



Capital Renewal & Deferred Maintenance (CRDM)

PROJECT REQUEST FORM

Business Services Only Request#

Project Title CULLEN ENGINEERING FIRE SUPPRESSION PUMP DESIGN AND INSTALLATION	
Building # 579	Building Name CULLEN ENGINEERING
Emergency or Immediate Funding* <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Managing Shop/Area MINRO & PLANNED PROJECTS
New Funding Request* <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Add Funding to Project #
Project Description/Scope (<i>attach any estimate prior to request</i>): <p>Phase 1: Design Scope: Design team shall combine Mechanical and Electrical engineering to design a new Fire Suppression pump system with associated controls and piping. This system design shall provide adequate flow to accommodate a CLASS B occupancy building. This new Fire Suppression pump shall be connected to the buildings existing back up generator as well as a new Electric feed to the new Fire Pump and associated controls. The system shall integrate into the existing stand pipe system and shall have three additional systems, One for each stairwell. Design shall include inertia pads and any vibration absorption required. Life Safety 101 NFPA 13, 45 and 20 standards and the University of Houston design guidelines for the installation of Fire Pump system shall be adhered to. the design shall also interface with the buildings existing Electronic Fire alarm system. If a BREAK Tank is required this system shall be sized accordingly.</p> <p>Phase 2: Construction Scope: The successful contractor shall provide all labor and materials required to install a new Fire Suppression Pump and all associated controls. Tanks (if required), piping electrical appurtenances, boring labeling, testing (qualify flow integrity) all painting and patching of walls. The system shall be Tested in accordance with the State Fire Marshals testing methods and also the University of Houston fire Marshals office .</p>	

Plant Ops Use Only

Desired Construction Start Date 10/1/2011	Desired Completion Date 1/15/2012	Contract Date 9/25/2011
*If Emergency Provide Justification and impact on business continuity: Currently there are labs that do have new sprinkler systems and are yellow tagged in this building. An existing Tier One Lab project is on Hold awaiting a time line for the completion of adequate fire suppression to the labs. the U of H Fire Marshall office will not approve any sprinkler systems for any existing or future lab renovations.	Shop Request: TBD	Purchased Material & Services \$345,500.00
		In-House Labor \$5,000.00
		Contingency \$17,525.00
		3% Admin Fee (as applicable) \$11,040.75
		Total Estimate \$379,065.75

Requested By: KEN OLIVER	Date 3/2/2011	Director: <i>[Signature]</i>	Date 3/2/2011
Department Contact: KEN OLIER	Date 3/2/2011	Division Administrator:	Date
Project Manager Assigned: KEN OLIVER	Executive Director, Facilities Management: <i>[Signature]</i>		
Project Number Assigned:	<i>comm. the date 3.10.11</i>		
Funding Source:	<i>M. [Signature]</i>		
Submit completed Project Request Form to: Sue Yerby, CRDM Program Coordinator E-mail: sgyerby@uh.edu			

Ramos, Cynthia M

Committee Vote

From: Ramos, Cynthia M
Sent: Thursday, March 10, 2011 2:18 PM
To: Rockwell, Melissa; Moore, Spencer; Ness, Craig; Anderson Fletcher, Elizabeth; Kapileshwari, Sameer; Yancey, Mike; Wanjagi, Lillian W; Dhirani, Laura L; Lee, T R; Davis, Malcolm C; Johnson, David W; Murphy, Diane L
Cc: Rea, George; Ramos, Cynthia M
Subject: Emergency CRDM Funding Request - committee approval needed
Attachments: Cullen Engineering - Fire Suppression Pump.pdf

Importance: High

CRDM Committee Members:

An emergency funding request has been submitted by the Plant Ops Minor Projects group that will require committee approval. An electronic committee vote is needed as the next CRDM committee meeting is scheduled for late April 2011. Listed below are the details regarding this project request.

Project

Design and installation of a fire suppression pump for Cullen Engineering lab located in Cullen College of Engineering 1 (Bldg. 579)

Project Scope

Mechanical and electrical engineering to design a new fire suppression pump system with associated controls and piping. The system will provide adequate flow to accommodate a Class B occupancy building. Pump will be connected to the building's existing backup generator as well as a new electric feed to the new fire pump and associated controls. Design will include inertia pads and any vibration absorption required. Design to adhere to Life Safety 101, NFPA 13, 20 & 45 standards as well as the university's design guidelines. All labor and materials to be provided by selected contractor including: tanks (if required), piping electrical appurtenances, boring labeling, testing (quality flow integrity) all painting and patching of walls. The system shall be tested in accordance with the State Fire Marshal's testing methods and also the university's Fire Marshall.

