Sustainable Skateparks

A Design for a Davis Skate Plaza









By Henry Luc University of California, Davis June 13, 2008

Sustainable Skate Parks

A Design for a Davis Skate Plaza

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Landscape Architecture Department
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Abstract

For this project I examined successful skateboarding destinations on the UC Davis Campus. I call it the "Campus Tour" because all of the spots are so close together that skateboarders tend to tour the campus moving from one spot to the other. After examining the skate spots as case studies, I summarized my finding in a set of design guidelines and held a community meeting with the Davis Skate Society, a campus skateboarding club, to gain design imput. Then I took examples of successful skateboarding destinations in the world and analyzed them in terms of sustainability. In this project I define sustainability as not only helping the environment, but also by supporting the community by supporting skateboarding. I took all of this research and design guidelines to a final design of a Davis Skate Plaza located at the North end of the current Amtrak Station.

Acknowledgements

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-UCD/LDA, UCD Grounds, The Nelson, Teazurbeurz, and lastly to my Guardian Angel for helping my bypass the stuggle.s.

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Introduction

Skateboarding continues to be a popular sport amoung the youth and young adults across the country. This demand is causing many cities to build skateboard parks to keep skateboarders off of the streets and move them to a designated, designed space.

However, many skateparks that are sprouting up around the United States are very poorly designed, aesthetically unpleasent, unmaintained, and underutilized. This is not due to losing its popularity, and we know this because street skateboarding is as popular as ever, but instead, I think it is due to a lack of well designed facilities.

Many professionals have built a solid career by filming on our campus and this I believe, is positive publicity for the campus. Through my observations, i believe that a well designed skate park system for the city of Davis could be a difference in future students deciding where they would want to go for school. Surely, it was a major part of my decision to come here.

This document serves as an example of how to build better places not just for skateboarding, but also for the community and the environment. I placed a higher value in aesthetics in my final design of my skate plaza because I felt that beauty should always come first. In the end it always makes a place much more interesting.

The Campus Tour

The UC Davis Campus is a recognized place within the skateboarding community and has fostered the careers of multiple professionals in the Sacramento region. Professional skateboarders such as Brandon Bieble, Stefan Janowski, and Nyjah Huston have created their careers through skateboarding and filming themselves on campus. Through studying and observing the success of the skate spots on campus, we can learn from them and apply those lessons to tie in with an environmentally sound, community oriented design.

What is unique about the UC Davis campus, in terms of skateboarding, is the fact that so many places are unintentionally ideal and major spots are close together. The term "campus tour" comes from these spots being nearby each other thereby offering skateboarders many different obstacles in a centralized way. These major campus spots are emcompassed inbetween the Physics/Geology building, the Chemistry Annex, Bainer and Roessler Hall. Skateboarders can move from spot to spot and enjoy the aesthetics of the campus inbetween.

Successful skateboard destinations much like the ones we have all over campus are a very rare phenomenon. The design of the spaces have to be laid out in a certain way in order for skateboarding manuvers to occur. A slight change in paving material or handrail detail could turn a "famous" skate spot into an unskateable one. Along with this ideal design comes with ideal placement and location. Since the "campus tour" is pretty much tucked in the heart of campus, it makes it hard for police to come and kick people out. Especially at night or during times where school is not in session. Since the campus has restricted vehicle access in order to be more bike friendly, police have to bypass numerous security gateways and drive really slow around multiple bike circles in order to even get close enough to kick potential skateboarders out of these spots.

There are many things to learn from the UC Davis campus. This is why i chose to study and explain it to people in this report. The campus is truly a very amazing place and designers can use it as an example of creating popular skateboarding destinations. Our campus is kind of like a giant skateboard park. But it is also better than most of the skateboard parks out there. On top of all this there is heavy underground publicity going on to promote the success of the campus as a skateboarding destination. These spots along the campus tour are featured in every skateboarding and video magazine that is out there every month. Just today i picked up two different skate magazines that had an add for a clothing or shoe company with a photo of a professional performing a trick on campus. The success of it all is really amazing.

