

**UNIVERSITY OF SOUTH FLORIDA CROSSWALK
SAFETY ISSUES AND SOLUTION**

Presented to
Frank Granda, Operations Manager
Parking and Transportation Services
University of South Florida
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Frank Granda, Operations Manager
Parking and Transportation Services
3700 Holly Dr.
Tampa, FL 33612

Dear Mr. Granda:

Attached you will find the report for the crosswalk safety project authorized on March 21, 2011. Team Cap-a-BULL has investigated the pedestrian and vehicle traffic issues and has developed a solution to alleviate these issues.

This study was designed to accomplish the following:

- Compile opinions from students, professors, and staff on the traffic issues
- Identify affected areas on the campus
- Propose a viable solution to the issue

Primary research was obtained through the distribution of a survey. Fifty-five respondents completed our survey which resulted in a positive identification of the area most affected by pedestrian and vehicle traffic congestion. In addition to the survey, each member performed on-site observations at each of the five busiest crosswalks. Secondary research sources provided information regarding pedestrian and vehicle traffic incidents and the ineffective measures that have been applied in the past.

Team Cap-a-BULL is confident you will find this report useful and we are eager to schedule a meeting with you to discuss and answer all questions regarding this project. We would like to extend our thanks and appreciation for your confidence in Team Cap-a-BULL to manage and complete this project.

Sincerely,

Team Cap-a-BULL
Attachment

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EXECUTIVE SUMMARY

The University of South Florida will make pedestrian and vehicle traffic interaction safer by constructing a crosswalk bridge over Leroy Collins Boulevard extending from the library area to the area adjacent to building PHY. This bridge will effectively separate the two modes of transportation allowing for a more efficient flow during peak times. While increasing safety, the construction of this bridge will lead to fewer delays that have caused many to be late for class or other appointments.

Our conclusion to build a crosswalk in this location was realized through the use of surveys, research, and on-site observations. A cost analysis was performed along with a plan to recover the project cost.

The compiled data indicated the following:

- The University of South Florida has some of the highest incidents involving pedestrian and vehicle traffic.
- Past measures have been ineffective at lowering the amount of incidents.
- The area near the library along Leroy Collins Boulevard has the highest amount of traffic.

Cost analysis done with cooperation from Gladiator Contracting Services, LLC estimates the project cost to be \$330,475.00. This cost can be recovered within four years with a 10% raise to parking violation fees.

With these facts taken into consideration, Team Cap-a-BULL recommends the University of South Florida begin the construction of this bridge and raise parking fees 10%. After two years of on-going observation and analysis, the issue should be re-analyzed to see if building these structures in other areas is necessary. With great confidence, we are positive this is the most effective solution to vehicle and pedestrian traffic congestion issues on campus.

INTRODUCTION: CROSSWALKS AT THE UNIVERSITY OF SOUTH FLORIDA

This study was focused on pedestrian and vehicle traffic at the University of South Florida, specifically pertaining to the effectiveness of crosswalks near areas of heavy traffic on campus. The study was authorized by Frank Granda, Operations Manager for Parking and Transportation Services on March 21, 2011.

The report outlines the background information, produces the research results, and provides a recommendation to resolve the issue. It includes information from an online survey with 55 student, staff, or faculty responses, on-site research and observations, and research from periodicals. Also, the report provides a recommendation with a cost analysis and a plan for implementation.

BACKGROUND: CURRENT CROSSWALK EFFECTIVENESS

The campus at the University of South Florida is a highly congested area shared by both automobiles and pedestrians. In the 2010 fall semester, 12 accidents were reported in the first two days, including two instances involving pedestrians (Cerny, 2010). In 2001, the university constructed raised crosswalks in high traffic areas to alleviate these types of problems, however the problem is still relevant today (ITE, 2001).

