

**INFORMATION AND COMMUNICATION SERVICES  
NIH – TASK ORDER**

RFTOP# 61      TITLE: Virtual Mentor Website Design

**PART 1 - REQUEST FOR TASK ORDER PROPOSALS**

A. POINT OF CONTACT NAME: Anthony Revenis

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B. PROPOSED PERIOD OF PERFORMANCE: **Approximately 10 months from the award of the contract**

C. PRICING METHOD: **Firm Fixed Price**

D. PROPOSAL INSTRUCTIONS: **The OSE would like technical proposals to be as follows: technical component to be as comprehensive as possible; staff CV's to be maximum of two pages; multiple samples of work similar to that described in the statement of work; two paper copies of the technical proposal; an electronic version of the technical proposal that can be printed or distributed via email. The pricing/business proposal may be submitted electronically.**

E. RESPONSE DUE DATE: Tuesday May 28, 2002 at 3:00 PM NIH time.

F. TASK DESCRIPTION:

The Office of Science Education (OSE) is seeking contract support to design and implement its new Virtual Mentor web site. Development of the Virtual Mentor web site will serve as a precursor to the overall redesign of the OSE web site. The contractor will provide design, development, and testing support to a unique, engaging, and informative medical science and health-related career web site that will attract middle and high school-aged students and promote interest in science, health, and medical research-related careers. The site is also intended to serve as a career planning and development tool for parents, student advisors, mentors, and guidance counselors. OSE envisions the development of the Virtual Mentor web site and the subsequent redesign of the entire OSE website as a collaborative process involving graphic design experts, web design usability experts, OSE website programmers and developers, and OSE project and web site managers.

**Background**

OSE has completed the planning phase of the Virtual Mentor web site. In FY 2000, OSE Staff conducted a user-centered analysis. Several middle and high school focus groups were conducted to gain a better understanding of the career planning needs of students and to identify website elements they would find both engaging and informative. OSE found that the majority of students were primarily interested in issues such as employment outlook, income, educational requirements necessary to pursue specific career paths, and the types of tasks that are performed for a specific career.

In FY 2001, OSE conducted a competitive analysis to determine the relative strengths and weaknesses of similar web sites and to capitalize on unique strengths/advantages of the Virtual Mentor web site. During the course of this analysis, OSE found no similar web sites designed for this particular target audience that covers the breadth and depth of information and authoritativeness planned for the Virtual Mentor web

site. OSE identified a particularly valuable data resource, the U.S. Department of Labor's Occupational Network (ONET) that could possibly form the basis for the Virtual Mentor web site. OSE staff met with DOL staff to establish a collaborative relationship and gain a deeper understanding of the O\*NET content model, the depth and breadth of occupational data available to OSE staff, and the relevance of this adult-oriented information to the proposed Virtual Mentor career exploration website for students. OSE found that the O\*NET content model included all of the elements identified during the student focus groups; as well as other key elements such as knowledge, skills, and abilities, work context and conditions, experience and training, and complementary personal characteristics. O\*NET is a comprehensive career information database targeted to the adult public who are seeking career-specific information. O\*NET is the nation's primary source of occupational information and it provides a common language for defining and describing occupations.

In FY 2001, OSE devised a strategy for development of the Virtual Mentor web site. OSE decided to model Virtual Mentor web site after the ONET content model as much as possible, with the incorporation of significant editorial revisions that could be more easily understood by the younger target audience. In FY 2002, identified 115 medical science and health-related careers already included in ONET to include in Phase I of the Virtual Mentor web site. There will be approximately 100 data fields included for each career that are derived from the ONET content model. While the ONET content model structure has been retained as much as possible, most of the information has been subsequently edited and re-written in plain language that can be more easily understood by the younger Virtual Mentor target audience. All of the data for these first 115 careers that will be highlighted in Phase II has been transferred to a database that resides in the Lotus Domino R5 environment.

OSE is seeking contract support to develop Phase I of the Virtual Mentor web site in a way that can be easily modified/expanded to incorporate hundreds of additional careers and increased functionality such as streaming media, photos and quotes of "real people" in each career, and direct links to other applicable areas of the OSE website, e.g., Speakers Bureau. The Virtual Mentor web site design strategy should balance user performance and visual appeal.