Project Cost

Contracted service & materials	\$345,500
Labor (in-house)	\$5,000
Contingency	\$17,525
Administrative Fee (3%)	\$11,040.75
TOTAL	\$379,065.75*

*This is only an estimate for budget purposes. If request is approved, the project will be sent out to bid.

Emergency Justification

Labs within this building currently do not have sprinkler systems installed and are yellow-tagged, which means that only temporary Certificates of Occupancy have been issued which can be revoked at any time. The polymer lab project is on hold until a timeline for the completion of adequate fire suppression to labs is established. The university's Fire Marshall will not approve any sprinkler systems for any existing or future labs to this building until a fire suppression pump is installed.

CRDM Available Balance – \$3,344,114

After review of this request, including the attached supporting documentation, please reply to this email utilizing the "Approve" or "Reject" options available on the voting feature above. Please forward all questions for clarification to Melissa Rockwell. **Your response is needed by Monday, March 14, 2011.**

Thank you,

Cynthia Ramos
Executive Admin. & Projects Assistant
UNIVERSITY of HOUSTON
Office of Facilities Management
Phone: 713-743-5566
Fax: 713-743-5741
cmramos@central.uh.edu

Ramos, Cynthia M

From: Davis, Malcolm C
Sent: Thursday, March 10, 2011 2:23 PM
To: Ramos, Cynthia M
Subject: Approve: Emergency CRDM Funding Request - committee approval needed

Ramos, Cynthia M

From: Kapileshwari, Sameer
Sent: Thursday, March 10, 2011 2:22 PM
To: Ramos, Cynthia M
Subject: Approve: Emergency CRDM Funding Request - committee approval needed

Ramos, Cynthia M

From: Dhirani, Laura L
Sent: Thursday, March 10, 2011 3:22 PM
To: Ramos, Cynthia M
Subject: Approve: Emergency CRDM Funding Request - committee approval needed

Ramos, Cynthia M

From: Yancey, Mike
Sent: Thursday, March 10, 2011 3:27 PM
To: Ramos, Cynthia M
Subject: Approve: Emergency CRDM Funding Request - committee approval needed

Ramos, Cynthia M

From: Murphy, Diane L
Sent: Thursday, March 10, 2011 4:30 PM
To: Ramos, Cynthia M
Subject: Approve: Emergency CRDM Funding Request - committee approval needed

Ramos, Cynthia M

From: Rockwell, Melissa
Sent: Thursday, March 10, 2011 4:37 PM
To: Ramos, Cynthia M
Subject: Approve: Emergency CRDM Funding Request - committee approval needed

Ramos, Cynthia M

From: Anderson Fletcher, Elizabeth
Sent: Thursday, March 10, 2011 5:49 PM
To: Rockwell, Melissa; Davis, Malcolm C; Ramos, Cynthia M
Cc: Rea, George; Moore, Spencer; Ness, Craig; Kapileshwari, Sameer; Yancey, Mike; Wanjagi, Lillian W; Dhirani, Laura L; Lee, T R; Johnson, David W; Murphy, Diane L
Subject: RE: Emergency CRDM Funding Request - committee approval needed

I vote Yes.

Liz

Ramos, Cynthia M

From: Johnson, David W
Sent: Thursday, March 10, 2011 5:55 PM
To: Ramos, Cynthia M; Rockwell, Melissa; Davis, Malcolm C
Cc: Rea, George; Moore, Spencer; Ness, Craig; Anderson Fletcher, Elizabeth; Kapileshwari, Sameer; Yancey, Mike; Wanjagi, Lillian W; Dhirani, Laura L; Lee, T R; Murphy, Diane L
Subject: RE: Emergency CRDM Funding Request - committee approval needed

I vote yes also.