DISCUSSION: SURVEY, RESEARCH, AND CONCLUSIONS

A survey was produced to gather the opinions of students, faculty, and staff at the University of South Florida about the safety and effectiveness of crosswalks on campus. The survey outcomes clearly show that many feel the pedestrian and vehicle traffic congestion is a major issue. Not only do the majority feel it is a safety issue, but the amount of traffic congestion causes delays making individuals late, which effects productivity. Additionally, research was compiled from internet articles addressing the issue of pedestrian and automotive accidents and the university's previous attempts to improve crosswalks. This research showed a history of traffic issues around the campus. Furthermore, prior projects meant to alleviate the problems have been ineffective.

Survey Information and Results

The survey was designed to gather opinions regarding the safety and efficiency of campus crosswalks. A total of 55 people responded to the survey, which included 51 students, three professors, and one staff member. Fifty-two of the total responses came from people who drove in cars or walked as their main mode of transportation while on campus.

The following graphs reveal the outcomes of this survey:

The survey reveals that 58.2 % of responses suggest there are some crosswalks that are unsafe.

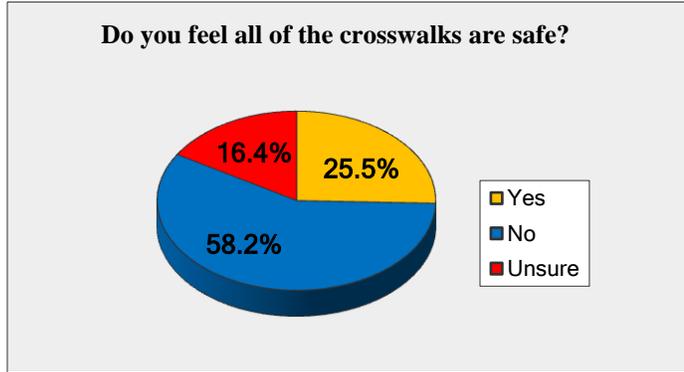


Figure 1 Crosswalk Safety

Additionally, 36.4% of responses feel more crosswalks are needed, while 14.5% would like fewer crosswalks.

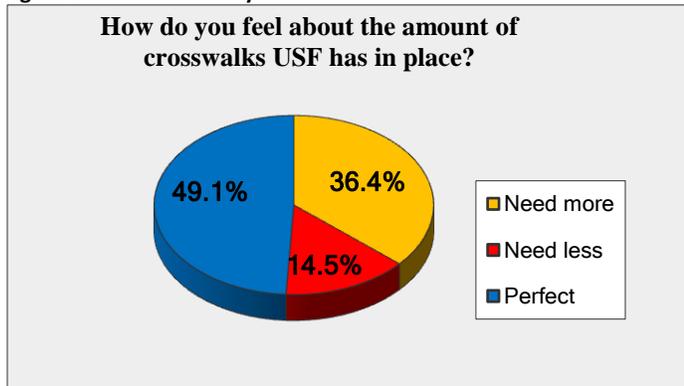


Figure 2 Amount of Crosswalks

Furthermore, the survey shows that 32 respondents have been late due to the pedestrian traffic. This adds another element to our safety focused study. Not only are these issues creating safety issues, but they are affecting productivity as well.

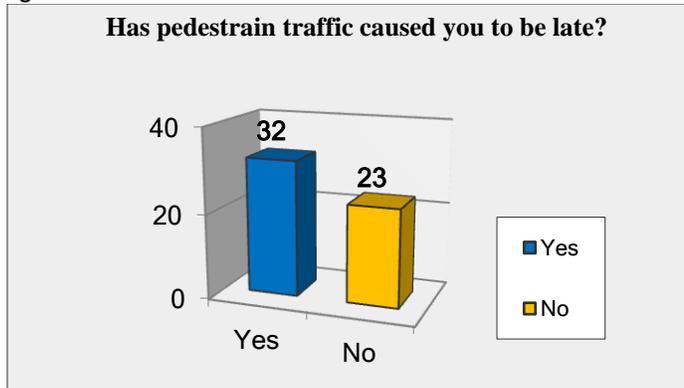


Figure 3 Traffic Delays

To our surprise, the results indicate that 52.7% would not walk a block out of the way to use a safer alternative to the current crosswalks. However, our solution takes this information into account.