Spot Studies



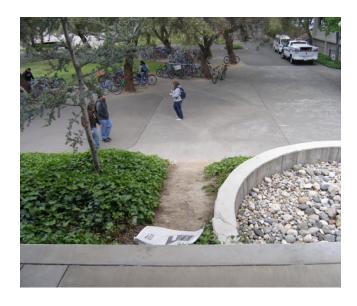
Chemistry Annex Rails



The obstacles present at this spot are the handrails and the set of stairs shown. People use this spot to skate the handrails because the conditions are ideal. This spot is not too big to get technical on, and also not too small so that it looks good on film. I have also seen people do tricks over the rail too but it is pretty rare. This is probably the most famous spot on campus because there have been so many great tricks performed down these rails. There is plenty of room to roll up to the handrail before you jump (40') and also plenty of room to roll away when you land. The slope of the staircase is not standard because the rise is 6" but the run is 12". Stadard stairs are 6" rise, 6" run. This creates a mellow incline on the railing itself which is good. The detailing on the handrail itself allows for greater capability to lock onto tricks because it is square (2" wide) and also thick up top (8"). This makes it easier to balance when you are on top of the rail and allows slide tricks to be performed without the wheels of the skateboard locking up onto the railing. Other good qualities are the fact that it is totally shaded and the acoustics of the spot become amplified through the architecture so tricks not only look good, but sound good too.



Roessler Gap



Located right in front of the Physics Geology building, the Roessler gap is the most difficult spot on campus. It was first "ollied" (jumped over on a skateboard) in 1998 by Jamie Thomas so people call it the "Jamie Thomas Gap". People only skate this spot if they have something to prove or a deathwish to fulfill. For a big gap, it is very ideal. There is plenty of runway to gather speed alongside the building and the landing is pretty much perfect with plenty of room to roll away. The gap itself is about 24'4" in length and the drop is approximately 10'. There is not much more to say about this spot besides the fact that one has to be absolutely out of their mind to jump down this thing. The trail in the ivy was most likely created by people or skaters running up it to either attempt to jump the gap or just look at it instead of walking around to use the stairs. I calculated the distances of the gap by referring to the staircase right next to it. It would be equivelent to jumping down a nine flat nine (two sets of nine stairs with a gap inbetween).

Physics/ Geology 10



Located right next to the Roessler Gap is the Physics Geology Ten. As you may be beginning to see, These skate spots are right next door to one another. This is also a unique set of stairs because the runway is not the best and the landing is slightly downhill. The conditions are less ideal which makes it more difficult. People usually tend to do tricks down the staircase here but the handrails are also very skateable frontside and backside. In terms of filming and aesthetics, the brickwork finish on the stairs makes it look better when a flip trick is performed down the stairs. The handrail looks different then the one seen at the Chemistry Annex but they are similar because it is also square and thick at the top, which allows for greater capabilities to lock on to a trick and balance on the obstacle.

Mini Hubba



This spot is very low key because it is located behind the Physics Geology building. People skate the hubba ledge that is shown in the photo. A hubba ledge is basically a concrete handrail. For a smaller spot (6 stair) it is difficult to skate because it is very tight. The staircase is only 4' wide as opposed to the Physics Geology Ten which is 18' wide. What makes this spot unique is the fact that it is small but looks big. The reason why i say this is usually handrails are 36" tall. But this obstacle is only 24" tall to get on and drops off at the standard 36". This makes it easier to jump onto and the plants on the other side makes it more comfortable for a bail. The runway is quick (15') so people have to think fast and it would be unwise to skate this spot by yourself because the landing is onto an asphalt street. You need an extra person to watch for cars passing by so that you don't get hit.



Bainer Hall



Bainer hall is very different from all the other spots we have seen because the planters along with the stairs and handrail allow for "lines". Lines are a combonation of tricks put together by a skateboarder to display consistency. For example, if someone is filiming here, they would do a trick on the planter ledges, then continue to the stairs and handrail to perform another trick. The filmer usually follows behind on another skateboard to capture the action. This spot is an eight stair which is different from what we have seen and the handrail makes it harder to lock onto tricks. Compared to the Chem Annex handrails, even though it is square, it is not thick up top so the wheels of the skateboard tend to lock up if tricks are not performed precisely. The area is shaded by the building and mature trees. Also the ground material is smooth and these details make the spot ideal and desirable with skateboarders. Figure (A) displays how the planter ledges can be approched from multiple angles. The way the planters are set make multiple skate spots. One is just a ledge, and the other is a ledge over a gap with a drop.