Ramos, Cynthia M

From: Thomas.Lee@mail.uh.edu on behalf of T. Randall Lee <trlee@uh.edu>
Sent: Thursday, March 10, 2011 6:03 PM
To: Ramos, Cynthia M
Cc: Rockwell, Melissa; Moore, Spencer; Ness, Craig; Anderson Fletcher, Elizabeth; Kapileshwari, Sameer; Yancey, Mike; Wanjagi, Lillian W; Dhirani, Laura L; Davis, Malcolm C; Johnson, David W; Murphy, Diane L; Rea, George
Subject: Re: Emergency CRDM Funding Request - committee approval needed
Importance: High

My vote is yes too.

Ramos, Cynthia M

From: Ness, Craig
Sent: Thursday, March 10, 2011 7:50 PM
To: Ramos, Cynthia M
Subject: Approve: Emergency CRDM Funding Request - committee approval needed

Cynthia,
You have my yes vote.
C.

Ramos, Cynthia M

From: Wanjagi, Lillian W
Sent: Thursday, March 10, 2011 8:00 PM
To: Ramos, Cynthia M
Subject: Approve: Emergency CRDM Funding Request - committee approval needed

Ramos, Cynthia M

From: Ramos, Cynthia M
Sent: Friday, March 11, 2011 8:24 AM
To: Rockwell, Melissa; Moore, Spencer; Ness, Craig; Anderson Fletcher, Elizabeth; Kapileshwari, Sameer; Davis, Malcolm C; Murphy, Diane L; Yancey, Mike; Wanjagi, Lillian W; Dhirani, Laura L; Lee, T R; Johnson, David W
Cc: Rea, George; Ramos, Cynthia M
Subject: APPROVED: CRDM Request for fire pump suppression at Cullen College of Engineering 1 (Bldg. 579)
Attachments: Emergency CRDM Funding Request - committee approval needed
Importance: High

CRDM Committee Members:

In follow up to yesterday's emergency CRDM funding request to install a fire pump suppression for Cullen College of Engineering 1 (Bldg. 579), the committee has unanimously approved to proceed with this project with the cost estimate of \$380K. Melissa has executed the CRDM request and project will be assigned today. This project will need to go out for bid. Listed below is a time line for design, bid phase and project completion:

Design:

Contract Start: 3/21/11

Contract End: 4/15/11

ESBD IFB:

Start: 4/25/11

End: 5/18/11

Award contract: 5/25/11

Construction:

Start: 6/1/11

End: 8/15/11

Please forward any questions regarding this CRDM project to Melissa Rockwell.

Thank you for your continued support.

Cynthia Ramos

Executive Admin. & Projects Assistant

UNIVERSITY of HOUSTON

Office of Facilities Management

Phone: 713-743-5566

Fax: 713-743-5741

cmramos@central.uh.edu

Oliver, Ken D

From: Perkins, Ben [BPerkins@simplexgrinnell.com]
Sent: Friday, March 04, 2011 2:47 PM
To: Oliver, Ken D
Cc: Riley, Braden
Subject: Cullen engineering Bldg. # 1

Ken,

Brad asked me to send you the budget for a new fire pump, break tank, pump room, electrical service (including tie into the backup generator), standpipe system (3 standpipes with 3 roof manifolds), 4 floor control assemblies (future sprinkler systems), and alarm modifications.

Budget Total: (\$ 307,419.00)

Our pricing is based on being a full turnkey project.

Don't hesitate to contact me with any questions.

Thank you for the opportunity.

Ben W. Perkins
Simplex Grinnell
8323 North Eldridge Parkway; Suite 120
Houston Texas 77041
Office 281-671-3300 EXT 225
Fax 281-671-3302
Cell 713-429-9197
bperkins@simplexgrinnell.com

