REQUEST FOR PROPOSALS RFP131031

The Research Corporation of the University of Hawaii requests proposals for the

DESIGN AND FABRICATION OF THE PAN-STARRS PS2/PS4 TELESCOPES

For the

Panoramic Survey Telescope and Rapid Response System (Pan-STARRS) Project
Institute for Astronomy
University of Hawaii
Honolulu, HI

24 August 2010
1 NOTICE TO BIDDERS/OFFERORS

Proposals responding to the Research Corporation of the University of Hawaii (RCUH) Request for Proposals (RFP) RFP131031, “Design and Fabrication of the Pan-STARRS PS2/PS4 Telescopes”, will be received by the RCUH, Sakamaki C-200, 2530 Dole St., Honolulu, Hawaii 96822 no later than 5 PM HST, October 15, 2010 (attention to Mr. Galen Kuramoto). Email or mailed submissions will be accepted (email submittals are strongly preferred), but regardless of the submittal method, it is the Offeror’s responsibility to ensure confirmation of proposal receipt prior to the Closing Date for Receipt of Proposals. Proposals received after the time and date fixed for submittal will not be considered. Please refer to the Administrative Overview section in this RFP for other related key dates.

This document (RFP131031 ) and its supporting documents are available at http://www.rcuh.com. At the top of this page is a link entitled “News and Announcements”. Look for the link with the title “Tuesday August 24-Pan-STARRS RFP131031 for the Design/Fabrication of the Pan-STARRS Telescopes” to go to the directory that contains this information.

Offerors also may request an official paper copy of the RFP to be sent via FEDEX priority overnight service (up to two days delivery from Hawaii) by providing the Offeror’s name, address, contact person, and telephone number. Such requests shall be transmitted in writing or email directed to the following point of contact:

Mr. Galen Kuramoto
Research Corporation of the University of Hawaii
2530 Dole St, Sakamaki C-200
Honolulu, Hawaii 96822
Phone number: (808) 956-7702
Email: rfp@rcuh.com

Michael P. Hamnett
Executive Director
Research Corporation of the University of Hawaii
2800 Woodlawn Dr., Suite 200
Honolulu, HI 96822
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<td>Creation of initial released version of RFP</td>
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<td>PSDC-350-004</td>
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Table 2. PSTD Documents

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3 ADMINISTRATIVE OVERVIEW

3.1 INTRODUCTION
This is a Request for Proposals (RFP) issued by the Research Corporation of the University of Hawaii (RCUH) to solicit proposals from Bidders/Offerors who wish to be considered to provide the design and fabrication of at least one telescope (known as PS2), with contract options to provide up to six (6) additional telescopes, for the Pan-STARRS Project, University of Hawaii Institute for Astronomy. The contract will be issued and administered as an Agreement for Services with the RCUH.

3.2 SCHEDULE OF RFP KEY DATES
The schedule of key dates set forth herein represents the RCUH’s best estimate of the schedule that will be followed. Any of the dates listed below may be changed at any time at the sole discretion of the RCUH Procurement Officer.

Date of Notice (RFP Issued): Aug. 24, 2010
Closing Date for Receipt of Offeror’s Attachment A: Sep. 10, 2010, 5 pm HST
Closing Date for Receipt of Offeror Questions: Oct. 1, 2010, 5 PM HST
Closing Date for Posting Responses to Questions: Oct. 6, 2010, 5 PM HST
Closing Date for Receipt of Proposals: Oct. 15, 2010, 5 PM HST
Proposal Review Period: Oct. 18 – Nov. 5, 2010
Contractor Selection and Award: Nov. 8, 2010
Services Start Date (Tentative): Nov. 29, 2010

3.3 RFP AMENDMENTS
The RCUH reserves the right to amend the RFP at any time prior to the closing date for best and final offers. All RFP amendments will be posted on the RCUH RFP website, http://www.rcuh.com. The RCUH reserves the right to cancel this RFP at any time for any reason at no cost to the RCUH.

3.4 PROCUREMENT OFFICER
This RFP is issued by the Research Corporation of the University of Hawaii. The Procurement Officer responsible for overseeing the Agreement for Services is Mr. Galen Kuramoto, Financial Services Manager, for the Research Corporation of the University of Hawaii. Contact information for Mr. Kuramoto is as follows:

Mr. Galen Kuramoto
Research Corporation of the University of Hawaii
2530 Dole St, Sakamaki C-200
Honolulu, Hawaii 96822

Telephone: 808-956-7702
Fax: 808-956-3822
Email: rfp@rcuh.com
3.5 QUESTIONS BY POTENTIAL OFFERORS AND OFFERORS TO RCUH

All questions by potential Offerors or Offerors should be submitted in writing via email to the Procurement Officer (Mr. Galen Kuramoto) using the address rfp@rcuh.com. Additional details concerning communications between Offerors (or potential Offerors) and the Procurement Officer are contained in Section 7.6 QUESTIONS AND OTHER COMMUNICATIONS.

3.6 QUESTIONS BY RCUH TO OFFERORS

The Offeror is responsible for ensuring the correctness and readability of their proposal. However, the RCUH reserves the right to seek clarifications during the Proposal Review. Content for which a clarification may be requested includes obvious mislabeling of figures or tables, illegible text (such as may occur in a figure label being reduced to too small a font size), or an obvious clerical mistake (e.g., a misplaced decimal point or obvious mistake in designation of a unit such as feet instead of meters). The authority to permit correction of proposals is limited to proposals that, as submitted, are responsive to the RFP and may not be used to permit correction of proposals to make them responsive.

3.7 TAX CLEARANCE FOR PROPOSALS

A tax clearance from the State of Hawaii Department of Taxation and the Internal Revenue Service is not required for submission of a proposal. However, in accordance with Section 103-53, Hawaii Revised Statutes, the selected contractor shall submit original tax clearances from the State of Hawaii Department of Taxation and the Internal Revenue Service prior to execution of the Agreement for Services. Tax clearances obtained shall certify that all tax returns due have been filed, and all taxes, interest, and penalties levied or accrued under the provisions of Title 14 that are administered by the State of Hawaii Department of Taxation and under the Internal Revenue Code against the Offeror have been paid.

3.8 PREPARATION COSTS

Any costs incurred by Bidders/Offerors in preparing or submitting a proposal shall be the sole responsibility of the Bidder/Offeror.

3.9 SUBMISSION OF PROPOSALS

Offerors may submit their proposals by mail or email. Email submittals are strongly preferred. It is the responsibility of the Offeror to confirm that the RCUH has received their proposal prior to the Closing Date for Receipt of Proposals.
3.10 RFP SUBMITTALS BECOME THE PROPERTY OF RCUH

All proposals and other material submitted shall become the property of the RCUH, and may be returned only at the option of the RCUH.

3.11 OPENING OF PROPOSALS

Proposals will be opened at 8:00 AM on October 18, 2010, or as amended at the office to which the proposals are submitted. The proposal opening will not be open to the public. Proposals will not be subject to public inspection until after an Agreement for Services is signed by all parties, but in no case will proprietary information or proprietary material submitted by an Offeror as part of an Offeror’s proposal be available for public inspection.

3.12 DISQUALIFICATION OF PROPOSALS

The RCUH reserves the right to consider as acceptable only those proposals submitted in accordance with all the requirements set forth in this RFP, and which demonstrate an understanding of the scope of work. Any proposal offering any other set of terms and conditions contradictory to those included in this RFP may be disqualified without further notice.

An Offeror shall be disqualified and the proposal automatically rejected for any one or more of the following reasons:

- The proposal shows any noncompliance with applicable law.
- The proposal is conditional, incomplete, or irregular in such a way as to make the proposal indefinite or ambiguous as to its meaning.
- The proposal has any provision reserving the right to accept or reject award, or to enter into a contract pursuant to an award, or provisions contrary to those required in the solicitation.
- The Offeror is debarred or suspended.

3.13 REFERENCES

The RCUH reserves the right to use and contact previous Offeror customers as references during the past five (5) years as submitted by the Offeror in accordance with the criteria listed in Section 7.4 REQUIREMENTS FOR PROPOSAL RESPONSES TO RFP131031.

3.14 SELECTION ON INITIAL PROPOSALS

The RCUH may select a Contractor on the basis of initial offers received, without discussions. Therefore, each initial offer should contain the Offeror’s best terms.
3.15 AVAILABILITY OF FUNDS

Offerors are advised that entering into an Agreement for Services is contingent upon availability of funds. If funds are not available, the RCUH reserves the right not to enter into an agreement.

3.16 NOTICE TO PROCEED

The RCUH shall not be responsible for work done, even in good faith, prior to the RCUH’s execution of an Agreement for Services unless specific provisions are made in the agreement.

