Impact Statement Scott Steinmaus

Project Title: Entering a New Era for the Plant Sciences at Cal Poly: a Combined Horticulture and Crop Science Unit.

Issue:

The Horticulture Department and the Crop Science Department had been separate departments until about 2001 when they were merged. They were each large departments with between 500 and 1000 students and about 12-15 faculty in each department in their heyday of the 1970 and '80's. There has been a steep decline in student interest since then and adjustments had to be made accordingly. As separate departments, they each maintained their own separate operation units with Crops comprised of row, vine, and orchard crops and Horticulture comprised of greenhouses, hoop houses, an arboretum, and landscape areas. The recently revised Cal Poly Master Plan combines the Horticulture and Crops operations in one location. This provided us an opportunity to design and build a new Horticulture Unit that will serve students and faculty for a significant portion of the 21st Century. The primary issues were to decide how can future generations be best served by such a unit and how to interface a new Horticulture Unit with an existing Crops Unit so that all operations, present and future, work run smoothly and allow to change as the future dictates.

What has been done:

My primary accomplishment with this project was to get buy-in and constructive contribution to a final design for a combined Horticulture and Crop Science Unit. This project involves many stakeholders including faculty and staff who will work in these facilities and also the Cal Poly administration who require external funding from research entities and industries to support the building and maintenance of the facility. Industries have been and will continue to need to be convinced that these facilities will provide modern training of our students who most often become their future employees. The facility is modern by current standards but will also need to be sufficiently modular to anticipate the needs of future faculty for at least the next 20 years.
The immediate deliverable is a "close" to final design for the new unit that accommodates all anticipated needs *(Figure 1*). These needs include, teaching, research and commercial production. The plans also anticipate the applied research needs for industry supporters and training for their future employees. The project required that I balance and intermix the vocational and research motivations among my faculty.

Impacts/New Partnerships:

The process of programming required that we solicit input from many diverse stakeholders. This process has facilitated the buy-in that I and others (e.g. the Dean) needed among all stakeholders. It also helped us to establish stronger connections with the donors and industries who are most likely to help us fund this project. Donors are often Cal Poly alumni who often want to see the historical legacy of the old Horticulture Unit maintained. Industry supporters are often more motivated in either the applied research that could be done for them or the training that such a facility could provide their future employees (i.e. our graduates). I spent several weeks in the Netherlands visiting with industries and universities to better understand the operations of various controlled environments such as modern greenhouse facilities. In the process, I was able to establish connections and relationships with the worlds leading industries in this area such as Priva and Rijk Zwaan who have seen the benefit to their companies by working with universities such as Wageningen University and HAS Hogeschool University. These benefits include access to qualified graduates and also that when students are trained on their equipment or in their facilities the students are more likely to continue purchasing that equipment when they have the opportunity after graduation.

Outcome of Project (societal impact/ measure of increased quality of life)

The final design for the Horticulture and Crop Science Unit has not been finalized but the programming is nearing completion and initial barriers to change have been overcome. The process, ultimately, became very unifying, in terms of bringing down the "silo" walls that often form among departments and factions on campus when long periods of time have passed with only budget cuts and the concomitant program shrinkages

dominate the message from upper administration. Release of the Cal Poly Master Plan created quite a stir among the Department's stakeholders as it appeared the plan was to place a horse arena directly on top of the existing Horticulture Unit without any clear plans to relocate the Horticulture Unit. This may have been necessary in order to fully engage all stakeholders to action and intent. It certainly reconnected Cal Poly with the industries that support horticulture and agriculture. As a result of this reconnection and the role the industries have played in design will hopefully make it easier to facilitate financial support to build the Unit. At the very least, this project has put Cal Poly back in the spotlight of the horticulture industries. At the very least the process has brought the vocationally-oriented faculty who are often near the end of their careers to understand the desires and needs of the more research-oriented faculty who are usually at the beginning of their careers, and vice versa.

How has your project been aided by your FSLI experience?