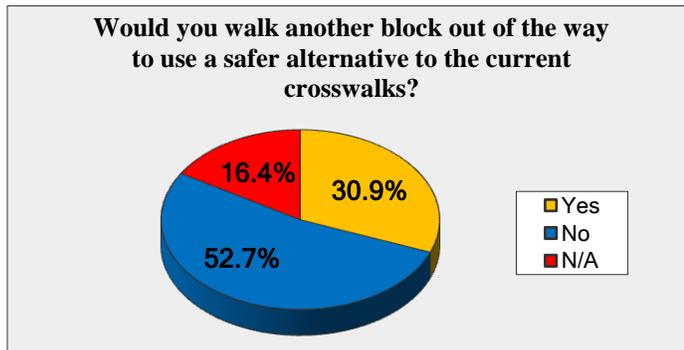


Figure 4 Pedestrian Willingness to Walk Further

Finally, the survey identified the location of the five busiest crosswalks, which are as follows:

Top Five Busiest Crosswalks Mentioned	
Location	Number of Respondents
Library to PHY	22
SOC to CWY	8
Sun Dome to CPR	7
Sun Dome to BSN	6
Corner of Maple and Holly	5

Figure 5 Top Five Busiest Crosswalks

To better visualize these locations, here they are pinned on the USF map.