Item Description	Proposed Budget	% of Budget	Approved Budget	% of Budget	Committed Budget	% of Budget	Pending Change Orders	REVISED Approved Budget	% of Budget
A. PROFESSIONAL SERVICE FEES									
ARCHITECTURAL / DESIGN SERVICES	\$25,000.00	#DIV/0!	\$0.00	#DIV/0!	\$0.00	#DIV/0!		\$0.00	#DIV/0!
LIFE SAFETY COMPLIANCE COSTS		#DIV/0!		#DIV/0!		#DIV/0!			#DIV/0!
CONTRACTED PROJECT MANAGEMENT		#DIV/0!		#DIV/0!		#DIV/0!			#DIV/0!
ADMINISTRATIVE COSTS		#DIV/0!		#DIV/0!		#DIV/0!			#DIV/0!
OTHER PROFESSIONAL SERVICES		#DIV/0!		#DIV/0!		#DIV/0!			#DIV/0!
SUBTOTAL	\$25,000.00	#DIV/0!	\$0.00	#DIV/0!	\$0.00	#DIV/0!		\$0.00	#DIV/0!
B. CONSTRUCTION COSTS									
SITE DEVELOPMENT		#DIV/0!		#DIV/0!		#DIV/0!			#DIV/0!
DEMOLITION COSTS		#DIV/0!		#DIV/0!		#DIV/0!			#DIV/0!
CONSTRUCTION - RENOVATION COST	\$320,500.00	#DIV/0!		#DIV/0!		#DIV/0!			#DIV/0!
FIXED EQUIPMENT		#DIV/0!		#DIV/0!		#DIV/0!			#DIV/0!
FURNITURE AND MOVABLE EQUIPMENT		#DIV/0!		#DIV/0!		#DIV/0!			#DIV/0!
INSTITUTIONALLY PROVIDED SERVICES		#DIV/0!		#DIV/0!		#DIV/0!			#DIV/0!
SUBTOTAL	\$320,500.00	#DIV/0!	\$0.00	#DIV/0!	\$0.00	#DIV/0!		\$0.00	#DIV/0!
C. MISCELLANEOUS COSTS									
SHOP SUPPORT UNIVERSITY FIRE ALARM		#DIV/0!		#DIV/0!		#DIV/0!			#DIV/0!
EASEMENT RELOCATION COSTS	\$5,000.00	#DIV/0!		#DIV/0!		#DIV/0!			#DIV/0!
ENVIRONMENTAL DEVELOPMENT COSTS		#DIV/0!		#DIV/0!		#DIV/0!			#DIV/0!
OTHER MAJOR COSTS		#DIV/0!		#DIV/0!		#DIV/0!			#DIV/0!
SUBTOTAL	\$5,000.00	#DIV/0!	\$0.00	#DIV/0!	\$0.00	#DIV/0!		\$0.00	#DIV/0!
PROJECT SUBTOTAL 1	\$350,500.00	#DIV/0!	\$0.00	#DIV/0!	\$0.00	#DIV/0!		\$0.00	#DIV/0!
D. PROJECT CONTINGENCY									
	\$17,525.00	#DIV/0!		#DIV/0!		#DIV/0!		\$0.00	#DIV/0!
PROJECT SUBTOTAL 2	\$368,025.00	#DIV/0!	\$0.00	#DIV/0!	\$0.00	#DIV/0!		\$0.00	#DIV/0!
E. ADMINISTRATIVE SERVICE FEES									
ESTIMATE FEE (NON-REFUNDABLE \$500)	\$0.00	#DIV/0!		#DIV/0!		#DIV/0!		\$0.00	#DIV/0!
SYSTEM PROJECT MANAGEMENT	\$11,040.75	#DIV/0!		#DIV/0!		#DIV/0!		\$0.00	#DIV/0!
PROJECT SUBTOTAL 3	\$379,065.75	#DIV/0!	\$0.00	#DIV/0!	\$0.00	#DIV/0!		\$0.00	#DIV/0!
TOTAL PROJECT COST	\$747,590.75	#DIV/0!	\$0.00	#DIV/0!	\$0.00	#DIV/0!		\$0.00	#DIV/0!

KEN OLIVER
 , Project Manager
 Date: 3/2/11

Client / Owner _____ Date _____
 Certifying Signature _____ Date _____

Oliver, Ken D

From: Oliver, Ken D
Sent: Wednesday, March 09, 2011 10:40 AM
To: Keilbach, Karl
Cc: Rahurkar, Avinash; Norcom III, James G; Bowden, Bob
Subject: RE: Project: Cullen Engineering building 579 Fire Suppression water

Thanks Carl, I will attach this to the CRDM request and move forward.
Again, thanks for your support

From: Keilbach, Karl
Sent: Wednesday, March 09, 2011 10:39 AM
To: Oliver, Ken D
Cc: Rahurkar, Avinash; Norcom III, James G
Subject: FW: Project: Cullen Engineering building 579 Fire Suppression water

Ken,

Yes, the new generator at Engineering D1 is 1000 kw and is capable of providing a total output of 1505 amps @ 480 volts. The main breaker at the generator is rated @ 1600 amps and feeds to a GE Nema 3R 1600 amp switchgear. Currently ATS 1 (125 amps) and ATS 2 (600 amps) are being drawn out of this gear. There are spare spaces available and I do not see an issue with adding the pumps you are requesting. The adept system does not currently show any drawing of the generator upgrade that was done to reflect. Not sure why. I hope this helps you and let me know if this information is sufficient.