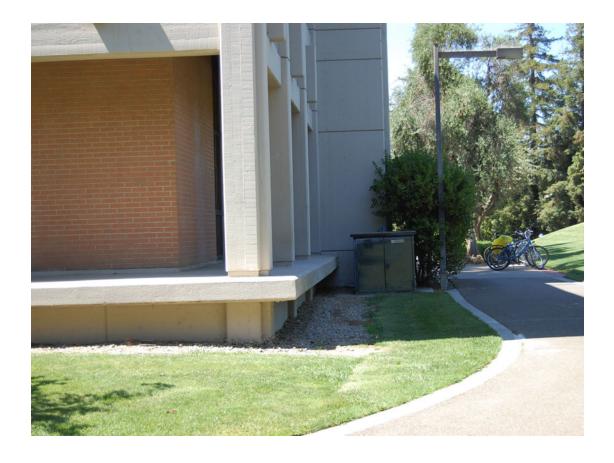


Rec Pool



Another main attraction to the UC Davis campus that is away from the campus tour are the Rec Pool ledges. This area is very nicely shaded, has good ground, and allows for multiple angles, combonations, and ledges to skate. Aside from the wide array of ledges to choose from, there is also a small staircase (4 stair) and a movable concrete ashtray to skate over (circled in red). This area is mostly used by skateboarders even though it was probably intended for people to sit and hang out. Everyone that i noticed just seemed to pass through the area with no particular concern to stay there. The design is very ideal for skateboarding because only every other tree is encased in a planter box. This loosens up the spot and makes the circulation better overall. If every tree had a planter, the spot would be very tight. There has been a great deal of skateboarding documented here and the aesthetics of this small plaza looks very good on film. Even though the campus put "skate stoppers" on the ledges, skateboarders found a way to some of them off so they can continue using this area.

Law School Gap



This spot is located at the law school near the arboretum and I would consider it apart of the Campus Tour. As a medium difficulty spot, it looks good on film. The runway is alongside the building and is 3'6" wide which is a bit tight but managable. The gap is 9' wide across some grass and the drop is only 3' tall. The landing is onto an asphalt bike path which is not that great. I think that spots like this one helps the spots along the campus tour because it adds to the diversity of the obstacles seen and discussed. The diversity of difficulty ranging from easy to medium to hard make the campus a fun a desirable place to roll around on. Once again this spot is shaded by the building like the rest and provides amatuer skateboarders a place to feel important.

Obstable Matrix

From my research and notes collected on campus skate spots, I organized a matrix to help display the range and variety of skateboarding obstacles present on the campus tour. This will be used to generate some preliminary design guidelines for my personal design.

From the matrix, we learn that overall, the skateboarding that occurs on campus is very diverse and can cater to a wide range of skill levels. Predominately, the obstacles present are utilized by the more experienced and professional skateboarders. The aesthetics of the surroundings are very good and this one of the reasons why people choose to film here. In every new magazine and skate video that comes out, chances are there is at least one trick or one photo shot here on campus.

Bainer Hall and The Rec Pool ledges are the only spots on campus that offer capabilities for combonations (lines). This is because the design configuration offers the same or different types of obstacles to be skated on in a flow. Skateboarders film lines to demonstrate skill and also to show off their trick consistancy (the ability to land more than a single trick at a time). For example, at Bainer hall, a skateboarder that is filming would roll up and perform a trick on one of the planter ledges and then continue to do a trick down the eight stair.

There is also diversity in the staircases present here on campus as well. From the matrix, we can see that there is a 4, 6,7,8, and 10 stair. This allow skateboarders to push their skill levels by moving their tricks down bigger and harder obstacles. We also noticed that all of the spots are partially or completly shaded by either mature trees or architeture.