3.17 CHANGES TO CONTRACTOR’S FEE

It is recognized that financial audit disallowances and other changes may require adjustments in the compensation due to the Contractor. In the event that future actions would either disallow or minimize the payments already made to the Contractor, the Contractor shall assist the RCUH in defending the correctness of the claim for reimbursement. If the disallowance or adjustment is upheld, then the Contractor will participate in the payback to the extent the amount of the disallowance or adjustment contributed to the total fee received by the Contractor. Payment to the RCUH shall be made within THIRTY (30) calendar days from which official notice is received by the Contractor from the RCUH.

3.18 BASIS FOR SELECTION

Based on the evaluation process discussed in Section 7.9, the selected Offeror will be the one with the lowest total PS2 cost of the two highest scoring Offerors.

3.19 PROCESS FOR NEGOTIATIONS

The RCUH will attempt to negotiate with the selected Offeror a mutually acceptable Agreement for Services. If this cannot be accomplished within 21 calendar days after initial Selection, the RCUH reserves the right to terminate contract negotiations with the first-ranked Offeror, and select the second-ranked Offeror for negotiation of a potential award. This process will continue in order of Offeror ranking until a mutually acceptable Agreement for Services is achieved with the RCUH and an award is made to a selected Offeror.
3.20 PROPRIETARY INFORMATION

The Offeror should clearly identify any proprietary information in the Offeror’s submitted proposal. Upon final execution of an Agreement for Services, all non-proprietary information in an Offeror’s proposal may be made available by the RCUH for public inspection upon request.
4 PAN-STARRS PROJECT OVERVIEW

The University of Hawaii, Institute for Astronomy (IfA), responded to a Broad Area Announcement (BAA) in 2002 by proposing a multi-year program to develop and deploy a telescope and data management system that will provide an extremely comprehensive all-sky digital image survey. This project, the Panoramic Survey Telescope and Rapid Response System or Pan-STARRS, will provide numerous research opportunities at the forefront of astronomy ranging from the structure of the Solar System to the properties of the Universe on the largest scales. A unique combination of wide field of view and time-resolution capability will allow detection of a wide range of transient, variable, or moving objects. In particular, as a primary component of its scientific mission, Pan-STARRS will be able to detect and calculate orbits for large numbers of earth-orbit crossing asteroids, or near earth objects (NEOs), that present a potential threat to mankind. Pan-STARRS represents a significantly increased capability in the area of what is known as “survey astronomy”, the branch of astronomy that maps the sky as completely as possible in order to give a more globally-oriented perspective of objects in our Universe.

The baseline configuration concept for Pan-STARRS is for the system to be composed of four individual optical systems, each with a 1.8 meter diameter mirror observing the same region of sky simultaneously. Thus, Pan-STARRS is a direct realization of the “distributed aperture” concept that combines images from multiple telescopes to provide an image equivalent to that obtained from a telescope with a larger primary aperture. This method leverages the benefits of combining relatively small mirrors with very large digital cameras to be able to develop and deploy an economical observing system with the capability to observe the entire available sky several times each month.

Following seeing studies of sites on Mauna Kea (Hawaii Island) and Haleakala (Maui Island), the Project chose Mauna Kea as the primary site for a four-telescope system (called PS4) with the alternate site as Haleakala. The proposed observatory construction for Mauna Kea would reside within the three-dimensional footprint of the existing UH-2.2m Observatory (see Figure 1). For the Haleakala alternative, one Pan-STARRS telescope would reside on the LURE South site, one on the LURE North site, and two telescopes would reside in a single building on the Reber Circle site (see Figure 2).

A prototype system, PS1, has been placed at the LURE South observatory site on Haleakala, Maui. First Light for PS1 occurred in June 2006 and the telescope was formally dedicated on June 30, 2006. The first of the Pan-STARRS Gigapixel cameras, GPC1, was installed in August 2007, and a dedicated science mission sponsored by an international consortium of institutions began May 13, 2010. Due to the intrinsic nature of a distributed aperture system, PS1 serves as both a standalone system while also potentially representing one quarter of the Pan-STARRS PS4. PS1 has been built to validate many of the features of the full PS4 system including the telescope and camera designs as well as the data reduction software. The lessons learned from the design,
construction, and operation of PS1 are also being used to mature the designs for the follow-on Pan-STARRS components. Even as a prototype, PS1 represents a world class research facility beyond what was previously available to the astronomy community.

The next step in Pan-STARRS development is to add a second telescope/camera system, called PS2. PS2 will reside initially at the LURE North site adjacent to PS1. Note that depending on context, the four telescope/camera system configuration is known as PS4 although the four individual telescope/camera components are labeled PS1, PS2, PS3, and PS4. Also note that, as described in more detail below, the design of the Pan-STARRS telescopes must incorporate the capability that four PS telescopes be accommodated in a close-packed arrangement within the observatory concept for the Mauna Kea site.

With this RFP, the RCUH requests proposals from qualified vendors to fabricate the PS2 telescope with contract options for up to six (6) additional telescopes. It is assumed here that the PS2 telescope and the follow-on telescopes will be identical in design, and that a single vendor will supply all of them under a contract that will be negotiated after the choice of vendors has been made by the RCUH based on the proposals received in response to this RFP. The selected vendor will be issued an Agreement for Services with the Research Corporation of the University of Hawaii for the Scope of Work described in Section 5 of this document.
Figure 1. The Mauna Kea showing the UH-2.2m enclosure proposed as the primary site for the Pan-STARRS PS4.
Figure 2. A map showing the proposed locations for the Pan-STARRS telescope for the alternate Haleakala site.
5 THE SCOPE OF WORK

The specifications for all of the telescopes fabricated through this bid are given in “PS2/PS4 Telescope Vendor Specifications” (PSDC-350-004). This document also details the operational environmental specifications to which the telescopes will be subjected.

The initial scope of work for this bid will be to design, construct, and install the PS2 telescope on Haleakala. Section 6 of this document details the required deliverable items that this work includes. Note that the deliverables in section 6 refer only to the PS2 telescope fabrication. Delivery of subsequent telescopes may omit items listed in section 6 under the sub-categories of “Tooling” and “Spare Parts”. It is expected that between telescope fabrications there will be upgrades to the software and updates to the system documentation. Therefore for subsequent telescope fabrications, items 24 through 29 listed in the sub-category “Documentation” may include only updates to the main drawing packages. However, item 30 (the vendor-supplied software source code) will always be required as a complete copy of the most current version of the source code for all vendor-supplied software.

This bid shall include all technical support documentation for the proposed telescope design, bid pricing, and time estimates for the fabrication of the PS2 telescope based on the project milestones shown below in Table 5. In addition, this bid will include the pricing and delivery schedules for the optional fabrication of up to six subsequent telescopes. Costs shall include line item details such as shipping estimates, non-recurring costs, number and types of personnel proposed for on-site installation work, and labor costs for each telescope fabrication.

Table 5 is a list of the fabrication milestones associated with this bid and its resultant contract. Part of the vendor’s bid efforts will be to propose dates for all of the milestones in this table. These dates will be considered in the evaluation of the proposals as discussed in Section 7.

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<td>To Be Proposed</td>
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<td>3</td>
<td>Preliminary Design Review (PDR)</td>
<td>To Be Proposed</td>
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<tr>
<td>4</td>
<td>Delivery of Updated Design Drawings &amp; Documentation</td>
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The work for this contract will include the integration into the telescope of the Project supplied primary and secondary mirrors. This integration work will include the bonding of vendor-supplied support pads to both the primary and secondary mirrors along with the fabrication of any bonding jigs necessary for this work. It is a Project responsibility to do the bonding itself. Vendor participation in the bonding work is encouraged. After completion of the mirror bonding, it is required that the Vendor supply on-site inspection and approval of this work. It is required that the Vendor supply on-site help with the initial installation of the primary and secondary mirrors into the telescope.

As stated in section 6, it is expected that the primary mirror bonding jig that was used for the prototype telescope may be reused for these telescopes. However, if the Vendor’s proposed primary mirror support system requires changes in the support positions or other characteristics of the bonding jig, the Vendor shall be responsible for either a new jig or for the required modifications to the current jig.