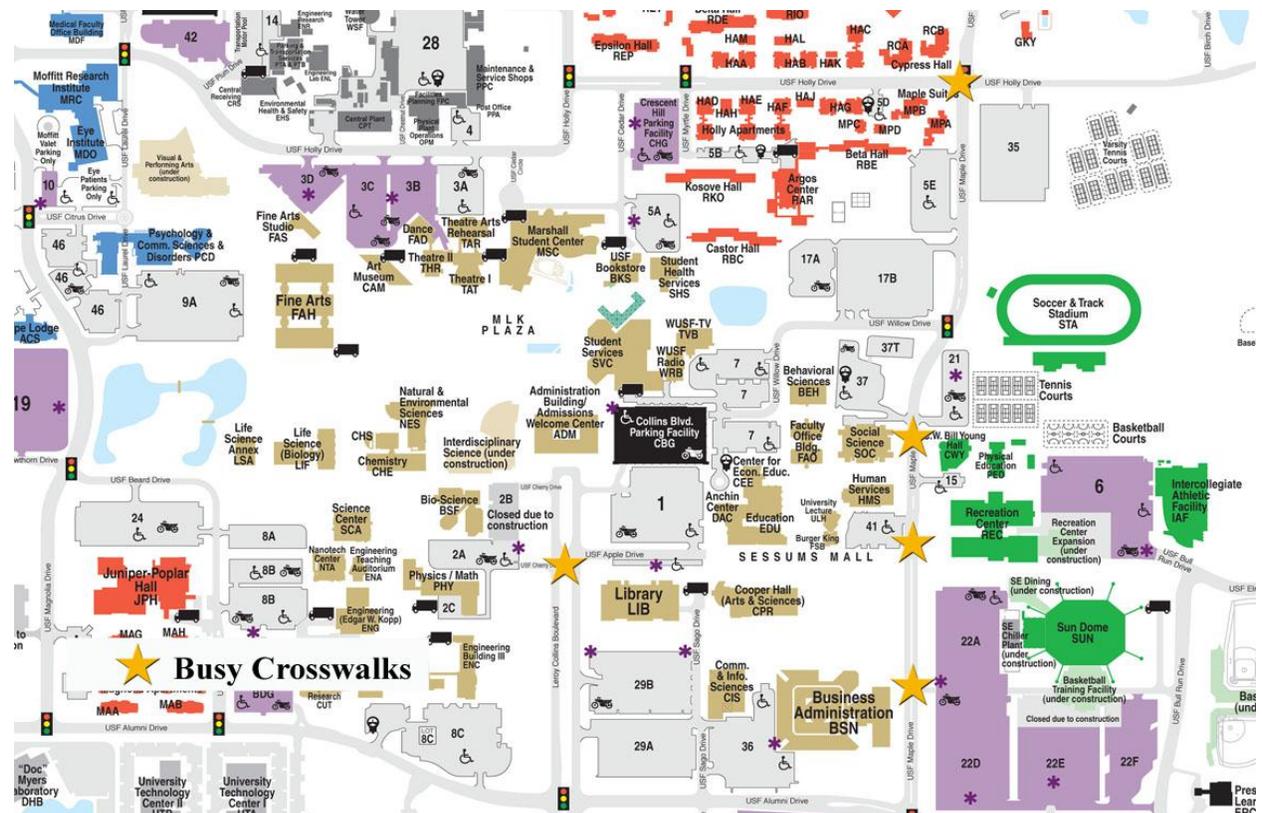


Figure 6 Location Map

Research from Periodicals

Research was performed to find out about pedestrian and automotive traffic, data from the Parking and Transportation office, and information from the university’s previous attempts to solve the problem. The information was gathered from three articles in online periodicals.

The first two articles show that the University of South Florida is among the top areas for pedestrian accidents in Tampa, with no signs of slowing down. In three years, areas near Fletcher Avenue had 11 major accidents involving pedestrians being struck by vehicles,

including two deaths (Danielson, 2009). In the fall of 2010, 12 accidents were reported on the first two days of the semester (Cerny, 2010).

The final article discusses the university's prior attempts to alleviate the problem by constructing raised crosswalks in 2001. The raised crosswalks were chosen instead of pedestrian bridges for their cost effectiveness; however they failed to remedy the issues. The article suggests the only solution is to separate pedestrian traffic from vehicle traffic in key locations.

CONCLUSIONS

Survey

- Analysis of the survey provides evidence that the current crosswalk layout at the University of South Florida is ineffective and unsafe.
- The crosswalks do not allow automotive traffic to smoothly interact with the pedestrian traffic, which is causing delays.

Articles

- The university has a high population of automotive and pedestrian traffic intersecting in a small area.
- The potential for further accidents in the future is high enough to warrant a new cost effective solution.
- The raised crosswalks are ineffective.
- The Parking and Transportation Services receive a large amount of revenue through parking violations that could be used to fund crosswalk enhancement projects.

RECOMMENDATION FOR A COST-EFFECTIVE SOLUTION

The research performed for this report leads to the following recommendation. The most effective way to avoid further accidents is to separate the pedestrian traffic from automotive traffic in key locations. Therefore, we recommend that a pedestrian bridge be built over Leroy Collins Boulevard connecting the library to the PHY building. Building this structure in the busiest location will re-route most of the pedestrian traffic, so even though many said they will not go out of their way, most will be using this path anyway. This separation of traffic in the busiest intersection will improve the flow of traffic in and out of Leroy Collins Boulevard.

In addition, we recommend a two-year on-going study take place to assess the effectiveness of the structure. After this study, the issues should be analyzed again to determine if this solution should be applied to more areas on the campus.

We have obtained a construction proposal from the Gladiator Contracting Services, LLC. After two preliminary construction meetings, two site visits, and current construction drawings, the company has provided some details for the possible implementation of the pedestrian bridge:

- The estimated construction time for this project is 120 business days, after all permits and releases have been issued.
- The construction cost of the project is expected to be \$330,475.00 (itemized estimate sheet located in appendix A).

Rendering of proposed project



Figure 6 Project Rendering

Finally, we propose the cost of the project be funded by an increase of 10-15% in parking citation fees. If necessary, project costs could also come from a small increase in the cost of parking permits. Currently, revenues created by the parking and transportation services totals \$1 million in annual revenues from parking citations and \$7 million in annual revenues from parking permits (Thys, 2010). Using a minimal 10% increase to violations fees, the project costs can be recouped within four years.