	Chamietry Annex Handralie	Rosseler Gap	Pinelos / Geology 18	Physics Hini Robbo	Volser Hell	Red Pool Ledges	Law School Cap
Obstacles							
Difficulty	Hará	Very Heré	Hard	Medium	Bery-Hard	Cory-Medium	Medium
Plin Aesthetics	Great	Good	300	Great	Great	Great	Good
Acoustics	Yes	Ma	Mo	No	Yes	No	No
Over the Reil	Yes	Ma	Mo	No	Yes	No	No
Hubba	No	Ma	Mo	Yes	No	No	H
Cap	No	Yes	Ma	No	Yes	No	Yes
Line capabilities	No	Ma	Mo	No	Yes	Yes	No
Hendrails	Yes	Mo	Yes	No	Yes	No	No
States	7	Ma	10	6		4	No
PARTHERY	Great	Great	Poor	Foor	Great	Good	Great
Landing	Great	Great	Poor	Good	Great	Good	Foor
Prostside and Backside	Yes	Yes	Yes	No	Yes	Yes	Yes
Width of Obstacle	75"	8,	15	*	20'	6' planter ledges	4
Skading	Architecture	Architecture	Mone	None	Architecture	Mature Trees	Architecture

Community Participation

Sustainable Skate Parks Community Meeting







I realized that it was necessary to get some input from others before continuing forward. Community participation in my senior project would "involve and empower citezens" and skateboarders insuring that the "planning and design process would be more socially and environmentally respondsible" (Francis 61). I utilized my community meeting as a tool for problem solving, overall vision, and input. My visioning for this project has been proactive because the idea stemmed from what i thought was lacking in the town so i started sketching out better skateboarding obstacles. I found this experience to be very rewarding because it "addressed the essential purpose of environmental design, and that is to leave the world a better place than we find it" (Francis 68).

Creating the Campus Skate Spot matrix was my first step to preparing for my community meeting. This would be used as a visual to not only facilitate a discussion, but also to gain important input from experienced skateboarders. Since I only wanted input from the Davis Skate Society, I began to organize a meeting around them and their schedules. The Davis Society is a group of UC Davis students that formed a campus interest group to help skateboarders meet other skateboarders. The group, which I have been involved with since freshmen year, is very unique and is composed of many different people, with different majors and backgrounds. We do stuff like organize road trips and carpool to go skateboarding. So with my meeting agenda prepared and focus group targeted, I advertised my meeting via The Facebook and had The Davis Skate Society reserve a room for me to hold a meeting on May 14th, 2008 in 2205 Haring Hall.

The overall goal of this physical planning and design oriented meeting was to gain skateboarder input for my matrix and gain input for my preminary design. This would help me present and exchange my ideas, brainstorm, problem solve, and give an opportunity to share a collective vision.

Sustainable Skateparks

Ideas for New Davis Skate Parks



Meeting Agenda

Date: Tuesday, May 14th, 2008

Time: 7:00 pm-9:30 pm Place: 2205 Haring Hall

7:00	Food (Woodstocks Pizza)
7:15	Welcome / Introductions
7:30	Presentation on "The Campus Tour"
8:00	Presentation on "The Summary Matrix"
8:15	Break
8:30	Facilitated Discussion
9:00	Conclusions Review / Next Steps

Please stay for the Lakai: Fully Flaired video premier

Community Meeting



My community meeting went a lot better than expected. The turnout was absolutely amazing but i think a great deal of it had to do with me offering to buy and premier this years most anticiapated skateboarding video titled "Lakai: Fully Flaired". My graphics and presentation were very visible because I used a powerpoint presentation however I was still pretty nervous talking in front of a large lecture hall. I utilized a "non directive style" and just facilitated a discussion to try to generate as many ideas as possible. The group responded very positively towards my on campus research and were very excited to hear about my vision for a sustainable skate parks system design along the Davis Greenbelt system. I had about 30 people show up early for the meeting and another 20 or so people showed up late for the video premier. I was not expecting so many people to show up so the food ran out pretty quick. The "workshop style" approach worked really well and they really brought a diverse set of values in terms of what they valued in skateboarding obstacles. During the meeting i also asked

a few questions on their opinions on the environment. I told them that i wanted to make my design environmentally friendly and asked them what they thought about donating a portion of the skate park design to the environment. As i expected, most of the skateboarders, probably because they are in Davis, responded positively and agreed that the environment should be addressed. Some complications that i ran into were people getting tired and sidetracked off onto a discussion on the current Davis Community Skate Park. Although I really wanted to hear their ideas, the subject was off topic and i wanted to stay on schedule.

