



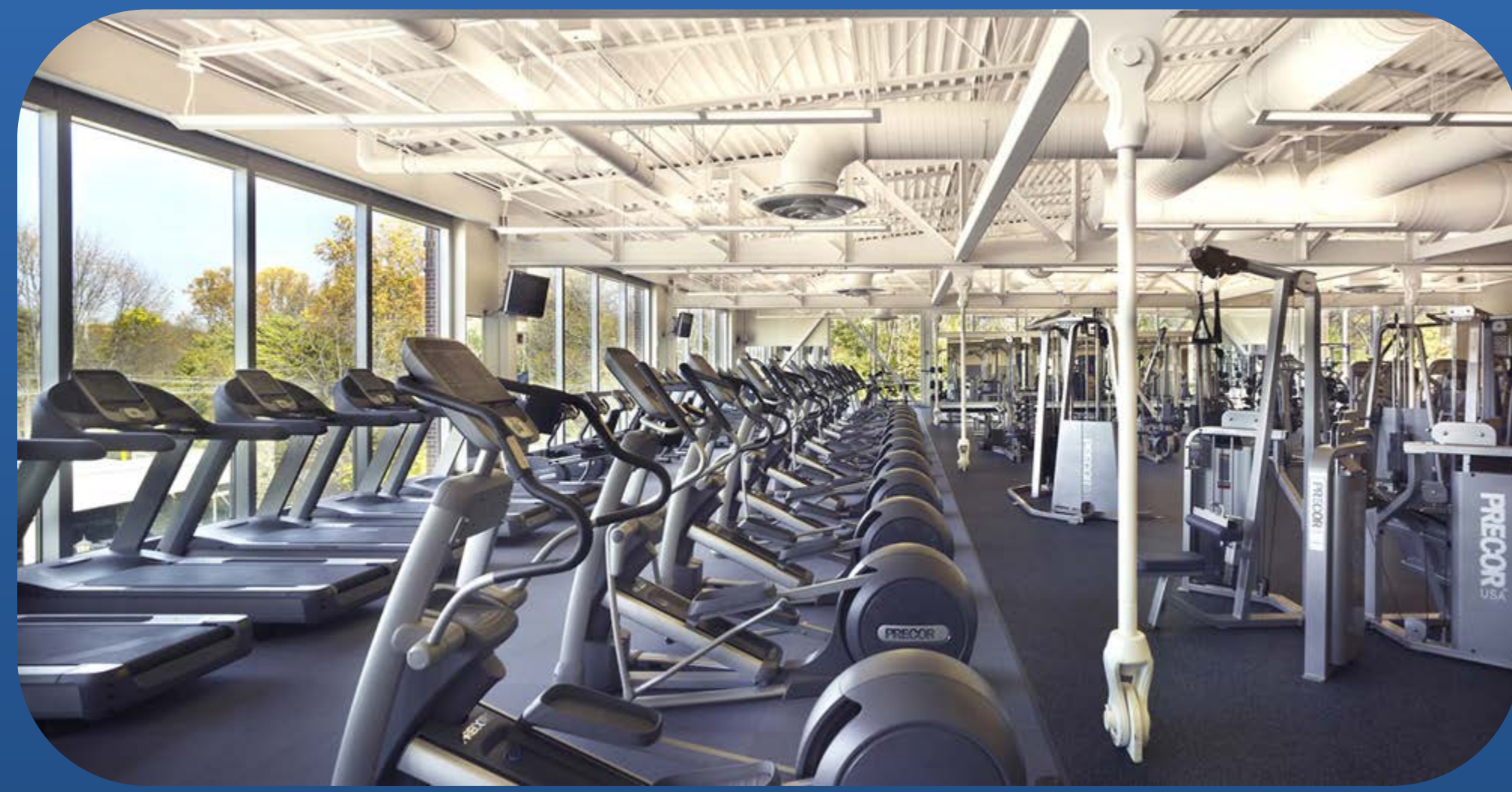
Rolling Out a Greener Clean: Sustainability at Villanova's Davis Center

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Introduction

Excessive paper towel use is a cause of deforestation and pollution. In the U.S., 3,000 tons of paper towel waste are produced annually. (Peopletowels.com: AF&PA) Villanova University consumes high quantities of paper towels and cleaning products throughout the campus. The Davis Center Gym, in particular consumes high amounts of paper towels and cleaning products for cleaning of fitness equipment after each use. This research study examined the use of paper product and cleaning solution in the Villanova University Davis Center to identify whether more environmentally sustainable cleaning methods may be available. Use of paper towels by Villanova students was studied in order to determine if they are being over consumed.