## **Scope**

- The contractor will provide support for the following service categories identified in the NIH Information and Communication Services Task Order:
  - Graphic design
  - Web design, development, and management
  - Web site usability testing
- The contractor will develop and test site and page design prototypes (paper and software prototypes) using an iterative design approach, including provision of optional design elements and layout for review
- The contractor will use an iterative design approach to create the most useful and usable web site by developing and testing prototypes. The iterative design process should consist of creating paper and software prototypes, testing the prototypes, and then making changes based on test results.
- The contractor is expected to work closely with OSE staff in the development and finalization of all deliverables. The contractor shall provide reports that the beginning of each month summarizing key activities that were completed or in progress during the preceding month. This report shall include the amount of money expended to date by task and sub-task.
- The contractor will meet with representatives of OSE staff twice a month at OSE's office (6705 Rockledge Drive, Suite 700, Rockville, Maryland) and consult with OSE staff by telephone and e-mail on an as-needed basis. The contractor will provide brief summaries of progress at meetings.

- OSE gets high-resolution electronic/digital version of all graphics. All graphic design should be original and will become the sole property of OSE once transferred.
- The Virtual Mentor and OSE web site designs should be expandable – including new major content areas and links to other OSE web site program areas, e.g., streaming video, graphics, etc. Future phases of the Virtual Mentor web site will include the addition of hundreds of more careers and increased functionality
- The Virtual Mentor web site design must complement the high-level architectural design that is currently being developed for the entire OSE website.
- The design should be easy to use as well as visually appealing to both the primary and secondary target audiences
- The purpose of the site should be clear
- The site should clearly address the audience.
- The site should be useful and relevant to the audience
- The site should be interesting and engaging.
- The site should enable users to accomplish all the tasks they need to perform.
- Information should be organized in a way that is easy to find.
- Textual information should be clear, grammatically correct, and easy to read.
- The site should always let the user know where they are and easily allow them to get where they need to go.
- The site presentation should be attractive.
- Every element of the design should support the goal of the site message
- The site should be designed that it is accessible to a full range of users including support for physical, environmental, and technical limitations
- Design in a style that will appeal to the audience's preferences
- Reduce the size of the color palette as much as possible

### **Deliverables**

- Provide a site map
- Provide design guidelines and page templates for all menu and individual career pages. Page templates will ensure consistent layout throughout the site and to separate the content from the graphical user interface.
- Provide a set of design conventions that dictate the layout of the OSE logo and related elements of corporate identify
- Provide original high-resolution graphics (several options) - graphic design elements for the entire site. Design elements shall include (but are not limited to): text, images, image maps, downloadable items, and controls, e.g., print buttons, and arrows. Provide images in the most

appropriate format that will load quickly (make images as small as possible) while retaining image fidelity, e.g., jpeg for photos, dithered gifs for other images. Provide graphics for menu pages and individual career pages, navigational aids, icons, and/or other graphical elements. Site content will be developed independent of the graphical user interface.

- Provide paper prototypes designs (several options)
- Provide screen schematics (several options)
- Provide page titles - use a descriptive and different title for each page of the site.
- Provide proofreading for all site pages
- Provide quality assurance, accessibility, performance, usability, and client environment testing

## **Tasks**

### ***Task 1. Virtual Mentor Web Site Design***

#### ***Sub-task 1a. Content/Content Organization***

- Provide useful and usable content that supports the web site goals on each page.
- Put important content as close to the top of the hierarchy as possible.
- To improve readability, use short sentence/paragraph lengths. Write sentences with 20 or fewer words and paragraphs with fewer than five sentences. Use lists to break up long sentences.
- Provide an alternate form of all documents, resources, or files that can be printed in their entirety.
- Keep web page size at or below 30,000 bytes to ensure an acceptable download time

#### ***Sub-task 1b. Titles/Headings***

- Use a descriptive and different title for each page of the site.
- Use well-designed headings. Use many, carefully selected headings, with names that conceptually relate to the information or functions they describe.

#### ***Sub-task 1c. Page Layout***

- Provide a consistent visual style that will give users a sense of unity and reinforce the user's experience.
- Provide layout elements that will allow users to quickly identify new content – allowing users to go directly to new information
- Do not include frames
- Align (vertically and horizontally) information, items, and widgets.
- Use top and left areas of the page for navigation and corporate identity
- Establish a high-to-low level of importance for each category and carry this approach throughout the design. Important categories should appear higher on the page so users can locate them quickly.

- Present information and similar functions consistently throughout the site, including logos, page titles, headers, navigation elements, etc., and use a consistent position on all pages for logos, recurring text, buttons, and graphics.
- Reduce the amount of unused space on pages used for scanning and searching.
- Be consistent. Place corporate and site logos in a consistent place on every page to ensure users are fully aware they are on the OSE Virtual Mentor web site.
- Put important items at the top, “above the fold” (in the first screen-full of information), to ease scanning.
- Format for efficient viewing. Determine, then design, the most efficient viewing and use of information on each page.