Some good imput that i recieved from the meeting that would contribute to my overall design were:

- -Lighting
- -Accessibility
- -Natural Aesthetic
- -Shade
- -Cover (from rain)
- -Flow (from one obstacle to the other)
- -Skill level separation through obstacles

Design, Aesthetics, and Sustainability

Recycled Materials



There are a lot of opportunities in a skate park design to incorperate passive and sustainable materials. One way that i have seen work out in the streets that can be applied to design are the use of recycled plastic benches. The ability to grind and slide on this surface works really well and waxing the obstacle is a minimum because the materiality of the recycled benches already has a slick waxy surface. Compared to traditional concrete ledges that require a great deal of waxing in order to skate, the recycled benches do not look as dirty and blackened from usage.

In terms of design, I would use the recycled plastic 2x4's and incorporate it into the design of a ledge. Instead of just taking a preconstructed bench and plotting it into the space. There should be a way that these 2x4's can be sliid in and out along the edge of the obstacle so that they can be annually changed when they are worn down and weathered.

Storm Water





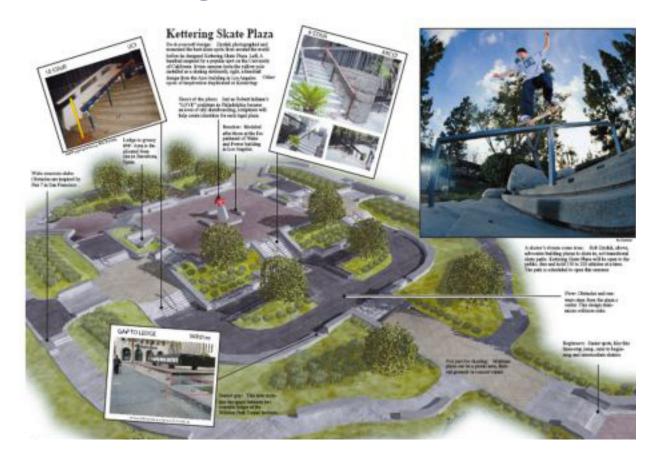


When I first started this project I thought that it would be a good idea to try to incorperate porous pavement into the design of a skatepark so that the surface would drain faster allowing a park to dry faster and be more skateable.

Upon going to a UC Davis campus demonstration of the porous pavement product I quickly realized that this idea would not work because of the texture on the finished product. There would no way a skateboard could comfortable roll around on this surface because it is just too rough. In addition, the cost and labor behind constructing this type of surface for a skatepark would be inefficient and not cost effective. For a less price and better use, the traditional concrete would make much more sense. The only problem is that water drains offsite way too fast during heavy rain.

To combat this, instead of using porous pavement, a design could incorperate drainage out into catchment basins to allow slower perculation into the ground. much like Mint Plaza in San Francisco. Their design utilizes french drains to channel water into catchment basins hidden under benches.

Shading



As we have learned from the matrix that I constructed, Shading is a huge factor in the design and aesthetics of the skate spots on campus. In terms of sustainability, shading contributes to the lessening of the heat island affect as well as provides for the natural environment and habitat.

The only skatepark design that incorperates the idea of mature trees and shading within its design is the Rob Dyrdek DC Skate Plaza in Kettering, Ohio. Dyrdek worked with an Arizona LDA firm called Site Design Group to design and construct this 27,000 square foot dream in his hometown. The amazing part was he actually learned how to draft himself and most of the design elements came from photos of the places that Rob enjoyed skateing.

This developement has given new meaning to public space and urban design because it successfully addresses community sustainability and aesthetics. Prior to this design, trees were almost never considered in skate park design.

Passive Energy

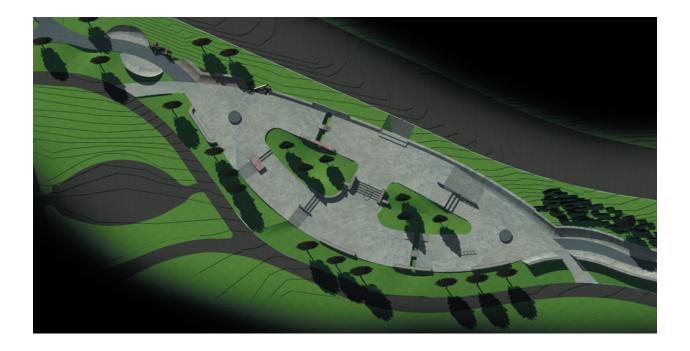


Another idea that I had was to incorperate Solar or Wind power into a skate park design. In terms of solar power, if the solar panels can be designed into an obstacle or hidden within the design to face south to capture the most sunlight. The energy generated in the daytime can be used to power the lights are the skatepark at night time. This would be very cost effective and provide a way for the skatepark to be more sustainable.