Thanks
Karl

Keilbach, Karl
University Of Houston
Spvr, Electrical
Phys Plant-Utilities

(713) 743-5606 Work
(772) 626-4657 Mobile
kkeilbac@Central.UH.EDU

From: Oliver, Ken D
Sent: Tuesday, March 08, 2011 9:21 AM
To: Keilbach, Karl
Cc: Norcom III, James G
Subject: FW: Project: Cullen Engineering building 579 Fire Suppression water

Karl, can we get a load assessment (evaluation) for that 1,000 KW generator I need to know if it will sustain a 480 3 Phase 100 H.P. pump?

I know this is short notice but In order to move forward on TIER ONE projects for this building I need to install a Fire Suppression pump.

And controls.

Mr. Norcom is meeting with Melisa Rockwell, this morning hopefully with some information.

thanks

From: Bowden, Bob
Sent: Tuesday, March 08, 2011 9:11 AM
To: Oliver, Ken D
Subject: RE: Project: Cullen Engineering building 579 Fire Suppression water

One issue that you need to consider: Does the emergency generator have the capacity to add the fire pump and jockey pump load?

From: Oliver, Ken D
Sent: Tuesday, March 08, 2011 7:36 AM
To: Bowden, Bob; Tremont, Joe; ramanan@uh.edu
Subject: FW: Project: Cullen Engineering building 579 Fire Suppression water

All, The information provided in the attachments will provide information to where I am currently on getting the Fire Suppression pump for
The Cullen College of Engineering building 579.
I am currently awaiting approval.

Ken,
Please develop a plan of action, timeline and scope for pump and sprinkler system for Cullen Engineering building #579.
Thanks.

James G. Norcom, III
Lead Senior Project Manager,
Minor & Planned Projects Group

UNIVERSITY of **HOUSTON**
YOU ARE THE PRIDE

Plant Operations
4211 Elgin Rm 122
Houston, TX 77204-1011
713-743-5804 Phone
713-743-5741 Fax
email - jgnorcom@central.uh.edu



Keep UH green. Please consider the environment before printing this E-mail.

From: Kapileshwari, Sameer
Sent: Tuesday, March 01, 2011 3:32 PM
To: Oliver, Ken D
Cc: Norcom III, James G; Rockwell, Melissa
Subject: FW: Project: Cullen Engineering building 579 Fire Suppression water

See my response below.

From: Kapileshwari, Sameer
Sent: Friday, February 25, 2011 10:44 AM
To: Rockwell, Melissa; Norcom III, James G
Subject: FW: Project: Cullen Engineering building 579 Fire Suppression water

The last time we discussed we had decided that we will add the discussion of Central Plant fire suppression tanks to water utility master planning scope. I do not want to authorize Engineering to tie into the Central Plant tanks right now. This will basically prevent us from ever removing these tanks and besides these tanks are going to be needed by us until the Plant project is complete.

The bottom line with Engineering is that the Engineer designing the system should not have designed a system without fully investigating the water sources and the pressure available. I cannot make any other recommendation than what I have in the past that Engineering needs a fire pump if they are going to continue adding such labs or need to have a separate tap. Perhaps they need to select some other locations (SERC?) for such labs where we have the infrastructure to support. FCA will address some of these issues as for timeline recommendation, but it won't be anytime soon. I do not think I should be burdened in accepting responsibility for putting any project on hold. All such issues have to be clearly communicated by the PM to the user group at the project commencement as this is a greater issue. I am also attaching a copy of my previous email (see grayed email below) on this topic for your information. Thanks.

From: Kapileshwari, Sameer
Sent: Saturday, November 27, 2010 7:01 AM
To: Rockwell, Melissa; Bowden, Bob
Cc: Gill, Jagjeet S; Oliver, Ken D
Subject: FW: Cullen College of Engineering - water pressure for project completion

Team:

Jack and I discussed the water pressure for Engineering lab project. While meeting with Vaughn Construction about SR2 animal care project, we also found that the same team was working on the Engineering project as well.