Methods

- Davis Center was provided with a tally sheet to be kept at the Employee Desk
- A tally was marked on the sheet for each time a paper towel was replaced or a spray bottle of cleaning solution was refilled.
- Data Collection Period:
Monday February 8th - Sunday February 14th
Tuesday March 8th - Monday March 14th.
- The cost of the current method was compared to the estimated costs of more environmentally sustainable options to identify the best solution from economic and environmental perspectives.

References

1. Peopletowels.com
2. American Forest & Paper Association Sustainability Report
3. U.S. EPA, Safer Choice Program
4. Google Shopping

Acknowledgements

We would like to thank Dr. Levas; Lisa Harris, Madeiline Herman, and the Davis Center staff; and James Lamb and Villanova Custodial Services for their assistance with this project. Thank you!

In one year the Davis Center uses 10 miles of paper towels, that's long enough to stretch from Villanova to 30th Street Station.



At over 200,000 ft² in one semester, the paper towels used at the Davis Center could cover the Villanova Room nearly 34 times.

Results

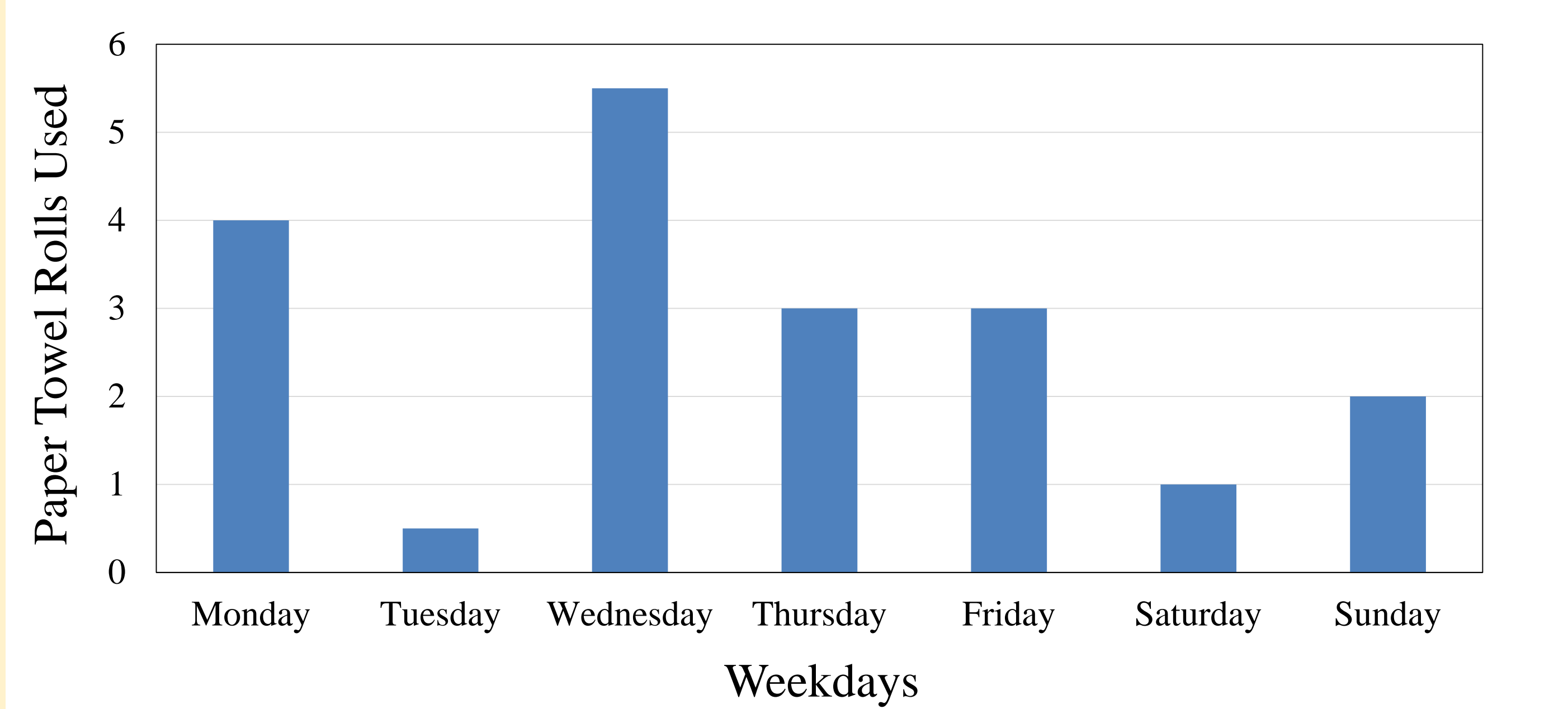


Figure 1: The average daily paper towel use at the Davis Center was determined based on two weeks of data collection. When this data is extrapolated for a full semester, approximately 38 rolls of paper towels (over 5 miles!) are used at the Davis Center.