The current Davis community skate park has problems with lighting. They do not work. The Davis Skate Society and myself have been in battles with city officials to try to get this problem fixed. The city told us in an e-mail that they got tired of fixing the light box because everytime they did, someone would break into it and set it on fire. With solar energy, we would not have to worry about that.

In places that do not have too much sunlight for solar use, it would be important to look towards other sources of power. For example, if a skate park were being built in San Francisco that wanted to incorperate passive energy, it would make more sense to look towards wind power for energy. The energy generated from wind turbines could be used to power lights and other amenities found at the skate park.

Drainage



New Line Skatepark in Portland, Oregon is one of the nineteen new skate sites adopted by the city in its master plan. This design by Ed Benedict, incorperates the community, crime prevention, and environmentally sustaining guidelines. As you can pick up from this plan view, this skate park design is the first of its kind to address grading and drainage in a sustainable way. The water drains offsite onto catchments with plantings to slowly perculate and drain into the ground while being filitered through vegetation. The water that drains off of the roadway moves through the plantings in the skatepark and then proceeds to drain south towards a bigger lawnspace.

I think that this is very appropriate for the city because it rains so much up in Portland and this design could serve as an example of an environmentally friendly, socially respondsible place. It is very unique and addresses different factors than the DC Skate plaza. This design also incorperates plantings and mature trees into the overall design which is good.

Community



The Vancouver Skateboard Coalition acts as an entity that is accessible to all skateboarders, promoting unity and taking a proactive role in creating safe and fun environments for skateboarders to enjoy.

Vancouver is one of the only skateboard friendly towns in the world. The reason for this is because skateboarders have infiltrated the ranks of town politics which enables them to get things done and places built. With full support of Mayor Larry Campbell, the Park Board Commissioner Lyndsay Poaps, and the Vancouver Skate Park Coalition, This is a prime example of community sustainability. The town has created a urban skate plaza as an alternative to office and pedestrian plazas. The mayor said that he is proud that Vancouver is a skateboard friendly city.

This Downtown skateboard plaza is a joint project between the City of Vancouver, the Vancouver Park Board, with design input from the skate park coalition. The overall design was done by LDA firm Van Der Zalm Associates Inc.

Aesthetics



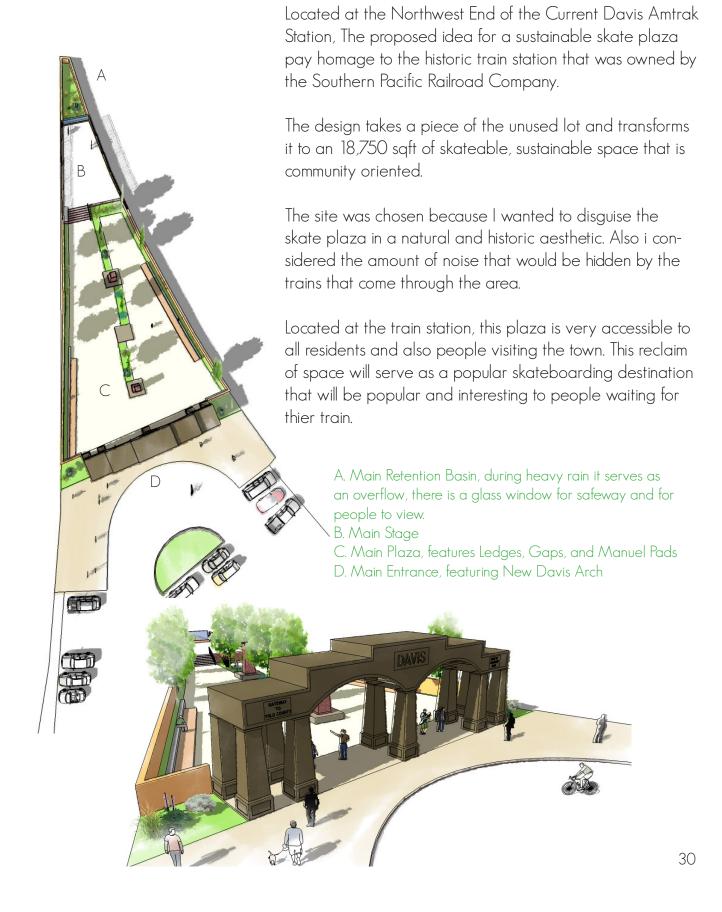
Aesthetics is an important issue when considering a design for a skate plaza because obstacles are more appealing when they are placed within context. Public artwork, and sculptures help to give identity to a plaza.