#### ***Sub-task 1d. Font/Text Size***

- Use readable font sizes. Use at least a 10-point font to achieve the best possible reading performance
- Use a familiar sans serif font, e.g., Arial, to achieve the best possible reading speed. Do not mix serif and sans serif fonts.

#### ***Sub-task 1e. Reading and Scanning***

- Enhance scanning by providing clear links, headings, short phrases and sentences, and short paragraphs.
- Use short pages for the Virtual Mentor main page and all navigation pages. Use long pages to simplify page maintenance (fewer web page files to maintain), match the structure of a paper counterpart, and make pages more convenient to download and print.
- Use paging (linking) rather than scrolling to increase user reading speed and response time.

#### ***Sub-task 1f. Links***

- Place the most important information high on the page
- Provide feedback to inform users where they are in the site, e.g., “bread crumbs”, and consistent use of color to indicate used previously visited links.
- Show links clearly. Use blue underlined text for all unused links when possible. Do not require users to move the mouse to see when the pointer changes to a hand.
- Indicate internal vs. external links. Clearly indicate when a link will move users to: (1) the same page, (2) a different page in the same web site, or (3) a page on a different web site.
- Use descriptive link labels so that users can discriminate between similar links.
- Use text links. Do not use image links.
- Avoid “mouse-overs.” Do not rely on “mouse-overs” for users to identify links. Always use underlines or some other visual indicator to indicate what words are links.

- Repeat text links. Ensure that the m most important content can be accessed from more than one related link.
- If tabs are used, place tabs for links at the top of the page and ensure that they look like clickable, real-world tabs.
- Show used links. Indicate to users when a link has been clicked. If a user selects on link, and there are other links to the same target, make sure all links change colors.
- Place links at the beginning or end of paragraphs or sections of narrative text

### ***Sub-task 1g. Graphics***

- Establish a visual identity for the site by using related visual elements throughout the site
- Graphics should be used to help users make decisions and to provide answers to questions
- Provide graphic design elements and page templates for the entire. Design elements shall include (but are not limited to): text, images, image maps, downloadable items, and controls, e.g., print buttons, and arrows
- Use graphics wisely. Use only graphics that enhance content or that lead to a better understanding of the information being presented.
- Avoid using graphics that do not have descriptive labels as clickable items wherever possible.
- Avoid graphics on search pages that are primarily used for searching.
- Images should be saved at a maximum of 72 dpi
- Use interlaced gifs so that images render progressively

### ***Sub-task 1h. Searching***

- Indicate to users the scope of what the search engine will search for on the web site.

### ***Sub-task 1i. Navigation***

- Use the same navigation scheme on all pages.
- Use text-based navigation aids wherever possible.
- Group navigation elements in close proximity.
- Use labels that clearly identify function of links (just make sense on their own or out of context; use navigation consistently; provide persistent links to the OSE home page, the NIH home page, and the Virtual Mentor main page
- Allows users to find career information using multiple pathways

### ***Sub-task 1j. Performance***

- Design for a connection speed of 56 kilobytes per second (kbps).
- Create pages that load quickly.

- Design for computers with 17-inch monitors with screen resolutions of 800 x 600 pixels.
- Design for full or partial screen viewing

#### ***Sub-task 1k. Web Site Accessibility***

- The site should be design in accordance with Section 508 Federal (Web) Accessibility Standards (<http://usability.gov/accessibility/508.html>).
- Address accessibility @ the level of the page template.
- Do not rely on color alone to communicate a message. Ensure that ext and graphics are understandable when viewed without color.
- Design for device independence by using features that enable activation of page elements by a variety of input devices, e.g., a mouse, keyboard, voice, head wand, etc.
- Provide equivalent alternatives to visual and auditory content for users who don't have the appropriate software or text readers. Use the HTML "alt" tag for giving users a simple text description of a visual element. Provide detailed text descriptions for visual content or auditory content.
- Include a "skip to main content" link at the top of each page that allows visually impaired users to skip navigation links that repeat on every page (can be made invisible to sighted users by using a tiny image that is the same color as the background)
- Keep backgrounds low contrast

#### ***Sub-task 1l. Software/Hardware Compatibility***

- OSE uses IBM Domino/Notes as its primary web server and the application for internal collaborative tasks. All development work by contractors should run under Domino/Notes 5.05 (or above). The end deliverable(s) should not require any additional hardware, software, or server applications without prior consent from OSE. Any development work that requires the use of database component should use Domino/Notes databases (NSFs). Any use of a non-Domino/Notes database (such as DB/2, MS SQL, ColdFusion, etc.) that is deemed necessary by the vendor must present to OSE the following prior to development: (1) Strong justification of its use, and (2) Any cost impact (hardware, software, and server), any network physical space requirement, and any maintenance

