

INTRODUCTION

As concerts and festivals grow in popularity and scale, so do the environmental impacts of transportation, with increased traffic congestion, carbon emissions, and strain on local infrastructure. The advent of globalization further amplified the issue, as artists began touring internationally, exacerbating the carbon footprint associated with transporting equipment and personnel. In recent years, heightened environmental consciousness has prompted a reevaluation of the ecological toll of such events, prompting artists, touring crews, and festival organizers to seek innovative solutions to mitigate their environmental impact. The music and entertainment industry, being a cultural force with immense reach, has a responsibility to address its carbon footprint and contribute to global sustainability efforts. Understanding and optimizing transportation systems for concerts and festivals is crucial not only for the industry's own sustainability but also for setting a precedent that can inspire positive changes in other sectors.

Frank Arellano and Robert Wyland are putting on a music and art festival in Dana Point, California, and North Shore, Hawaii which has a heavy emphasis on environmental sustainability. The transportation system to and from the festival will be crucial in reaching their goals of sustainability and reducing environmental degradation. I will be providing the festival organizers with advice and guidance on their system based on my research.

RESEARCH METHODOLOGIES

For this project, I will be planning and implementing an effective transportation system to transport attendees to and from the festival while reducing the carbon footprint of typical transportation to and from a festival. Collaborating with the organizer of an upcoming 2025 music and art festival in Dana Point and Hawaii, my research takes on a real-world dimension by directly addressing the environmental challenges of a specific event. This hands-on partnership ensures that my research is not confined to theoretical frameworks but is grounded in the practicalities and intricacies of a live festival setting.

DATA AND FINDINGS

Dana Point Trolleys:

- Fueled by **Compressed Natural Gas (CNG)**
- Fleet of 5 open air trolleys and 1 enclosed shuttle
- Capacity: 26 people.

Because of the smaller fleet of Dana Trolleys, the festival may borrow some Laguna Trolleys to help produce the most effective system.

Laguna Beach Trolleys:

- Powered by **Liquefied Propane Gas (LPG)**
 - Considered an alternative fuel and is cleaner burning than gas or diesel
- Fleet of 25 Trolleys
- Capacity: 32 seated passengers, plus another 10-15 standees

DISCUSSION, ANALYSIS, AND EVALUATION



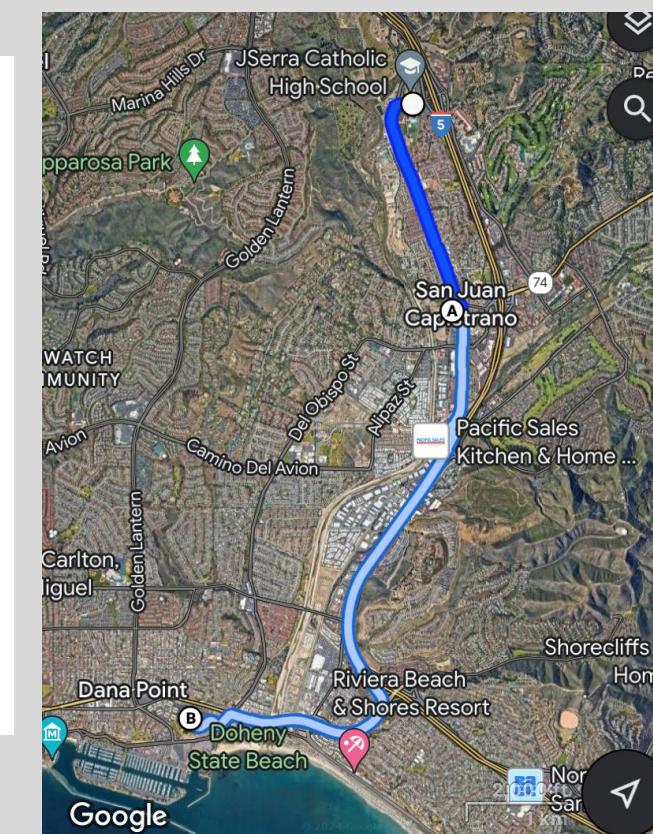
The festival will take place at Laguna Cliffs Marriott in Dana Point, California. The Dana Point Trolley System, which I am planning on using the most for the festival transit system, is a free service that runs during the summer. In 2023, the system began running on May 26th, which is right around the current planned date for the festival of 2025 (Memorial Day weekend). The shuttle already goes to Dana Hills High School, as can be seen on the map at S8, which is a potential satellite lot for the festival. The trolley also already has a stop at S14 on the map below right across the street from the festival's lawn. Both of these stops are on the same line, making it easy for festival attendees to get from parking to the festival without changing trolley lines.

The festival is also considering a satellite lot in San Juan Capistrano at Jserra High School, which would alleviate congestion in downtown Dana Point (considering the projected attendance of 10k on Saturday and Sunday). This lot is also very convenient as it is right off the freeway. The trolley could also make a stop at the nearby San Juan Train Station, to make it easy for those taking the train from out of town to get to the festival.

- 1.5 miles (Jserra to Train Station) + 4.3 miles (Train Station to Marriott) = 5.8 miles x both ways = **11.6 miles** of driving saved x 400g of CO2 per mile driven = **4,640 grams of CO2 saved**



Dana Point Trolley existing routes



Jserra, train station, and festival grounds route

Incentives:

Crucial for pushing attendees to take transit over driving

- Expensive VIP parking at festival grounds (around \$80)
 - Satellite lots much **cheaper** (free-\$10)
- Taking trolleys = **In-Festival discounts**
 - 20% off food & drink purchases or merchandise
- Trolley riders get **fast lane** entrance into festival grounds
 - Much **shorter line** to get in w/ proof of trolley ride (separate from general line)
- Discounts at **local businesses**

CONCLUSIONS, IMPLICATIONS, AND NEXT STEPS

I originally began my research with a festival date in May of 2024, but the festival had to be postponed for a year. The plan to implement my project is now on a new timeline, but follows the same basic outline:

Pre Festival:

- Finalize City Council presentation & present for approval

Example slides:



- **PROMOTE** alternative transit options
 - Make **INCENTIVES** clear
- Obtain **PARKING** lots (Jserra, DHHS, etc.)
- Coordinate **COLLABORATION** with Laguna Trolleys
- Address **CONCERNS** from local residents and businesses
- Establish **PARTNERSHIPS** with local businesses
- Organize **BIKE VALET**

During Festival:

- **ACCESSIBILITY:** map of the route, the trolley timing, incentive benefits (discounts), and the different lots should be found within the festival's app
- **RELIABILITY:** Keep trolleys on schedules, have helpers available with information on routes, schedules, etc.

The carbon footprint brought by thousands of cars driving to festivals has an easy solution: mass transit. My research describes plans for the transit options for an upcoming festival in Dana Point, but the same outline can be applied for other festivals in order to help reduce the environmental impact of festivals worldwide.

Project overview video:



ACKNOWLEDGEMENTS/REFERENCES



***Special thanks to Frank Arellano, Michael Litschi, and Jun Shen for helping make this project possible.