Figure 2: The average daily volume (quarts) of cleaning solution used at the Davis Center was determined based on the same two weeks of data collection. When extrapolated for a full semester, 3.7 quarts of Simple Green are needed at the Davis Center.

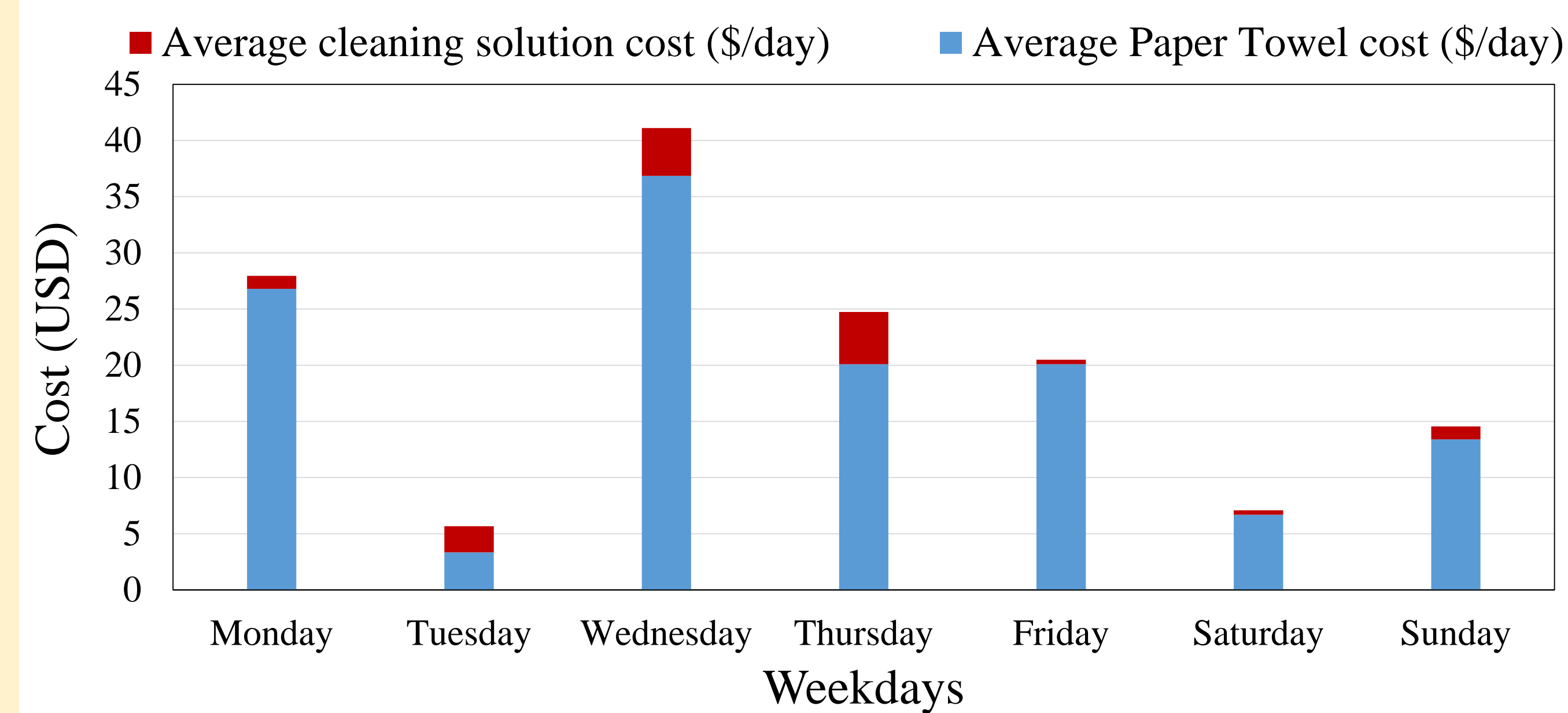
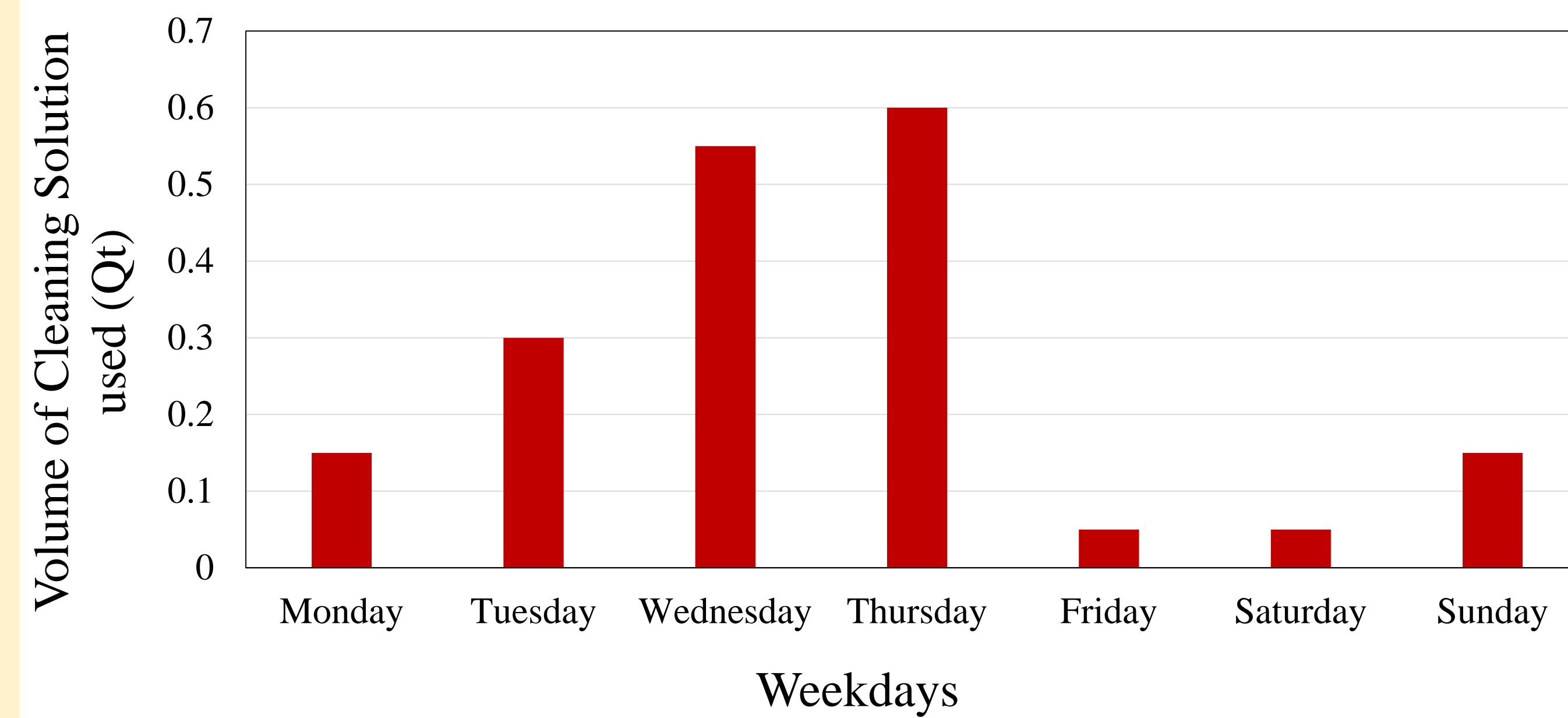