#### ***Sub-task 1m. Testing***

- Establish measurable goals, i.e., goals that will determine (once site is complete) if the site is meeting its overall purpose
- Quality Assurance, Accessibility, Performance, Usability, and Client Environment

#### **References**

The contractor will comply with the following principles, practices, and requirements set forth in the following documents:

- **Section 508 of the Federal Rehabilitation Act of 1973, as amended (1998)** - This section of the Act requires that when Federal agencies develop, procure, maintain, or use electronic and

information technology, they must ensure that it is accessible to people with disabilities, unless it would impose an undue burden to do so. Federal agencies that provide information to the public or to their employees through Web sites must ensure that such sites are available to all persons with Internet or intranet access, including persons with disabilities (<http://www.access-board.gov/eitaac/section-508-q&a.htm>) and (<http://www.usdoj.gov/crt/508/508home.html>)

- **Evidence-Based Guidelines on Web Design and Usability Issues, National Cancer Institute, NIH** - This site is designed to provide over 50 of the top Web design and usability guidelines based on emerging research and supporting information in the field. <http://usability.gov/guidelines/index.html>
- **NIH Manual 2805-NIH Web Page Privacy Policy** - This chapter establishes policies and procedures for ensuring the privacy and protection of personal information on NIH Web sites. This policy also applies to NIH Web sites that are developed and/or maintained by contract personnel. <http://www1.od.nih.gov/oma/manualchapters/management/2805/>
- **Usability.gov** - This site is designed to provide current and accurate information on how to make health-related information Web sites and other user interfaces more usable, accessible, and useful. The site also links to a variety of quality Web sites and resources on usability, accessibility, and related topics that exist in the field. <http://usability.gov/>
- **NIH Genetic OMB Clearance for Online Surveys** - <http://www.nih.gov/od/ocpl/resources/OMBClearance/BackgroundFAQ.htm>

#### G. EVALUATION CRITERIA:

Contractor proposals will be evaluated on the following criteria:

##### **Corporate Experience**

- Contractor will demonstrate experience developing research-based web site design guidelines (40 points)
- Contractor will demonstrate extensive knowledge of and experience in research-based human-computer interactions. (30 points)
- Contractor will demonstrate recent (within the last year) experience developing one or more Federally sponsored web sites. (20 points)
- Contractor will demonstrate experience in developing health and/or medical science web sites. (10 points)

##### **Cost/Price**

RFTOP# 61

TITLE: Virtual Mentor Website Design

**PART II - CONTRACTOR'S REPLY: CONTRACT #263-01-D-0\_\_\_\_\_**  
**TO # NICS-\_\_ 61 \_\_\_\_\_**

Contractor:

Points of Contact:

D. Phone- Fax-  
Address:

**TOTAL ESTIMATED COST:** \_\_\_\_\_ **Pricing Method:** \_\_\_\_\_  
TOTAL ESTIMATED NUMBER OF HOURS: \_\_\_\_\_  
PROPOSED COMPLETION DATE: \_\_\_\_\_

FOR THE CONTRACTOR: \_\_\_\_\_  
Signature Date

**SOURCE SELECTION:**

WE HAVE REVIEWED ALL SUBMITTED PROPOSALS HAVE DETERMINED THIS FIRM SUBMITTED THE BEST OVERALL PROPOSAL AND THE PRICE/COST IS REASONABLE.

**Billing Reference #** \_\_\_\_\_

Appropriations Data: \_\_\_\_\_

(ATTACH OBLIGATING DOCUMENT IF AN ROC WILL NOT BE USED.)

RECOMMENDED:

\_\_\_\_\_  
FAX # (301-402-0167) Signature - Project Officer Date

APPROVED: \_\_\_\_\_

\_\_\_\_\_  
FAX # Signature - Contracting Officer Date

**NIH APPROVAL -**

CONTRACTOR SHALL NOT EXCEED THE ESTIMATED LABOR HOURS OR ESTIMATED TASK ORDER AMOUNT WITHOUT THE WRITTEN APPROVAL OF THE CONTRACTING OFFICER & PICS COORDINATOR

APPROVED: \_\_\_\_\_  
Signature –Anthony M. Revenis, J.D., NIH-PICS Coordinator Date

We have included this chart to provide a perspective on how this work relates to the larger redesign for OSE.

### Virtual Mentor Web Site Design and OSE Web Site Redesign Phases