COLLABORATION

Team Cap-a-BULL utilized several forms of collaborative teamwork to complete this project. In order to effectively coordinate and schedule individual projects and meeting, we used text messaging and email for primary communication. A face to face meeting in the library was setup to discuss and assign tasks for this project. Despite assigned tasks, Team Cap-a-BULL mainly utilized a synergistic approach to completing the formal report. Everyone provided input for each task assigned for the project. Google Docs was employed to effortlessly share documents with team members. Through the use of these techniques, Team Cap-a-BULL was able to accomplish this task on time with accuracy and maximized efficiency.

APPENDIX A

Itemized Estimate from Gladiator Contracting, LLC

GCS, LLC • CGC# 1510170 • PO Box 2594 BRANDON FL 33509 • www.gladiatorcontracting.com • Main (813) 643-1800 • Fax (813) 643-1811
4/20/11

Attention: Team CAP-A-BULL

Re: Design Build Crosswalks for the University of South Florida

Dear Team CAP-A-BULL:

In accordance with the two preliminary construction meetings, two site visits, and current construction drawings, the following scope of work applies to our construction proposal for the above-referenced project.

Qualifications, Conditions, and Exclusions:

1. We will have The DeSanti Group, at no cost to the owner; design a current set of drawings to comply with current building codes.
2. The two trades most affected by the original set of drawings, Masonry/Concrete and Steel/Metals, already reflect accurate numbers as The DeSanti Group has red-lined an original set of drawings in an effort to expedite your project. This will also ensure the owners that change orders will be kept to a minimum.
3. The areas of construction will include, and be limited to, the intersections of:
 - a. Leroy Collins Blvd and Cherry Drive.
 - b. USF Bull Run (Adjacent to the SE corner of the USF Sun Dome & SW Corner of the USF Baseball Stadium)
4. The General Conditions portion of our bid allows for:
 - a. Full-time Supervisor
 - b. Insurance
 - c. Permits
 - d. Signage
 - e. Dumpsters
 - f. Administration
 - g. Pre-construction meeting
 - h. Mobilization
5. Impact fees are by owner
6. We expect to have this project substantially complete within 120 business days. Business days are considered to be Monday-Friday.
7. Our time on this project will not commence until all permits and releases have been issued.
8. Our lump sum fee for this project is \$330,475.00

We're thankful for the opportunity you have given us to submit a proposal. You have an exciting project, and we would like to be your contractor. If you have any questions concerning this proposal, please do not hesitate to call me at (813) 643-1800.

Thank you,

President

Gladiator Contracting Services, LLC

CGC #1510170

(813) 643-1800 – Main

(813) 643-1811 – Fax

www.gladiatorcontracting.com Direct Costs		Budget
100	General Conditions	\$ 25,000.00
101	Plans & Engineering	\$ 10,500.00
102	Prints	\$ 2,500.00
103	Impact Fees	By Owner
104	Mobilization	Included in GC
201	Termite Treatment	\$ 2,000.00
300	Masonry/Concrete	\$ 47,000.00
301	Stucco	\$ 15,000.00
302	Bands/Shutters	\$ 7,500.00
303	Stone	\$ 15,500.00
403	Finish Hardware	\$ 1,500.00
450	Steel/Metals	\$ 84,500.00
500	Roofing	\$ 52,000.00
800	Electrical - Rough & Finish	\$ 17,500.00
1000	Painting - Rough & Finish	\$ 15,975.00
1100	Soffits & Fascia	\$ 10,500.00
1101	Gutters & Downspouts	\$ 8,500.00
1900	Clean-up	\$ 5,000.00
2100	Punch Out	\$ 5,000.00
2300	Misc.	\$ 5,000.00
		\$ 330,475.00

References

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- Danielson, Richard. (2009, September 8.). Two studies look at traffic safety near usf. *St, Petersburg Times*, Retrieved from <http://www.tampabay.com/news/transportation/masstransit/two-studies-look-at-traffic-safety-near-usf/1032958>
- ITE, Initials. (2001, December). *Raised pedestrian crosswalks & traffic calming improvements for pedestrian safety on maple drive, university of south florida, tampa flordia:.* Retrieved from http://www.ite.org/activeliving/files/C-2-C_ppa013.pdf
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