main conference room duals to accomodate large equipment for various events.

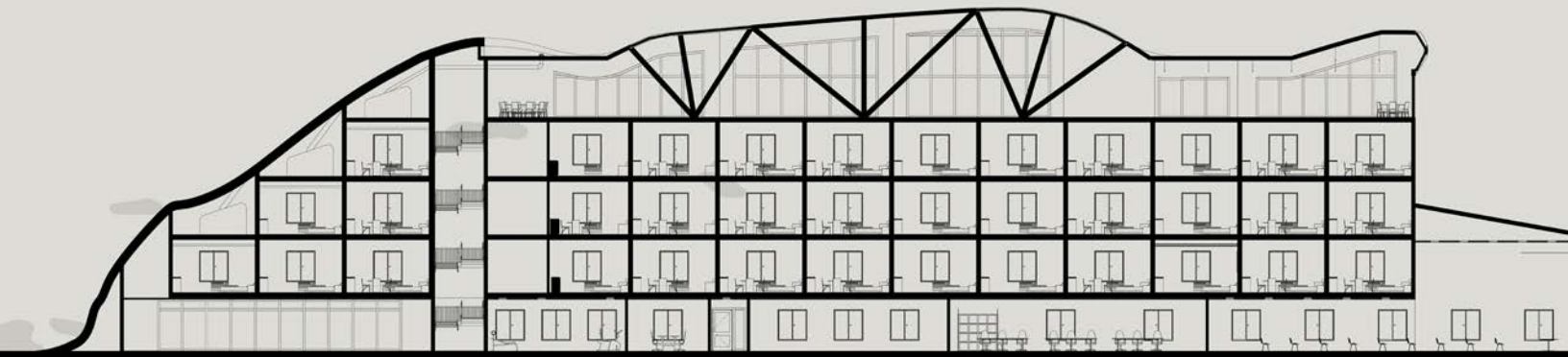
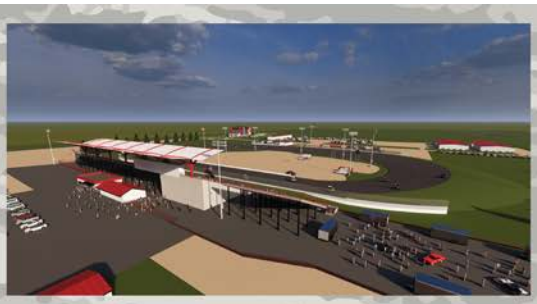


FIGURE89



Improvements to the raceway include: a canopy for rainwater collection and protection from the elements. The canopy can collect almost 59,000 gallons of water per month based on average rainfall; The existing buildings on the site, including a concession building, bathroom buildings, and two sheds, received a facelift in materials to match the shop condos and canopy to create a sense of identity. The ticket booth also recieved the same facelift but also included canopies over the ticket windows made from sprint car wings. The lighting on the track utilizes a solar assisted powering system limiting the amount of non renewable energy used.

BOARDS & INSTALLATION

FIGURE90


RACING TOWARDS A SUSTAINABLE FUTURE
HOW DIRT TRACK RACING CAN BECOME A MORE SUSTAINABLE ENDEAVOR WHILE IMPROVING OVERALL USER EXPERIENCE

FIGURE91

APPENDIX: REFERENCE LIST

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PREVIOUS STUDIO EXPERIENCE

2ND YEAR

Fall 2019

Residence Project, Milt Yergens
Boathouse, Milt Yergens

Spring 2020

Dwelling Project, Ronald Ramsay
Retirement Community, Ronald Ramsay

3RD YEAR

Fall 2020

Wood Focus Project, Bakr Aly Ahmed
Masonry Focus Project, Bakr Aly Ahmed

Spring 2021

Lanz Competition, Emily Guo

4TH YEAR

Fall 2021

Miami High Rise, Cindy Urness

Spring 2022

Residence Project, Kristi Hanson
Medora Project, Kristi Hanson

5TH YEAR

Fall 2022

Wetlands Research Facility, Cindy Urness
Thesis Project, Cindy Urness

Spring 2023

Thesis Project, Cindy Urness