

2025 HiMCM
Problem B: Environmental Impact of Sport Mega-Events



Every year, the Super Bowl brings together millions of people – from fans traveling to the host city, to viewers tuning in from around the globe. This event generates enormous social and economic value, but it also comes with a significant environmental cost. With air travel, hotel stays, energy use, food consumption, waste generation, and massive broadcast operations, the Super Bowl's environmental footprint is substantial.

As we grow more concerned about sustainability, large-scale sporting events or **sport mega-events** like the Super Bowl are being made more environmentally responsible. External organizations have developed models and scoring systems to rate the sustainability of these large-scale events based on many factors from energy use and waste management to transportation and carbon offsets.

While these environmental scores exist and a wealth of data is available on what event planners are doing to be eco-friendly, sustainability rarely drives key decisions such as where to host an event or how to design its required supporting infrastructure. This disconnect presents an opportunity to build a model where ecological impact is not just an afterthought, but a core driver of planning and location decisions. Imagine a scenario in which host cities are evaluated not only for their economic viability and fan capacity, but also for their **renewable energy potential, existing infrastructure efficiency, and transportation accessibility**. Such a model would enable **organizing committees** to balance performance, cost, and sustainability in a measurable way.

The **Consulting Organization Making Athletics Planet positive (COMAP)** has hired your team as sustainability consultants to assess and reduce the environmental footprint of sport mega-events. The goal is to understand the ecological impact of these events and explore how changes in event planning could make a difference.

Requirements.

1. Understand the Problem. Investigate the environmental impact of hosting a sport mega-event using Super Bowl LIV in New Orleans, USA as a baseline.

- Identify areas that impact the sustainability of this event such as energy consumption, water usage, waste generation, greenhouse gas emissions, or other environmental effects. These areas can be found in available existing metrics which have scored the environmental impact of Super Bowl LIX. Discuss how using these help your team gain an understanding of the true environmental footprint of this event.
- Consider how these impacts might differ in other locations. Discuss how the environmental impact may change based on location of the event by considering factors such as climate, geography, transportation infrastructure, local energy mixes, or other local environmental concerns.

2. Create Your Model. Create a model to determine where to hold the next Super Bowl based completely on environmental concerns. When building the model, teams should consider what drives environmental impact and how location specific characteristics can make a difference. Keep in mind that your model may be qualitative or quantitative.

3. Apply Your Model. Determine which city should host the Super Bowl in 2029, the next year currently without a confirmed location.

- a. There have been 19 total cities in the United States that have previously hosted the Super Bowl. Since the National Football League (NFL) started formally integrating sustainability metrics and environmental impact assessments, only Inglewood (California), Glendale (Arizona), Las Vegas (Nevada), and New Orleans (Louisiana) have hosted with Santa Clara (California), Inglewood (California) and Atlanta (Georgia) schedule to host in the future. Out of these cities that have hosted, determine who should host again. Apply your model to a set of potential host cities within the United States and determine which would be the most environmentally sustainable choice.
- b. Data on cities that have not hosted the Super Bowl is harder to find. Consider three potential cities that have NFL teams and have never hosted. Apply your model to determine which would be the most environmentally sustainable choice.

4. Expand Your Model and Reflect on Your Analysis.

- a. Extend your model to account for other types of sport mega-events. Revise your model to capture either the sustainability factors influencing the location of
 - A **single-sport championship tournament** (such as the World Cup - for any sport, Copa America, Formula I Grand Prix, the Open Championship, etc.) **OR**
 - A **multi-sport competition** (such as the Olympics, Commonwealth Game, Invictus Games, World Games, etc.)
- b. Apply your expanded model to one of these large-scale sporting events and recommend an appropriate host location. Justify your choice by explaining how your model supports your conclusion and reflects the unique sustainability challenges of that broader event.

- c. Consider how changes in infrastructure investment, energy sourcing, transportation modes could impact cities looking to make a future bid to host a large-scale sporting event. Identify strategies that can help cities minimize environmental impacts in the short term while remaining economically and logically feasible and that can impact their long-term desirability to serve as host cities due to their high sustainability scores.
- d. Discuss the biggest environmental factors that influence sustainability in single game large-scale sporting events like the Super Bowl compared to larger, multi-venue or multi-sport competitions.

5. Share Your Model and its Results. Write a one-to-two-page letter to the NFL recommending your chosen host city for the Super Bowl in 2029. In your letter, persuade the organization to accept your choice by highlighting the environmental advantages associated with your proposal. Be specific about why your top choice stands out and how it aligns with sustainability goals.

Your PDF solution of no more than 25 total pages should include:

- One-page Summary Sheet.
- Table of Contents.
- Your complete solution.
- One-to-two-page NFL host city letter.
- References list.
- [Report on Use of AI Tools](#) (If used does not count toward the 25-page limit.).

Glossary

Sport mega-events - The umbrella term used to describe large-scale, high-profile sporting events with significant economic, social, and environmental impacts. Other terms used are sporting mega-events, mega sporting events, or large-scale sporting events.

Organizing committee - An event specific organization tasked with the overall management of the event. This includes logistics, infrastructure, stakeholder coordination, and additional planning. It operates under the oversight of the awarding sport federation and in collaboration with local governments and sponsors.

Single-sport championship tournament - A competitive sports event focused exclusively on one sport, designed to determine a champion through a structured series of matches or games.

Multi-sport competition - An organized event featuring contests in multiple different sports, typically held over several days across different venues and involving athletes from various regions or countries.