The mounting and installation of the corrector lenses and filters are a Project responsibility, and are accomplished during the installation of the Project supplied instrument package. The instrument package comes in two parts, the Upper and Lower Cassegrain Cores. Figure 3 illustrates the instrument package as it exists on the prototype telescope. Changes from this instrument configuration are going to be subtle and not worth discussion here. The Project takes full responsibility for the installation of the instrument package. The Project is also supplying the camera shutter, the filter mechanism, and the Giga-Pixel camera that are sub-components of the Lower Cassegrain Core. The Giga-Pixel camera includes a built-in Shack-Hartmann wavefront sensor and the Project will supply software that allows us to use the GPC as a curvature sensor. Vendors should assume that these capabilities will be available for telescope alignment at the beginning of site acceptance testing.
Figure 3. The Lower Cassegrain Core (including the Filter Mechanism, the Shutter and the Giga-Pixel Camera)

The telescope envelope that is defined in PSDC-350-004 is compatible with the current site plans for both PS2 and PS4. Figure 4 is a photograph showing the PS2 site on Haleakala. Figure 5 gives a conceptual drawing showing how the telescope fits inside the current PS2 enclosure and our current expectations on how the primary mirror will be installed. Removable rails on the top of the telescope fork will mate with rails on a lift platform to allow a cart holding the primary mirror cell (shown in light purple) to be rolled under the telescope gimbal. Jacks on the cart would then lift the primary mirror cell the final distance to mate with the telescope gimbal. The lift platform would also be used to install the secondary mirror while the telescope altitude axis is pinned near the horizon.

The PS4 enclosure concept is a common enclosure for an array of four telescopes mounted on a common pier. This concept is shown in Figure 6 through Figure 9. As implied by the external rendering seen in Figure 6, the PS4 enclosure is designed to be a footprint compatible replacement of the UH 88” dome. Figure 9 shows details of the common pier layout. Note that the heights of the telescope differ, as seen in the side view in that figure. The northern-most telescope is higher than the middle two telescopes by 0.75 m. The southern-most telescope is lower than the middle two by 0.75 m. It is expected that this height difference will be accomplished by differing heights of the pier mounting surfaces rather than by different base dimensions for the telescopes. For maintenance, vendors should assume that there will be a 6 ton elevator lift between the
piers as shown in Figure 7 and Figure 8 that is capable of reaching the top of the fork of all four of the PS4 telescopes.

Like the PS2 mirror installation concept shown in Figure 5, the PS4 mirror installation would employ a central lift that would carry an installation cart to the top of each telescopes fork. Removable rails on the forks would carry the cart during mirror installation, just as in PS2. Figure 7 and Figure 8 show a 6-ton lift platform that is housed within the central hole of the common enclosure pier. This platform is to be used to install both the primary mirror cells as well as instrumentation on the telescopes. The lifting platform has a total of 225 sq. ft of space for personnel and instrumentation, but the central section shown by the dashed box in Figure 5 is only 100 sq. ft (10’ x 10’).

Neither the PS2 nor the PS4 enclosures will be co-rotating domes. But, as implied by a comparison between Figure 5 and Figure 6, there will be a large difference in space above the telescopes between the PS2 and PS4 enclosures. The low dome height in the PS2 enclosure requires installation of the secondary mirror from below (using a jig on the lifting platform) while it is expected that the installation of the secondary mirror in the PS4 enclosure will be done from above by means of a jib crane that is fixed to the enclosure.

Near the south wall of the PS4 enclosure, just below the floor hatch, Figure 7 shows the location of a 2-ton jib-crane that will be used to service the upper portions of the telescope as well as to lift miscellaneous items up to the observing floor. This jib-crane is attached to the rotating portion of the enclosure. By rotating the enclosure this jib-crane may be positioned to service any of the four telescope assemblies. Assembly and disassembly of the secondary mirrors on the telescopes will be accomplished by lifting these assemblies through the floor hatch with the jib-crane, rotating the enclosure to the appropriate location, and then using the jib-crane to install them onto the appropriate telescope truss assembly.

There is considerable leeway in the PS4 enclosure design to accommodate changes in the capacities of the lift assemblies. The vendor should, however, be careful to point out if their telescope design will require larger capacities than what is shown in Figure 7 and in Figure 8. This is also true in the sizing of the floor hatch itself. The vendor should notify and point out to the project any design features that cannot be accommodated by the current floor hatch sizing. Note that the current floor hatch opening has a clear rectangular aperture of with the approximate dimensions of 5 x 6’. The overhead door assembly shown in Figure 8 on the ground floor has a 12 x 10’ clearance.

It is assumed that during construction that items that do not fit either on the lift assembly or through the floor hatch will have to be lifted in place through the enclosure slit by means of free standing cranes. As shown in Figure 7, the PS4 enclosure slit is approximately 38’ in width. The vendor must also make clear what type of lifting capacities will be required to accommodate the installation of telescope parts through the enclosure slit.
The PS2 enclosure slit is too small to accommodate the telescope envelope. It will therefore be necessary to remove the PS2 dome itself to install the main telescope components. Figure 10 shows this process during the installation of the Magnum telescope. The primary mirror cell installation requires us to roll the cell on its installation cart along the rails that are shown in Figure 5 exterior to the building. The door width to the enclosure is 2.56 m. This dimension is fixed by the ring wall support beams and limits the allowable width of the primary mirror cell.

The Project shall provide the cranes required for this and for the installation of the telescope parts themselves. The vendor shall be responsible for providing the project weights for each telescope assembly requiring installation prior to the replacement of the enclosure dome. The packaging of the PS2 telescope components should be compatible with exposures to wind and rain for several days during the installation process.

The vendor is expected to include in their telescope design all required cable wraps for the telescope and the instrument. The instrument package includes the Giga-Pixel Camera (GPC), a shutter, and a filter mechanism. This instrumentation requires a substantial umbilical of power, fibers, high pressure Helium gas lines, dry air gas lines, control cables, and glycol cooling lines. A list of the Project-supplied cables required to go through the telescope azimuth wrap, the telescope altitude wrap, and through the instrument rotator wrap can be found in PSDC-350-004. The weight of all of the instrument rotator wrap cables is anticipated to be approximately 9.1 Kg/m. In a balanced wrap this weight will be split approximately in two. The vendor shall supply all cables and services in the cable wraps required for the operation of the telescope axes and mirror actuators.

Figure 11 shows simplified envelopes of the Project-supplied instrument package that will mount on the telescope. These envelopes are available to vendors as SolidWorks parts and assemblies for planning purposes. The individual parts include expected weights, center of mass locations, mechanical interfaces, and reference fiducials to relate these envelopes to the optical layout given in NOADC-M-4.0.ZMX. The assembly shown in Figure 11 includes the proper relation between the Upper and Lower Cassegrain Cores. Despite the appearance of these two envelopes in Figure 11, there is no direct connection between the Upper Cassegrain Core (UCC) and the Lower Cassegrain Core (LCC) in the assembly. The UCC is expected to be fixed with respect to the primary mirror, but the LCC must be mounted on the movable part of the instrument rotator. There are drawings associated with each of these envelopes that give some further details of the mechanical interfaces to the individual parts in the Cassegrain Core. Vendors are referred to Table 3 for a concise listing of these files.

The parts and drawings referenced in Table 3 may be found on the website http://www.rcuh.com. In addition, the same site may be used to obtain the detailed telescope specifications document, PSDC-350-004.
Figure 4. The PS2 and PS1 Domes
Figure 5. The PS2 primary mirror installation concept.
Figure 6. Exterior views of the PanSTARRS Common Enclosure concept on Mauna Kea
Figure 7. Common Enclosure Observing Level Floor Plan
Figure 8. Common Enclosure Grade Level Floor Plan
Figure 9. The proposed layout of the PS4 telescopes inside the common enclosure (dimensions in inches).
Figure 10. Removal of the PS2 dome
Figure 11. The instrument package envelopes
6 DELIVERABLES

Table 6 itemizes the vendor deliverables as defined by the SOW and the vendor telescope specification (PSDC-350-004). This list is a summary of the vendor specification with the additional clarification of responsibility for tooling, documentation and other required or miscellaneous hardware. It is not intended for this table to be all-inclusive, but rather it is a top-level description of the deliverables expected by the Project. Vendors are expected to deliver all sub-components needed to make the telescope capable of meeting the specifications given in PSDC-350-004.

6.1 TELESCOPE

The entire telescope section of Table 6 is clearly defined in the vendor specification with the exception of the M1 support interface pucks and TCC. The PS4 M1 support interface pucks are the responsibility of the vendor, however, the registration tooling for the pucks will be Project-supplied unless modifications to this tooling are required by the Vendor. It is a Project responsibility to bond the pucks to the primary mirror. The PS4 M1 support interface pucks shall be delivered to the Project by FAT to allow adequate time to bond them to M1 and cure.

The TCC will include a rack mounted computer housed in its own free standing electronics rack with all required power supplies, amplifiers and control electronics required to operate the telescope’s 3 axes as well as the mirror controls. Any electronics that reside outside of or not attached to the telescope will reside in this cabinet. The cabinet shall have provisions for closed loop cooling to minimize parasitic heating of the PanSTARRS dome.

6.2 SOFTWARE

The Project shall provide software (SW) that will coordinate the observations of multiple Pan-STARRS telescopes, and schedule their observing program to meet science requirements and account for the weather. The Vendor software specifications are given in Section 4.4 of PSDC-350-004.