A good example of this is Robert Indiana's "Love" sculpture. It was placed in the JFK plaza in Philadelphia which later on became a skateboarding mecca. Although skateboarding is now illegal there, skateboarders often refer to the plaza as "Love Park". The sculpture gave the plaza an aesthetic quality as well as a name people could easily identify with.

The use of aesthetics can make a place seem more "real" as a skateboarding destination. Most skateparks that are built have no real name or style, just a large amount of poured cement. By giving a place more identity and a theme, it would make it a more desirable place not just for skateboarding, but also for people to meet up, gather, hang out, and people watch.

Final Design

Southern Pacific Plaza



Southern Pacific Plaza





The main features of this plaza design are hidden behind the main entrance which is a replica of the old Davis Arch.

The site design features on on site stormwater retention that serves as skateable gaps and planting space.

Shading was addressed in design with rows of native drought tolerant trees along the perimeter of the plan.

The plaza features a main stage with a planted gap, seven stair ledge and handrail, as well as numerous recycled plastic ledges and granite ledges.





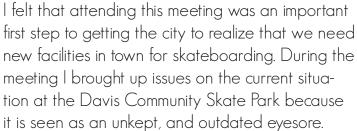
Implementation

I wanted to see if it was possible to implement my design ideas so I attended The City of Davis Parks and Rec Master Plan Update Community Meeting on May 20, 2008.

The community meeting was held at the Davis Senior Center and M.I.G. (Design Firm) gave a presentation on how they were trying to update the town master plan. The attendees were consisted mostly of college students and the firm asked for our imput in future recreation ideas for the city of Davis.



I spoke about some of my ideas and the research I was performing for my Senior project during the facilitated discussion however I was the only one that was passionate about the idea.





Although the meeting was not set up for me to present all of my ideas and drawings, i realized that implementation of this idea takes a great deal of advocacy and community support. Along with that, things take a long time to get done here compared to Vancouver.





If i had more time here in Davis I would push my ideas strongly onto city planning. I think that my designs are strong and convicing enough to get implemented.

Conclusion

Overall, the campus tour is a prime example of a popular skateboarding destination. The reason why things work so well is because the skatespots are centralized. skateboarders like to move from one place to another without having to skateboard too far inbetween.

In most of the spots that i studied, a majority of them were either shaded by surrounding architecture or mature trees. This in terms of sustainability is very important because active recreation such as skateboarding requires dry and cool places. The UC Davis campus is a good campus for skateboarding and the conditions are almost perfect in regards to landscape and architecture.

With skateboarding parks being built in almost every developing city, it is important to keep in mind that every project that involves the landscape should address the environment as well as the community's values. The current skateboard park in the City of Davis is not only way outdated, and underutilized, but it also does not reflect the progressive attitude towards developement that the city values.

My proposal for the design captures the lessons learned from campus and applies it to a community oriented, environmentally friendly design that facilitates the social interactions of the youth. The idea of a sustainable skate park system will meet community goals, serve as an interesting place.

Bibliography

Francis, Mark. "Proactive: Visionary Thought and Participatory Action in Environmental Design"

Owens, Patsy. "Recreation and Restrictions: Community Skateboard Parks in the United States" 2001

Haskin, Andrew, "A Guidebook to Rendering with Sketchup and Photoshop". 2007

lancofano, Daniel. "Meeting of the Minds: A Guide to Successful Meeting Facilitation". 2001

Sanoff, Henry. "Community Participation Methods in Design and Planning". 2000

http://www2.urbanhonking.com/portland/2007/11/sustainable-skateparks.html

http://www.skateportland.org/

http://www.dwell.com/peopleplaces/profiles/4551697.html

http://www.vsbc.ca/media