The sketch developed by Project Engineering firm has some errors in assumptions. It shows that the building water is provided from the 8" line running North – South on the East side of the building. The 6" tap then goes West and enters the building from the West side. In reality the building is provided by a 6" line from the West side of the building (from the technology side). The only tap on the east side is for feeding the Engineering auditorium. (Jack has shared this information with Vaughn). This correction will change the pressure loss calculations done by the Engineering firm in which they had assumed water coming all the way from the East side. This in combination of our Fire Marshal's request of relooking at the pressure requirements for each of the floor, may change their pressure calculation numbers.

I am not sure if and how much the numbers would improve and if this will be sufficient to provide them necessary pressures. The existing building has a booster pump, but only for the domestic water. In the existing case the building has standpipe system and therefore does not have a fire pump. If even after the above changes in assumptions the pressure #s do not improve to where they need to be, they may have following options to make the system functional: They can tap into the 6" water line running North-South on the East side of the building as a additional water source or consider addition of a booster pump for fire water line. I am sure Bob and Joe may have additional ideas as well.

Moving forward, we need to make sure the design team looks into all the requirements for system functionality and addresses these up front during design or pre-design and not at the end of the construction. With the Engineering project - all the pressure numbers (including identification of water source, etc.) should have been calculated at the design phase. Jack and my recommendation is also to eventually replace and upsize the 6" water line (from Entrance 1 to Architecture or even to Entrance 14). We are however holding off on this until we complete the surveying and water related infrastructure master planning.

Please let Jack or me know if you have any questions. Thank you.

From: Oliver, Ken D
Sent: Thursday, February 24, 2011 1:05 PM
To: Bowden, Bob; Kapileshwari, Sameer; Tremont, Joe
Cc: Norcom III, James G
Subject: RE: Project: Cullen Engineering building 579 Fire Suppression water

Sameer, I have a project for The Cullen Engineering 579 building that is going to be put on Hold if I cannot get the Fire Marshall to approve drawings for Sprinkler systems in this building.

The Polymer lab and a new Tier One candidate coming from Canada will not be able to proceed. This building (has a Class B occupancy and the flow for the sprinkler system as it is not sufficient to provide the necessary coverage.

Are you able to provide a time line for the solution to the fire suppression system for this building?
thanks

From: Bowden, Bob
Sent: Tuesday, February 22, 2011 1:23 PM
To: Oliver, Ken D
Cc: Norcom III, James G
Subject: RE: Project: Cullen Engineering building 579 Fire Suppression water

That's correct

From: Oliver, Ken D
Sent: Tuesday, February 22, 2011 10:40 AM
To: Bowden, Bob
Cc: Norcom III, James G
Subject: RE: Project: Cullen Engineering building 579 Fire Suppression water

Thanks Bob, It is my understanding that we are operating off a TCO now for the existing labs occupied (with a time line provided) for the expected corrective measures necessary for the Fire Suppression upgrade?

From: Bowden, Bob
Sent: Tuesday, February 22, 2011 8:29 AM
To: Oliver, Ken D
Cc: Norcom III, James G
Subject: RE: Project: Cullen Engineering building 579 Fire Suppression water
Importance: High

As I recall the task of coming up with a solution was assigned to Sameer by Melissa. My recommendation is to get with him about what they plan on doing.

As far as putting in another lab this office cannot continue to sign off on fire protection systems that we know in advance will not work as designed.

From: Oliver, Ken D
Sent: Tuesday, February 22, 2011 7:47 AM
To: Bowden, Bob

Cc: Norcom III, James G

Subject: Project: Cullen Engineering building 579 Fire Suppression water

Bob, I am about to kick off another project within the Cullen Engineering building and two more projects to follow.

Do you have any recent updates as to the time line for getting the necessary water to this building to adequately provide sprinkler systems as
Per NFPA 13 and 101?

The Polymer lab is the next in line to start, awaiting all of the signatures for the contract.

Please let me know that status.

thanks

Ken Oliver A.A.S

Project Manager

Minor & Planned Projects

University of Houston

phone 713-743-5602

fax 713-743-0142