Source code for all Vendor-supplied SW must be provided to the Project. In the case of SW considered by the Vendor to be proprietary, non-Disclosure Agreements (NDAs) can be used. Possible exceptions to this may be considered but discussions of this would be deferred to the negotiation of the agreement for services.

The Project prefers the following, if possible:

1. The Vendor shall develop software for the x86 Linux platform.
2. If hardware drivers are compatible, the 64-bit platform shall be used. This may be modified in a later amendment to the SOW to include Windows on x86.
The vendor should indicate the feasibility and cost impact of implementing these preferences versus a Vendor preference.

It is recognized that operational SW supplied by the selected Offeror beyond the low level SW may be available based on Customer needs and available budget. For example, an Offeror may be able to propose inclusion of a mount/pointing model as a component of the Vendor-supplied SW package. Such functionality/capability beyond the required low level SW should be proposed as options for the Customer to select based on Customer needs and cost to the Customer. Thus, as part of each Offeror’s proposal, options for additional SW functionality and capability may be proposed at the Offeror’s discretion beyond the low level functionality/capability above. The Offeror must clearly distinguish all such options and their impact on the proposed cost. These additional options beyond the required Vendor-supplied low level SW will not affect the scoring of an Offeror’s proposal.

The specific SW deliverables to be delivered by the Vendor shall be decided in two steps:

1. In the SOW for the initial contract (Agreement for Services).
2. Any necessary revisions to the SOW as agreed upon by both the Vendor and the Customer as a result of the Software Requirements Review (SRR).

It is assumed that a draft Software Requirements Specification (SRS) will be available at the SRR.

6.3 TOOLING

The Project assumes that the bearing, encoder and motor replacement tooling will the same tooling used in the assembly of the telescope. If this is the case, the Project requires the tooling be delivered with the telescope. In the event tooling is not required for the initial assembly of the telescope, but is required for its service, the detail design of the tooling will be the deliverable to the Project, to be built by the Project in the event it is needed.

The PS4 M2 support flexure system is not expected to be identical to its predecessor, so the tooling for the registration of M2 to its flexures for bonding will be a vendor deliverable to the Project. The vendor has the option of designing their flexure interface to be compatible to the existing M2 flexure registration tooling. It is the Project’s responsibility to bond the flexures to M2. The M2 bonding tool and the flexures shall be delivered to the Project by FAT to allow adequate time to bond them to M2 and cure.

PS2 does not have a jib crane, so the existing M2 lift fixture is no longer applicable. It is the vendor’s responsibility to design a M2 Assembly service fixture that will interface to the PS2 dome lift and cart for M2 installation and removal. This fixture shall also include provisions for lifting the M2 assembly by a chain-fall or crane once outside the PS2 dome.

In the event the cone baffle is not registered by rigid vanes that provide repeatable registration, a cone baffle registration jig will be provided by the vendor. The logical registration datum would be the M1 baffle.
Table 6: PS4 Telescope Vendor Deliverables

<table>
<thead>
<tr>
<th></th>
<th>Telescope</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Altitude and Azimuth axes on the Telescope base, yoke and truss</td>
</tr>
<tr>
<td>3</td>
<td>Instrument Rotator</td>
</tr>
<tr>
<td>4</td>
<td>M1 support system (including M1 actuators, compressor, and plumbing if a pneumatic system is utilized)</td>
</tr>
<tr>
<td>5</td>
<td>M1 support interface pucks</td>
</tr>
<tr>
<td>6</td>
<td>M2 support (including M2 actuators)</td>
</tr>
<tr>
<td>7</td>
<td>Instrument Cable Wrap</td>
</tr>
<tr>
<td>8</td>
<td>Telescope Azimuth cable wrap</td>
</tr>
<tr>
<td>9</td>
<td>Telescope Altitude cable wrap</td>
</tr>
<tr>
<td>10</td>
<td>Telescope control computer (TCC)</td>
</tr>
<tr>
<td>11</td>
<td>Baffle System</td>
</tr>
<tr>
<td>12</td>
<td>M1-OD, M1-ID, M1, M2, M2-OD, Cone, Truss</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Tooling</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Bearing (Alt &amp; Az) Replacement Tooling</td>
</tr>
<tr>
<td>16</td>
<td>Encoder (Alt &amp; Az) Replacement Tooling</td>
</tr>
<tr>
<td>17</td>
<td>Motor (Alt &amp; Az) Replacement Tooling</td>
</tr>
<tr>
<td>18</td>
<td>M2 flexure bonding tool</td>
</tr>
<tr>
<td>19</td>
<td>M2 lift fixture</td>
</tr>
<tr>
<td>20</td>
<td>cone baffle installation jig</td>
</tr>
<tr>
<td>21</td>
<td>M1 handling cart</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>Operations manual</td>
</tr>
<tr>
<td>25</td>
<td>Service manual with recommended service schedules</td>
</tr>
<tr>
<td>26</td>
<td>Complete set of 3D SolidWorks models</td>
</tr>
</tbody>
</table>
The vendor shall provide a service cart for the installation and removal of the PMA. The vendor has the option of designing the PS4 PMA to be compatible with the existing PMA service cart, eliminating this deliverable.

**Unless otherwise stated in this section, the vendor-supplied tooling shall be delivered to the Project with the delivery of the telescope structure or before.**

### 6.4 DOCUMENTATION

A telescope operations manual shall be provided by the vendor that defines the normal operational protocols for the telescope. Descriptions of how to safely enter and exit the telescope states described in paragraph 4.3 of the telescope vendor specification (PSDC-350-004) will be presented in the operations manual. A draft of the manual shall be due at the FAT and the final revision shall be issued at the SAT.

The telescope service manual describing the regular maintenance and major service shall be provided by the telescope vendor. All of the service points noted in paragraph 4.4.3.3 of the telescope vendor specification shall be covered in detail within this manual. A draft of the manual shall be due at the FAT and the final revision shall be issued at the SAT.

The SolidWorks CAD models of the telescope assembly shall be provided to the Project in digital format 1 week prior to the PDR in preparation for the review. All detail drawings and updated SolidWorks CAD models shall be provided to the Project in digital format 1 week prior to the CDR in preparation for the review. The final electrical schematics, detail drawings and SolidWorks CAD models shall be provided to the Project in digital format as a deliverable at FAT.

A draft of the software command manual defining the schema of the software design will be presented 1 week prior to CDR for the Project’s review. The final revision of the software command manual and the telescope control source code shall be a vendor deliverable at FAT.
6.5 SPARES

A detailed list of vendor recommended spare parts and their estimated delivered prices shall be presented to the Project at PDR for their review. The Project shall request the procurement of a modified list of spare parts by the vendor at CDR, at the expense of the Project.
7 PROCESS AND PROCEDURES FOR RFP131031

7.1 SUMMARY OF RFP KEY DATES

The schedule of key dates set forth herein represents the RCUH’s best estimate of the schedule that will be followed for the RFP process. Any of the dates listed below may be changed at any time at the sole discretion of the RCUH Procurement Officer.

- Date of Notice (RFP Issued): Aug. 24, 2010
- Closing Date for Receipt of Offeror’s Notice of Intent: Sep. 10, 2010, 5 pm HST
- Closing Date for Receipt of Offeror Questions: Oct. 1, 2010, 5 PM HST
- Closing Date for Posting Responses to Questions: Oct. 6, 2010, 5 PM HST
- Closing Date for Receipt of Proposals: Oct. 15, 2010, 5 PM HST
- Proposal Review Period: Oct. 18 – Nov. 5, 2010
- Contractor Selection and Award: Nov. 8, 2010
- Services Start Date (Tentative): Nov. 29, 2010

7.2 SUBMITTAL OF PROPOSAL RESPONSES TO THIS RFP

This RFP is issued by the Research Corporation of the University of Hawaii. The Procurement Officer responsible for overseeing the RFP process is Mr. Galen Kuramoto, Financial Services Manager, the Research Corporation of the University of Hawaii. All proposals must be received by October 15, 2010, 5PM HST. The RCUH prefers proposals to be submitted electronically through email to rfp@rcuh.com. Note that the maximum allowable file size for email attachments is 10 MB, so an Offeror may need to send their complete proposal in multiple parts. Proposals may also be mailed to:

Mr. Galen Kuramoto  
Research Corporation of the University of Hawaii  
2530 Dole St, Sakamaki C-200  
Honolulu, Hawaii 96822

Telephone: 808-956-7702  
Fax: 808-956-3822  
Email: rfp@rcuh.com

It is the Offeror’s responsibility to confirm that their complete proposal has been received by the RCUH prior to the submittal deadline. All questions related to this RFP should be sent to the RCUH Procurement Officer, Mr. Galen Kuramoto in accordance with the procedure given below in Section 7.6.
7.3 MODIFICATIONS TO THE RFP

Any modifications to this RFP will be posted to the RFP website http://www.rcuh.com. **Offerors are responsible to check this website for any modifications to the RFP.** The RCUH reserves the right to amend the RFP any time prior to the closing date for best and final offers. All RFP amendments will be posted on the RCUH RFP website, http://www.rcuh.com. The RCUH reserves the right to cancel this RFP at any time for any reason at no cost to the RCUH.