Figure 3: Using the data in the previous figures, the average daily cost of cleaning products used at the Davis Center was determined. When these data are extrapolated, the Davis Center spends approximately \$142 per week and \$1,982 per semester on cleaning supplies for the Davis Center equipment.

Discussion

Results show that the Davis Center spends nearly \$2,000 on cleaning supplies per semester. While the Davis Center does take some measures towards environmental safety, such as purchasing recycled paper towels and using dilution to reduce cleaning solvent toxicity, there are alternatives that could be employed to make the Davis Center more sustainable.

Alternative	Benefits
Environmentally friendly cleaning solution and self-serve paper towels	<ul style="list-style-type: none"> • EPA Safer Choice Standard approved products (US EPA) • Seventh Generation all-purpose cleaner \$2.90/qt, no dilution needed • Clorox Green Works all-purpose cleaner \$2.15/qt, no dilution needed
Pre-cut paper towel dispensers	<ul style="list-style-type: none"> • Prevent gym-goers from taking too much paper towel • One dispenser costs \$20-\$40, which would be recovered by paper towel use reduction • Reduction in paper towel waste
Reusable rags soaked in cleaning solution	<ul style="list-style-type: none"> • Produces no waste • Less energy consumption in production • Do not need to be purchased as frequently • Estimated \$4.00 per rag • Public outlook may be opposed to this method

Table 1: Alternatives to increase sustainability in the Davis Center equipment cleaning method

Conclusion

- Approximately \$150.00 is spent per week on paper towels and cleaning solution, totalling nearly \$4,000 annually.
- This equates to ten miles, or about 50,000 square feet, of paper towels that end up in a landfill.
- It would be more beneficial to utilize an EPA safer choice standard cleaner or paper towel dispensers to reduce students ability to take more paper towels than needed.