- Bob Treadway Futurist: big picture, looks ahead, builds the right team, robust actions, early recognition, stays informed, don't be derailed by stigma/bias (e.g. cannabis) but be sensitive to those that may have bias and guide them
- Claudia Fernadez: maximizing leadership success: develop talent by putting problematic faculty into roles where they shine rather than trying to "teach them a lesson" that they will never learn because it reveals their weaknesses and they have spent an entire lifetime developing skills to hide those weaknesses. The important of follow-through by frequently throughout the process going back to constituents to check in if their needs/desires are being met.
- Dave Roberts: Negotiation for Success: discovering common ground between two parties to reach an agreement to settle how much greenhouse space we can afford and build…this was DIFFICULT because the situation matters! Remind all stakeholders that our negation intent is COLLABORATIVE (we need to work together in the future)
- Getting input from all stakeholders. Balancing the needs and desires of many different interests to devise a reasonable affordable and sellable product. For those stakeholders who may not have an equal voice (e.g. staff and untenured faculty) I get their inputs in private and in confidence and include it as my input IF they do not feel comfortable about naming it theirs. Change management style following this process: experience → reflect→ envision→ act →REPEAT
- Fundamental Interpersonal Relationship Orientation Behavior (FIRO-B): inclusion (making outsiders feel included by recognizing their talents or importance), control (making sure that there is a fair flow of interaction among stakeholders), affection (to show that I value/understand and respect others' input and comments
- EQ-i2.0 assessment: one suggestion was for me to manage my impulse control which was very effective during this frustrating process of planning for an entire unit for the departments' future: my EQi was that I was a bit to composed and restrained rather than impulsive and that I rarely fall victim to impulses or temptations but this can sometimes leave gaps in my stakeholder's knowing where I stand and they tend to fill in the blanks often with suspicion so I need to provide more frequent feedback to them so they know where I stand. My EQ-I score for flexibility was out of range in the direction of seeing change as a springboard for progress and I need to realize that many of my constituents do not share this sentiment therefore it is important for me to bring them along

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Horticulture and Crop Science Unit Space Needs

Faculty/Use	Greenhouse A (800 ft^2)	Greenhouse B (1,800 ft^2)	Greenhouse C (3,600 ft^2)	Retractable Roof Greenhouse (5,000 ft^2)	Square Footage
Garner	1				800
Brown	0.5				400
Hoover	1				800
Thompson	2				1,600
Steinmaus	0.5				400
Ivors	0.5				400
Headrick	2				1,600
Tubeileh (organic)	2				1,600
Wong	2				1,600
Abiotics/Plant Phys/Hort Tech	1				800
Classes/Senior Projects	0.5				400
Cut Flower Production/Strawberries		3		1	10,400
Potted Plant Production, Foliage Plants, Enterprise Projects		8	1		18,000
Propagation		1			1,800
Soil Science		1			1,800
Total	**13**	**13**	**1**	**1**	42,400
Square Footage	10,400	23,400	3,600	5,000	

Research-Teaching-Production Facilities	**Number of units**	**Size/unit (ft)**	**Surface area/unit (ft2)**	**Subtotal surface (ft2)**	**Map code/label**	**Notes and questions**
Greenhouse A	13	20 X 40	800	10400	A	
Greenhouse B	13	30 X 60	1800	23400	D	1 for Soil Science
Greenhouse C	1	60 X 60	3600	3600	C	
retractable roof greenhouse	1		5000	5000	retractable roof	could go to field 25
Headhouse	1	50 X 100	5000	5000	E	
Hoophouses	4	30 X 100	3000	12000	hoophouses	
Shade houses	2	40 X 100	4000	8000	?	where do these go???
Food and Vegetable Packaging Unit	1	216 X 60	12960	12960	Food Processing	
Coolers/refrigerator	2	20 X 40	800	1600	Ref/coolers	Vernalization, hard wood fruit science cuttings

Soil bins/storage	10	12 X 20	240	2400	Soil bin	
Student Enterprise area	1	30 X 60	1800	1800	H	what this?? A building or open ground??
Lab facilties						
Diagnostic Lab (Disease and Pest)	1	20 X 20	400	400	Diagnostic lab	`
Teach lab (for D and P)	1	20 X 20	400	400	Teach/diag	
Meeting place	1	30 X 30	900	900	meeting	
Honey lab	1	40 X 40	1600	1600	Honey lab	perhaps go out with lemons
Lab A and B dirty labs	2	50 X 70	3500	7000	B	Lab A and B
Support Facilities						
Shop				1500	F Supply/Equipment	
Warehouse/storage				3000	F Supply/Equipment	
Parts/tool room				1200	F Supply/Equipment	
Irrigation room				1000	F Supply/Equipment	
Bulk Soil Storage				800	F Supply/Equipment	
Fertilizer rm				1200	F Supply/Equipment	
small vehicle storage				1500	F Supply/Equipment	
Pesticide rms/clean rm/mixing				3000	Pesticides	
office	6		200	1200	Offices	

Housing						
Dorm (6 persons)	1	40 X 50	2000	2000	Dorm	needed for student labor
Farm Store (associated with Hort/Crops products)						
cooler for Hort	1	20 X 20	400	400	N	

cooler for Hort	1	20 X 40	800	800	O
display greenhouse	2	20 X 30	600	1200	J
seasonal display area	1	20 X 50	1000	1000	K
covered sink and container area	2	10 X 20	200	400	P

greenhouse cost estimate/square foot: 35.71428571

cost per acre GH: 1514285.714