7.4 REQUIREMENTS FOR PROPOSAL RESPONSES TO RFP131031

All interested Offerors must submit a proposal with the following information and understanding:

7.4.1 The Acknowledgment to Request for Proposal (Attachment A), signed by an authorized representative must be submitted to the RCUH Procurement Officer via fax or email before September 10, 2010, 5 PM HST. A proposal submitted by an Offeror will not be reviewed if that Offeror has not submitted Attachment A. Note that for those potential Offerors who have reviewed the RFP and decided not to submit a proposal, the RCUH would still appreciate the return of Attachment A indicating the intent to not submit a proposal.

7.4.2 The Offeror must disclose all telescope design, telescope fabrication, and/or telescope engineering services contracts for the last 5 years, and these will serve as potential references to be contacted by the RCUH as part of the evaluation of the Offeror’s proposal (cf. Section 7.9). Points of contact and contact information should be indicated for each contract listed.

7.4.3 The Offeror must provide the names, titles, experience and qualifications of technical persons to be assigned to this contract. The principal technical contact shall be identified. List the percentage that each individual is estimated to contribute to the fabrication efforts.

7.4.4 The Offeror must provide the name and contact information of a business contact for the contract and his/her title/function (as distinct from the principal technical contact).

7.4.5 The Offeror must provide plans for the various design phases. List the sub-studies required and schedule for accomplishing each. Clearly indicate the extent to which existing data or analysis is expected to suffice for the fabrication and what new work will be accomplished.

7.4.6 It is expected that source code for all Vendor-supplied SW will be provided to the Project. In the case of SW considered by the Vendor to be proprietary, non-Disclosure Agreements (NDAs) can be used. Possible exceptions to this may be
considered but discussions of this would be deferred to the negotiation of the agreement for services.

It is recognized that operational SW supplied by the selected Offeror beyond the low level SW may be available based on Customer needs and available budget. For example, an Offeror may be able to propose inclusion of a mount/pointing model as a component of the Vendor-supplied SW package. Such functionality/capability beyond the required low level SW should be proposed as options for the Customer to select based on Customer needs and cost to the Customer. Thus, as part of each Offeror’s proposal, options for additional SW functionality and capability may be proposed at the Offeror’s discretion beyond the low level functionality/capability above. The Offeror must clearly distinguish all such options and their impact on the proposed cost. These additional options beyond the required Vendor-supplied low level SW will not affect the scoring of an Offeror’s proposal.

Note that the specific SW deliverables to be delivered by the Vendor shall be decided in two steps:

1. In the SOW for the initial contract (Agreement for Services).
2. Any necessary revisions to the SOW as agreed upon by both the Vendor and the Customer as a result of the Software Requirements Review (SRR).

7.4.7 The Offeror’s proposal must include all technical support documentation for the proposed telescope design, bid pricing, and time estimates for the fabrication of the PS2 telescope based on the project milestones shown below in Table 5. The Offeror must provide a detailed and comprehensive cost proposal and schedule for the completion of the fabrication of the first telescope (PS2). The number of hours and hourly rates for all labor costs should be detailed. Travel for those respondents involving geographically-separated personnel that require team meetings, and any other expenses, should be itemized. In addition, the cost proposal must include the pricing and delivery schedules for the optional fabrication of two (2) subsequent telescopes beyond PS2. Recurring costs/expenses should be clearly distinguished from non-recurring costs/expenses (NRE).

Note that the Agreement for Services is intended to contain options for up to six additional telescopes, but the recurring costs in the proposal should be based on the recurring costs for the PS2 telescope plus two (2) additional telescopes. Costs shall include line item details such as shipping, packing, and installation estimates, non-recurring costs, number and types of personnel proposed for on-site installation work and subsequent SAT work, and labor costs for each telescope fabrication. All costs must be given in United States dollars (USD).

7.4.8 The Offeror for each proposal is considered as the prime contractor. The Offeror’s proposal must disclose the names and roles of all team members and major subcontractors. This includes the disclosure of any and all licensing agreements (e.g., for SW or telescope designs) as well as subcontractors to be utilized as consultants. Acknowledgment documentation confirming these arrangements with all team
members, licensing partners, consultants, and major subcontractors should be included in either the Key Personnel or Other/Miscellaneous sections of the proposal (cf. Section 7.5).

Proposals not containing all of the above information will be considered as non-responsive to the RFP.

7.5 PROPOSAL ORGANIZATION

The proposal should be organized in sections in the following order:

- Executive Summary
- Technical Proposal
- Cost Proposal
- Schedule
- Key Personnel and FTE allocations for the design and fabrication of the PS2 telescope
- Other/Miscellaneous.

7.6 QUESTIONS AND OTHER COMMUNICATIONS

7.6.1 Questions by Potential Offerors/Offerors to RCUH

All questions regarding this RFP should be submitted in writing through email to the Procurement Officer, Mr. Galen Kuramoto using the email address rfp@rcuh.com. Questions regarding proposal requirements, contents, and details will receive a response only for those questions received by 5 PM, HST October 1, 2010. All received questions and responses will be posted by October 6, 2010 on the RFP website, http://www.rcuh.com.

All questions and answers will be posted to the RCUH RFP131031 web site, and this web site will be non-secured (open and accessible to anyone to view). Since all questions and responses will be posted and accessible to the public, no proprietary information or questions regarding proprietary information or material should be communicated by an Offeror to the RCUH Procurement Officer.

7.6.2 Questions by RCUH to Potential Offerors/Offerors

The Offeror is responsible for ensuring the correctness and readability of their proposal. However, the RCUH reserves the right to seek clarifications during the Proposal Review period. Content for which a clarification may be requested includes obvious mislabeling of figures or tables, illegible text (such as may occur in a figure label being reduced to too small a font size), or an obvious clerical mistake (e.g., a misplaced decimal point or obvious mistake in designation of a unit such as feet instead of meters). The authority to permit correction of proposals is limited to proposals that, as submitted, are
responsive to the RFP and may not be used to permit correction of proposals to make them responsive.

7.7 EVALUATION OF OFFEROR PROPOSALS AND BASIS FOR SELECTION

All responsive proposals received prior to the Submittal Deadline of 5 PM (HST) October 15, 2010 will be evaluated and scored. The two proposals with the highest scores will then be ranked first or second with the first-ranked being the proposal with the lower total cost for the first (PS2) telescope, and where the total cost for the PS2 telescope is defined to be the sum of the non-recurring, recurring, and shipping/packing/installation costs.

7.8 EVALUATION COMMITTEE

The Evaluation Committee for the proposals received for RFP131031 will submit the results of their evaluations to the Procurement Officer. The Evaluation Committee will consist of individuals who, taken as a whole, possess significant technical and management experience and expertise of telescope design and fabrication.

7.9 SCORING METHOD FOR PROPOSAL EVALUATION

The scoring and subsequent ranking of each will be based on a scoring method using weighted formulas for technical merit, cost, schedule, and key personnel. Information obtained from contacted references will be factored into the Cost, Schedule, and Key Personnel scoring methods as described in this section. The total score for each proposal will be on a scale of 0 – 100 points. Four general categories will be used to evaluate the proposals:

<table>
<thead>
<tr>
<th>Category</th>
<th>Maximum Number of Points per Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical</td>
<td>40</td>
</tr>
<tr>
<td>Cost</td>
<td>30</td>
</tr>
<tr>
<td>Schedule</td>
<td>20</td>
</tr>
<tr>
<td>Key Personnel to be used</td>
<td>10</td>
</tr>
</tbody>
</table>

Within the Cost, Schedule, and Key Personnel categories, points will be further divided into points derived solely from the evaluation of the submitted proposal for the design and fabrication of the Pan-STARRS telescopes, and points derived in response to standardized questions sent to two (2) of the Offeror’s customers listed in the Offeror’s relevant contracts for the past 5 years (cf. Section 7.4, “Requirements for Proposal Responses to RFP131031”, requirement 7.4.2).
The RCUH reserves the right to use and contact previous Offeror customers as references during the past five (5) years as submitted by the Offeror in accordance with the criteria listed in Section 7.4, “Requirements for Proposal Responses to RFP131031”. For the purposes of the evaluation scoring of an Offeror’s proposal, the RCUH Procurement Officer will select at random two of the Offeror’s previous customers from the past five (5) years. Standardized questions will be communicated to these references, and their responses factored into the evaluation as described below.

