

Albuquerque Balloon Fiesta Traffic

Team number: 21

Jackson Middle School

Behavioral and Social Sciences

Netlogo

6th graders

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Team members

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Mentors

- Karen Glennon
- Nick Bennet
- Patty Meyer
- Sgt. Zak Cottrell

Executive Summary

Every year, at the Albuquerque International Balloon Fiesta, the traffic is chaotic. This can affect many visitors and residents. This traffic also can cause accidents. Visitors will likely think this is unpleasing and frustrating. The major traffic congestion can result in inconvenience to visitors. This also impacts the people in the community that are going to work, school or important events. This could be an inconvenience, by making the community late to their events. We chose to do this project because it is a local problem. Lastly, there is little to no parking in the parking lots.

We met with Sgt. Zak Cottrell. Sgt. Cottrell is a civil engineering designer with the Albuquerque Police Department traffic division. He helped us gain most of our information about the streets and traffic and learn why it is busy. Aswell as giving our team a map of the roads used in the 2016 Balloon Fiesta traffic division to study.

For our program we have used Netlogo. In our program we are simulating the Albuquerque Balloon Fiesta traffic. Our model helped us make conclusions on how to make the traffic run smoother and faster. Using ticks we measured the wait time of the cars and how many cars are waiting.

Problem Statement

Every year at the Albuquerque Balloon Fiesta the traffic can be very chaotic. This could be harmful to visitors and residents. This also can affect the daily activities of Albuquerque's residents who are going about their daily routines. Daily routines can affect residents daily routines by making them late, have frustration, along with displeasing to people who are here to attend the fiesta.

Method of Solving

We have found a solution to our problem using our simulation. Our simulation was involved in resolving our problem because it helped us find and show the errors in the traffic. We also used a map of the streets given to us by Sgt. Zak Cottrell. We used this to think through and show our ideas of solving the problem.

Discussion of the Model

We verified and validated our model by analyzing the map of the roads and streets around the Balloon Fiesta and the major streets and signs around it. This helped us create our model by showing us where the Balloon Fiesta is and where the most chaotic areas are. For example, our model showed us intersections and how long cars wait per tick.

Results

For our results we have found two major changes that can offer a different direction in the Balloon Fiesta traffic. Our results can be found in these figures.

Figure 1 Description:

This figure is showing how the Balloon fiesta traffic is currently moving.

Figure 2 Description:

This figure shows the traffic changing Balloon Fiesta Parkway from a two way street to three lanes going east and one going west. This will only be used from the early morning until 9:30. After this time the directions will change from, one lane south and three lanes east, to one lane east and three lanes south. We also changed Balloon Museum Dr. from going north and south to only going south. This means that if you wanted to leave earlier then you would have to go through San Diego Ave

Figure 3 Description:

This figure is some traffic being directed toward less busy roads such as Venice, Modesto and Eagle Rock.

Figure 1:

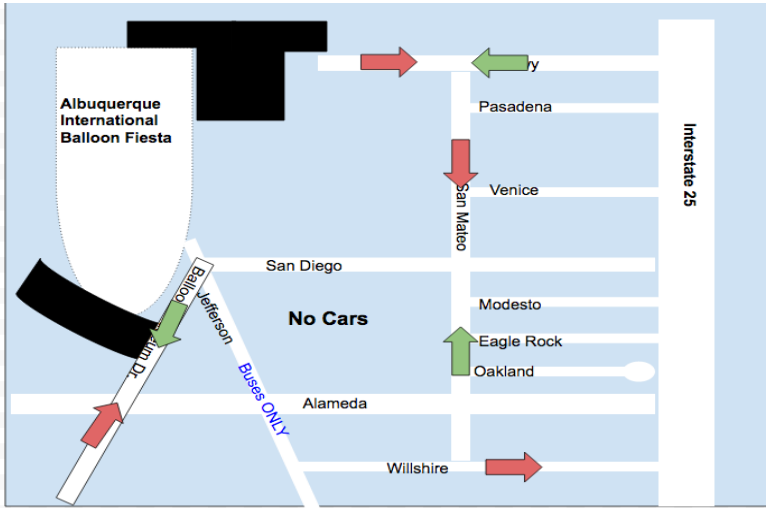


Figure 2:

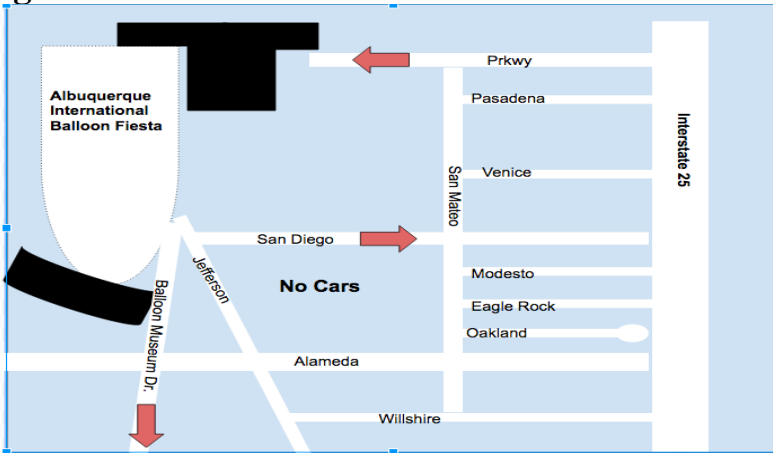
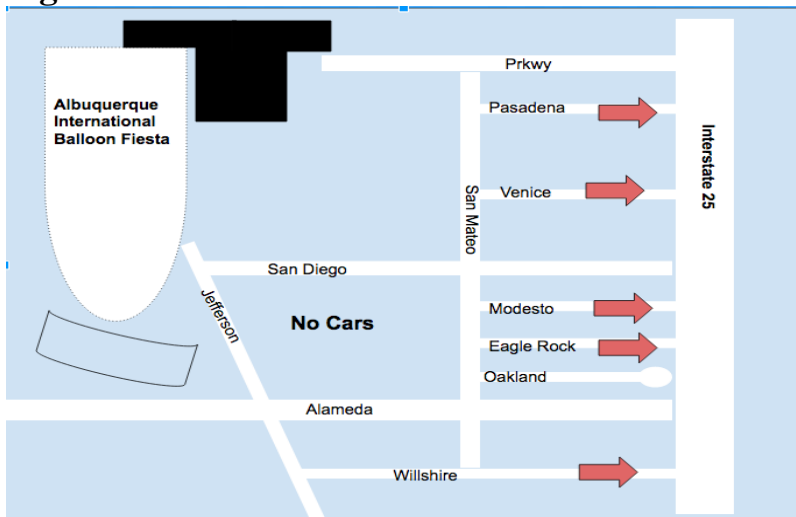


Figure 3:



Conclusion

In conclusion, we have found several different ways to solve the problem. Our results proves that there are ways to make the Albuquerque Balloon Fiesta traffic run smoother. This project required a lot of background information and visual diagrams. We also used many different types of resources such as a civil engineer, news articles, and traffic reports.

Significant Achievements

Kiara Onomoto

A significant achievement for me was starting to learn how to program using Netlogo. This has helped with my supercomputing project because I got to understand how and why the traffic works the way it does and how different variables can change the traffic at the Balloon Fiesta.

Delaney Montoya

A significant achievement for this year would be working much more in depth with our program. I also am proud of our increasing progress with our papers. I also think that our problem this year is more effective to the community.

Acknowledgements

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Civil Engineering Designer, Sgt. Zak Cottrell, Albuquerque Police Department,
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Nick Bennett

Wilensky, U. (2003). NetLogo Traffic Grid model.

<http://ccl.northwestern.edu/netlogo/models/TrafficGrid>. Center for Connected
Learning and Computer-Based Modeling, Northwestern University, Evanston, IL.

References

Simulation Tables:

- Average wait time of cars
- How many stopped cars

Program: Netlogo

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Albuquerque Journal Thursday Fiesta Traffic Updates