### 7.9.1 Evaluation Formula for Proposed Technical Approach

The scoring for the evaluation of the Offeror’s Technical proposal is as follows:

<table>
<thead>
<tr>
<th>Technical Category</th>
<th>Maximum Number of Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1 Support</td>
<td>4</td>
</tr>
<tr>
<td>M2 Support</td>
<td>4</td>
</tr>
<tr>
<td>Cable Wrap</td>
<td>4</td>
</tr>
<tr>
<td>Structural</td>
<td>4</td>
</tr>
<tr>
<td>Drives</td>
<td>4</td>
</tr>
<tr>
<td>Encoding glass</td>
<td>3</td>
</tr>
<tr>
<td>Engineering Analysis</td>
<td>5</td>
</tr>
<tr>
<td>Serviceability</td>
<td>3</td>
</tr>
<tr>
<td>QC/QA</td>
<td>3</td>
</tr>
<tr>
<td>Fabrication &amp; FAT Facilities</td>
<td>6</td>
</tr>
</tbody>
</table>

### 7.9.2 Evaluation Formula for the Offeror’s Proposed Cost

The scoring formula for the evaluation of the Offeror’s proposed Cost is as follows:

\[
\text{Cost Score} = \left[ \frac{\text{RankPts(NRE)} - 1}{N - 1} + \frac{\text{RankPts(Rec)} - 1}{N - 1} \right] \times 10 + \text{Ref Pts Costs}
\]

where

\[N = \text{the total number of responsive proposals received by the RCUH,}\]
RankPts = the ranking of the Offeror’s proposed cost relative to all other Offerors with the higher number of points for the higher ranks, and the range from highest to lowest rank being \( N, N-1, N-2, \ldots, 1 \). The lowest cost in each category (NRE and Recurring) will be the first-ranked, the next lowest cost will be the second-ranked, etc.

\[
\text{RankPts(NRE)} = \text{the Ranking Points for the non-recurring costs}
\]

\[
\text{RankPts(Rec)} = \text{the Ranking Points for the recurring costs with the recurring costs based on the PS2 + 2 additional telescopes (although it is the intent of the RCUH to provide contract options for up to six additional telescopes in addition to PS2).}
\]

\[
\text{Ref_Pts\_Cost} = \text{Points awarded based on answers to RCUH standardized questions to vendor-supplied references. The range of points for this is 0 to 10.}
\]

NOTE: For scoring and ranking purposes, the Offeror’s proposed cost for each cost category (NRE and Rec) will be rounded to the nearest increment of $10,000 (10,000 USD). In the event that this rounding results in equivalent cost numbers for two or more Offerors, the affected Offerors will receive the same number of Ranking Points (see examples in Section 7.9.5).

### 7.9.3 Evaluation Formula for the Offeror’s Proposed Schedule

The scoring formula for the evaluation of the Offeror’s proposed Schedule is as follows:

\[
\text{Schedule Score} = \left[ 1 - \frac{\Delta T(\text{Site Delivery}) - 18}{9} \right] \times 11.25 + \text{Ref\_Pts\_Sched}
\]

where

\[
\Delta T(\text{Site Delivery}) = \text{Time in months from when all vendor-supplied PS2 telescope components necessary for site installation have been delivered to the PS2 site,}
\]

\[
\text{Ref\_Pts\_Sched} = \text{Points awarded based on answers to RCUH standardized questions to vendor-supplied references. The range of points for this is 0 to 5.}
\]

NOTE: For proposed schedules with \( \Delta T(\text{Site Delivery}) \leq 15 \) months, the value will be set to 15 months for scoring purposes; for proposed schedules with \( \Delta T(\text{Site Delivery}) \geq 27 \) months, the value will be set to 27 months for scoring purposes.

### 7.9.4 Evaluation Formula for Key Personnel

The scoring formula for the evaluation of the Offeror’s Key Personnel is as follows:

\[
\text{Key\_Personnel\_Score} = \text{Prop\_Pts\_KP} + \text{Ref\_Pts\_KP}
\]

where
\[ Prop\_Pts\_KP = \] Points awarded based on the Offeror’s proposed Key Personnel for the fabrication of the PS2 telescope. The range of possible points for this is 0 – 5.

\[ Ref\_Pts\_KP = \] Points awarded based on answers to RCUH standardized questions to vendor-supplied references. The range of possible points for this is 0 – 5.

### 7.9.5 Example to Illustrate the Scoring Method and Ranking Process

This section presents an example of the scoring method to illustrate how a final ranking would be determined for three hypothetical (fictitious) Offerors. All technical, cost, and schedule numbers contained in this example are hypothetical (fictitious), and may or may not be representative of those actually submitted to the RCUH in response to RFP131031.

Assume three vendors submitted proposals and designate them as Offeror A, Offeror B, and Offeror C. Further assume the cost and schedule proposals are as follows:

<table>
<thead>
<tr>
<th>Offeror</th>
<th>NRE Cost for PS2</th>
<th>Rec Cost for PS2 + 2 additional telescopes</th>
<th>Delivery Schedule for PS2 (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1.512</td>
<td>2.561</td>
<td>18</td>
</tr>
<tr>
<td>B</td>
<td>0.958</td>
<td>3.037</td>
<td>15</td>
</tr>
<tr>
<td>C</td>
<td>0.973</td>
<td>2.232</td>
<td>21</td>
</tr>
</tbody>
</table>

Note: All costs here are given in Millions of USD ($M).

The first step in the Cost evaluation is to round the proposed costs above to the nearest increment of $10,000, and then assign Ranking Points as described in Section 7.9.2. Then assume that the results of contacting Offeror-supplied references results in the Cost Reference Points being as given in the following table so that the Cost score for each Offeror is obtained by applying the formula in Section 7.9.2:

<table>
<thead>
<tr>
<th>Offeror</th>
<th>PS2 NRE Cost</th>
<th>Ranking Points</th>
<th>Rec Cost</th>
<th>Ranking Points</th>
<th>Cost Ref Points</th>
<th>Cost Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1.51</td>
<td>1</td>
<td>2.56</td>
<td>2</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>B</td>
<td>0.96</td>
<td>3</td>
<td>3.04</td>
<td>1</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>C</td>
<td>0.97</td>
<td>2</td>
<td>2.23</td>
<td>3</td>
<td>5</td>
<td>20</td>
</tr>
</tbody>
</table>

Note: All costs here are given in Millions of USD ($M).
The calculation of the points for the Schedule component results from constructing the following table and applying the formula in Section 7.9.3:

<table>
<thead>
<tr>
<th>Offeror</th>
<th>PS2 Delivery Schedule</th>
<th>Schedule Ref Points</th>
<th>Schedule Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>18</td>
<td>5</td>
<td>16.25</td>
</tr>
<tr>
<td>B</td>
<td>15</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>C</td>
<td>21</td>
<td>5</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Now assume that all three Offerors receive the maximum number of Key Personnel points of 10, and that the Technical points are as in the following table. Then, the total score for each proposal can be computed:

<table>
<thead>
<tr>
<th>Offeror</th>
<th>Technical</th>
<th>Cost</th>
<th>Schedule</th>
<th>Key Personnel</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>36</td>
<td>15</td>
<td>16.25</td>
<td>10</td>
<td>77.25</td>
</tr>
<tr>
<td>B</td>
<td>23</td>
<td>20</td>
<td>15</td>
<td>10</td>
<td>68</td>
</tr>
<tr>
<td>C</td>
<td>30</td>
<td>20</td>
<td>12.5</td>
<td>10</td>
<td>72.5</td>
</tr>
</tbody>
</table>

The final ranking and selection of the Offeror occurs by factoring in the total (NRE + Rec) cost for PS2 of the Offerors with the top two scores (here, Offeror A and Offeror C), and ranking highest the Offeror with the lowest total cost:

<table>
<thead>
<tr>
<th>Offeror</th>
<th>Total Score</th>
<th>Total PS2 Cost</th>
<th>Final Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>77.25</td>
<td>4.073</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>72.5</td>
<td>3.205</td>
<td>1</td>
</tr>
</tbody>
</table>

Thus, Offeror C would be the first-ranked Offeror, and selected by the RCUH for negotiation of an Agreement for Services with the RCUH (cf. Section 3.18 and Section 7.10).

**7.10 BASIS FOR SELECTION AND AWARD OF AN AGREEMENT FOR SERVICES**

The RCUH will select and attempt to negotiate a mutually acceptable Agreement for Services with the first-ranked Offeror. If this cannot be accomplished within 21 calendar days after initial Selection, the RCUH reserves the right to terminate contract negotiations with the first-ranked Offeror, and select the second-ranked Offeror for negotiation of a potential award. This process will continue in order of Offeror ranking until a mutually acceptable Agreement for Services is achieved with the RCUH and an award is made to a selected Offeror.
7.11 REQUIREMENTS FOR AN AGREEMENT FOR SERVICES WITH THE RESEARCH CORPORATION OF THE UNIVERSITY OF HAWAII

The selected company must submit the following documentation prior to execution of an Agreement for Services with the Research Corporation of the University of Hawaii:

1. Tax clearance from the State Department of Taxation and the Internal Revenue Service. In accordance with Section 103-53, Hawaii Revised Statutes, the selected contractor shall submit original tax clearances from the State of Hawaii Department of Taxation and the Internal Revenue Service prior to execution of the Agreement for Services. Tax clearances obtained shall certify that all tax returns due have been filed, and all taxes, interest, and penalties levied or accrued under the provisions of Title 14 that are administered by the State of Hawaii Department of Taxation and under the Internal Revenue Code against the contractor have been paid.

2. Certification Regarding Debarment, Suspension, Proposed Debarment, and Other Responsibility Matters.


4. Standards of Conduct Declaration.

Acceptance of an Agreement for Services with the Research Corporation of the University of Hawaii requires acceptance of Attachment B--General Conditions for Services Agreements, and Attachment C--Special Conditions for Services Agreements—Federal Provisions. Necessary forms will be provided to the selected company.
Attachment A.  Acknowledgement to Request for Proposal RFP131031

Company Name: _______________________________________________________
Address: ___________________________________________________________________
_________________________________________________________________________
Phone No.: _____________________________
Email.: _____________________________

[   ] I acknowledge receipt of Request for Proposal No. RFP131031 and my company intends to submit a proposal prior to the submittal deadline. I acknowledge the requirements for a services agreement with the Research Corporation of the University of Hawaii, including submittal of a cost proposal; State of Hawaii Department of Taxation and Internal Revenue Service tax clearances; Certification Regarding Debarment, Suspension, Proposed Debarment, and Other Responsibility Matters; Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions; Standards of Conduct Declaration; and acceptance of the General Conditions for Services Agreements and the Special Conditions for Services Agreements (Federal Provisions).

[   ] I acknowledge receipt of Request for Proposal No. RFP131031 but my company is not submitting a proposal.

Submitted by:

_________________________________________________________________________
Signature                        Date

_________________________________________________________________________
Typed Name

_________________________________________________________________________
Title

RESEARCH CORPORATION OF THE UNIVERSITY OF HAWAII
Attachment B. General Conditions for Services Agreements

1. Coordination of Services by the State. RCUH, or RCUH’s designee, shall coordinate the services to be provided by the CONTRACTOR in order to complete the Project. The CONTRACTOR shall maintain communications with RCUH, or RCUH designee, at all stages of the CONTRACTOR’s work, and submit to RCUH or RCUH designee, for resolution, any questions which may arise as to the performance of this Agreement.

2. Relationship of Parties; Independent Contractor Status and Responsibilities, Including Tax Responsibilities.

   a. In the performance of services required under this Agreement, the CONTRACTOR shall be an “independent contractor”, with the authority and responsibility to control and direct the performance and details of the work and services required under this Agreement; however, RCUH shall have a general right to inspect work in progress to determine whether in RCUH’s opinion, the services are being performed by the CONTRACTOR in accordance with the provisions of this Agreement. It is understood that RCUH does not agree to use the CONTRACTOR exclusively, and that the CONTRACTOR is free to contract to provide services to other individuals or entities while under contract to RCUH.

   b. The CONTRACTOR and the CONTRACTOR’s employees and agents, shall not be considered agents or employees of RCUH for any purpose, and the CONTRACTOR’s employees and agents shall not be entitled to claim or receive from the RCUH any vacation, sick leave, retirement, workers’ compensation, unemployment insurance, or other benefits provided to RCUH employees.

   c. The CONTRACTOR shall be responsible for the accuracy, completeness, and adequacy of its performance under this Agreement. Furthermore, the CONTRACTOR intentionally, voluntarily, and knowingly assumes the sole and entire liability (if such liability is determined to exist) to the CONTRACTOR’s employees and agents, and to any individual not a party to this Agreement, for all loss, damage, or injury caused by the CONTRACTOR, or the CONTRACTOR’s employees or agents in the course of their employment.

   d. The CONTRACTOR shall be responsible for payment of all applicable federal, state and county taxes and fees which may become due and owing by the CONTRACTOR by reason of this Agreement, including but not limited to (i) income taxes, (ii) employment related fees, assessments and taxes, and (iii) general excise taxes. The CONTRACTOR is further responsible for obtaining all licenses, permits, and certificates that may be required by reason of this Agreement, including but not limited to a general excise tax license from the Department of Taxation, State of Hawaii.
e. The CONTRACTOR shall be responsible for securing any and all insurance coverage for the CONTRACTOR and the CONTRACTOR’s employees and agents which is or may be required by law during the pendency of this Agreement. The CONTRACTOR shall further be responsible for payment of all premiums, costs and other liabilities associated with securing said insurance coverage.


a. The CONTRACTOR shall secure, at the CONTRACTOR’s own expense, all personnel required to perform the services required by this Agreement.

b. The CONTRACTOR shall ensure that the CONTRACTOR’s employees or agents are experienced and fully qualified to engage in the activities and services required under this Agreement, and that all applicable licensing and operating requirements imposed or required under federal, state or county law, and all applicable accreditation and other standards of quality generally accepted in the field of the activities of such employees and agents are complied with and satisfied.

4. Nondiscrimination. No person performing work under this Agreement, including any subcontractor, employee or agent of the CONTRACTOR, shall engage in any discrimination that is prohibited by any applicable federal, state or county law.

5. Subcontracts and Assignments. The CONTRACTOR shall not assign or subcontract any of the CONTRACTOR’s duties, obligations, or interests under this Agreement without the prior written consent of RCUH. Additionally, no assignment by the CONTRACTOR of the CONTRACTOR’s right to compensation under this Agreement shall be effective unless and until the assignment is approved by RCUH.

6. Conflict of Interest. The CONTRACTOR represents that neither the CONTRACTOR, nor any employee or agent of the CONTRACTOR, presently has any interest, and promises that no such interest, direct or indirect, shall be acquired, which would or might conflict in any manner or degree with the performance of the CONTRACTOR’s services under this Agreement.

7. Modifications of Agreement. Any modification, alteration, amendment, change, or extension to any term, provision, or condition of this Agreement shall be made only by written amendment to this Agreement, signed by the CONTRACTOR and RCUH.

8. Suspensions and Termination of Agreement.

a. RCUH reserves the right at any time and for any reason to suspend this Agreement for any reasonable period, upon written notice to the CONTRACTOR. Upon receipt of said notice, the CONTRACTOR shall immediately comply with said notice and suspend all work under this Agreement at the time stated.
b. If, for any cause, the CONTRACTOR breaches this Agreement by failing to satisfactorily fulfill in a timely or proper manner the CONTRACTOR’s obligations under this Agreement or by failing to perform any of the promises, terms, or conditions of this Agreement, and having been given reasonable notice of and opportunity to cure such default, fails to take satisfactory corrective action within the time specified by the RCUH, the RCUH shall have the right to terminate this Agreement by giving written notice to the CONTRACTOR of such termination at least seven (7) calendar days before the effective date of such terminating. Furthermore, RCUH may terminate this Agreement without statement of cause at any time by giving written notice to the CONTRACTOR of such termination at least thirty (30) calendar days before the effective date of such termination.

c. Upon termination of the Agreement, the CONTRACTOR shall, within four (4) weeks of the effective date of such termination, compile and submit in an orderly manner to RCUH an accounting of the work performed up to the effective date of termination. In such event, the CONTRACTOR shall be paid for the actual cost of the services rendered, but in no event more than the total compensation payable to the CONTRACTOR under this Agreement.

d. In the event of termination of either type, or in the event of the scheduled expiration of the time of performance specified in this Agreement, all finished or unfinished material prepared by the CONTRACTOR shall, at RCUH’s option, become RCUH’s property and, together with all material, if any, provided to the CONTRACTOR by RCUH, shall be delivered and surrendered to RCUH on or before the expiration date or date of termination. For the purposes of this Agreement, “material” includes, but is not limited to any information, data, reports, summaries, tables, maps, charts, photographs, films, graphs, studies, recommendations, program concepts, titles, scripts, working papers, files, models, audiotapes, videotapes, computer tapes, cassettes, diskettes, documents, and records developed, prepared, or conceived by the CONTRACTOR in connection with this Agreement, or furnished to the CONTRACTOR by RCUH. The terms do not include records which are maintained by RCUH solely for the CONTRACTOR’s own use and which have only an ancillary relationship to the services provided under this Agreement.

e. If this Agreement is terminated for cause, the CONTRACTOR shall not be relieved of liability to RCUH for damages sustained because of any breach by the CONTRACTOR of this Agreement. In such event, RCUH may retain any amounts which may be due and owing to the CONTRACTOR until such time as the exact amount of damages due to the RCUH from the CONTRACTOR has been determined. RCUH may also set off any damages so determined against the amounts retained.
9. **Compliance with Laws.** The CONTRACTOR shall comply with all federal, state, and county laws, ordinances, codes, rules, and regulations, as the same may be from time to time, which in any way affect the CONTRACTOR’s performance of this Agreement.

10. **Indemnification and Defense.** The CONTRACTOR shall defend, indemnify, and save harmless RCUH, its officers, employees, and agents from and against all liability, loss, damage, cost, and expense, including all attorneys’ fees, and all claims, suits, and demands therefore, arising out of or resulting from the malicious, reckless, or negligent acts or omissions of the CONTRACTOR or the CONTRACTOR’s employees, officers, agents, or subcontractors occurring during or in connection with the performance of the CONTRACTOR’s services under this Agreement. The provisions of this paragraph shall remain in full force and effect notwithstanding the expiration or early termination of this Agreement.

11. **Disputes.** No dispute arising under this Agreement may be sued upon by the CONTRACTOR until after the CONTRACTOR’s written request to RCUH to informally resolve the dispute is rejected, or until ninety days after RCUH’s receipt of the CONTRACTOR’s written request, whichever comes first. While RCUH considers the CONTRACTOR’s written request, the CONTRACTOR agrees to proceed diligently with the provision of services necessary to complete the Project.

12. **Confidentiality of Material.**
   
a. All material given to or made available to the CONTRACTOR by virtue of this Agreement, which is identified as proprietary or confidential information, will be safeguarded by the CONTRACTOR and shall not be disclosed to any individual or organization without the prior written approval of RCUH.

b. All information, data, or other material provided by the CONTRACTOR to RCUH shall be kept confidential only to the extent permitted by law.

13. **Ownership Rights and Copyright.** RCUH shall have complete ownership of all material, both finished and unfinished, which is developed, prepared, assembled, or conceived by the CONTRACTOR pursuant to this Agreement, and all such material shall be considered “works made for hire”. All such material shall be delivered to the RCUH upon expiration or termination of this Agreement. RCUH, at its discretion, shall have the exclusive right to copyright any product, concept, or material developed, prepared, assembled, or conceived by the CONTRACTOR pursuant to this Agreement. The CONTRACTOR, however, reserves the right to use thereafter any ideas and techniques that may be developed during the performance of this Agreement.

14. **Publicity.** The CONTRACTOR shall not refer to RCUH, or any project, office, agency, or officer thereof, or to the services provided pursuant to this Agreement, in any of the CONTRACTOR’s brochures, advertisements, or other publicity of the CONTRACTOR. All media contacts to the CONTRACTOR about this Agreement shall be referred to RCUH.
15. **Tax Clearance.** In accordance with Section 103-53, Hawaii Revised Statutes, if the amount of this Agreement is $25,000 or more, a tax clearance from the Director of Taxation, State of Hawaii and the Internal Revenue Service stating that all delinquent taxes, if any, levied or accrued against the CONTRACTOR have been paid is required before this Agreement can become effective.

16. **Payment Procedures: Final Payment.** All payments under this Agreement shall be made only upon submission by CONTRACTOR of original invoices specifying the amount due and certifying that services requested under the Agreement have been performed by CONTRACTOR according to the Agreement. Final payment under this Agreement shall be subject to Section 103-53, Hawaii Revised Statutes, which requires a tax clearance from the Director of Taxation, State of Hawaii, and the Internal Revenue Service.

17. **Governing Law.** The validity of this Agreement and any of its terms or provisions, as well as the rights and duties of the parties to this Agreement, shall be governed by the laws of the State of Hawaii. Any action at law or in equity to enforce or interpret the provisions of this Agreement shall be brought in a state court of competent jurisdiction in Honolulu, Hawaii.

18. **Notices.** Any written notice required to be given by a party to this Agreement shall be (a) delivered personally, or (b) sent by United States first class mail, postage prepaid, to RCUH at its address and to the CONTRACTOR at its address as indicated in the Agreement. A notice shall be deemed to have been received by the recipient three (3) days after mailing or at the time of actual receipt, whichever is earlier.

19. **Severability.** In the event that any provision of this Agreement is declared invalid or unenforceable by a court, such invalidity or unenforceability shall not affect the validity or enforceability of the remaining terms of this Agreement.

20. **Waiver.** The failure of RCUH to insist upon the strict compliance with any term, provision or condition of this Agreement shall not constitute or be deemed to constitute a waiver or relinquishment of RCUH’s right to enforce the same in accordance with this Agreement.

21. **Federal Provisions.** If federal funds are expended under this contract, the CONTRACTOR shall comply with the applicable provisions of Attachment C.
Attachment C. Special Conditions for Services Agreements

FEDERAL PROVISIONS

This Contract is a Subaward under Air Force Research Laboratory Cooperative Agreement FA9451-06-2-0338. The Department of Defense Grant and Agreement Regulations (DoDGARs) Part 32 shall be applied to subawards to universities or other nonprofit organizations, DoDGARs Part 33 shall be applied to subawards to state and local governments, and DoDGARs Part 34 shall be applied to for-profit entities.

1. ANTI-KICKBACK ACT. For construction or repair projects of more than $2,000, the contractor/subcontractor/vendor shall comply with the Copeland Anti-Kickback Act of 1986 (18 U.S.C.874 and 40 U.S.C.276c) as supplemented by Department of Labor regulations (29 CFR part 3, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States).

2. DAVIS-BACON ACT. For construction projects of more than $2,000, the contractor/subcontractor/vendor shall comply with the Davis-Bacon Act (40 U.S.C.176a to a-7) and as supplemented by Department of Labor regulations (29 CFR part 5, “Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction”).

3. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT. For construction projects of more than $2,000 or other projects of more than $2,500 that involve the employment of mechanics or laborers, the contractor/subcontractor/vendor shall comply with Sections 102 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.327-333), as supplemented by Department of Labor regulations (29 CFR part 5).

4. RIGHTS TO INVENTIONS. For the performance of experimental, developmental, or research work, the Federal government and RCUH shall retain rights to any resulting invention in accordance with 37 CFR part 401, “Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements”.

5. ANTI-LOBBYING. If this purchase is more than $100,000, the contractor/subcontractor/vendor shall certify that it will not or has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee or any agency, a member of Congress, officer or employee or Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by the Byrd Anti-Lobbying Amendment (31 U.S.C.1352). The contractor/subcontractor/vendor shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award.
6. DEBARMENT AND SUSPENSION. In accordance with E.O.s 12549 and 12649, “Debarment and Suspension,” no purchase of more than $30,000 shall be made with a contractor/subcontractor/vendor that is debarred, suspended, or proposed for debarment. For purchases of more than $30,000, the contractor/subcontractor/vendor shall certify that it is or is not debarred, suspended, or proposed for debarment by the Federal Government or the RCUH shall check the government Excluded Parties List at http://epls.arnet.gov to ensure that the contractor/subcontractor/vendor is not included on the list. Recipients shall fully comply with the requirements stipulated in Subpart C of 45 CFR 620, entitled "Responsibilities of Participants Regarding Transactions". The recipient is responsible for ensuring that any lower tier covered transaction, as described in Subpart B of 45 CFR 620, entitled "Covered Transactions", includes a term or condition requiring compliance with Subpart C. The recipient is also responsible for further requiring the inclusion of a similar term or condition in any subrecipient lower tier covered transaction. The recipient acknowledges that failing to disclose the information required under 45 CFR 620.335 may result in the termination of the award, or pursuance of other available remedies, including suspension and debarment. Recipients may access the Excluded Parities List System at http://epls.arnet.gov.

7. RIGHT TO AUDIT. For all negotiated purchases of more than $100,000, the contractor/subcontractor/vendor agrees that RCUH, the Federal awarding agency, the Comptroller General of the United States, or any of their duly authorized representatives, shall have access to and the right to examine any pertinent books, documents, papers and records of such vendor involving transactions related to this purchase.


9. CLEAN AIR ACT (42 U.S.C. 7401 et. seq.) AND THE FEDERAL WATER POLLUTION CONTROL ACT (33 U.S.C. 1251 et. seq.) AS AMENDED. Contracts and subgrants of amounts in excess of $100,000 shall contain a provision that requires the recipient to agree to comply with all applicable standards, order or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401 et. seq.) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251 et. seq.). Violations shall be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

10. TRAFFICKING IN PERSONS. For subawards, the subrecipient will comply with Trafficking Victims Protection Act of 2000 (22 U.S.C. 7104(g)) as implemented by 2 CFR 175.