SECTION C
DESCRIPTION/SPECIFICATIONS/AND WORK STATEMENT

1. BACKGROUND

Building on the highly visual world we have come to expect in everyday life, education, entertainment, and recreation, the National Park Service recognizes the added value of new media maps in publications, information kiosks, videos, exhibits, portable electronic devices, and online. Digitally-generated terrain models give visitors an overview of the park and the opportunity to "touch" the landscape—an important accessibility consideration. Our mission is to provide access information and safety data while enhancing a park story. This can be done through a combination of highly accurate, stimulating, and innovative map depictions of terrain, geological phenomena, pre-history scenes, a battle plan, or by extending a visual invitation that encourages park visitors to explore a particular trail on foot. Such an interpretive device also offers a realistic visual experience to less agile visitors who are just as eager to experience a park's story, but from their vantage point. With the advent of computer graphics programs, combined with cartographic databases that are expanding daily, the possibilities for enhancing park interpretation methods also increases.

2. PURPOSE

The purpose of this contract is make use of the latest technology to provide digitally-generated terrain models to enrich the experience of visitors while at a park, on the Web, and via portable electronic devices and other emerging technology. The National Park Services (NPS) requires the following products and services.

DIGITAL TERRAIN MODELS

Created from a variety of solid materials, such as high-density foam or resin compounds, these models show a scaled representation of the landscape in three dimensions. They derive from Digital Elevation Model (DEM) data that a Computer Numerically Controlled (CNC) router reads to carve the terrain. Digital data for landscape textures, map labels and lines can be added to the surface of the routed model. Digitally-generated terrain models are usually at least several square feet in size and displayed either horizontally or vertically. When made from durable materials, they are touchable by the public.

3. SCOPE OF WORK

Independently, and not as an agent of the Government, the contractor shall furnish all labor, materials, facilities, and miscellaneous services to provide the National Park Service with digitally-generated terrain models. The contractor shall also prepare

preliminary data to be used by the National Park Service for in-house production or by third-party contractors.

Presently, the NPS is flexible about the software applications and data formats used for the creation of digitally-generated terrain models. The NPS is in the process of adopting Department of the Interior Enterprise Application software standards. The contractor will be notified of any new standards and procedures to be utilized to provide deliverables under this contract according to the most current standards.

At a minimum, however, contractors must posses expertise with the software that the NPS presently uses, including Bryce 5.5, Natural Scene Designer 4.0, Google Sketchup Pro 5.0, Zoomifyer, and Macromedia (now owned by Adobe) Flash Professional 8.0 and Director. Software upgrades may be required over the course of the contract. Programs, formats, upgrades, and/or specialized fonts will be specified in individual task orders.

The National Park Services recognizes that digitally-generated terrain model technologies are evolving rapidly and that other software applications, data formats, and production solutions might become available that are better suited to National Park Service mapping needs. The National Park Service encourages the contractor to propose alternative solutions as they become available. These will be evaluated on a case-by-case basis for incorporation into the National Park Service digitally-generated terrain model program.

Specifically, the following work is required:

A. **Digital Terrain Models:**

The contractor shall provide all labor, materials, and services necessary to create, ship, and install computer-generated and digitally-generated terrain models for the indoor and outdoor exhibits as follows:

(1) Models shall be prepared from DEMs with the maximum number of height postings possible for a carving a detailed model with a Computer Numerically Controlled (CNC) router.

(2) All necessary measures shall be taken to assure that the carved model does not exhibit artifacts, such as parallel grooves, contour terraces, and edge-matching seams between merged DEM tiles.

(3) Where water bodies exist on the model, if necessary, the DEM shall be manipulated, so that the water surface appears as a flat surface on the routed model.

(4) The contractor shall propose the amount of vertical exaggeration needed on final models and provide the NPS with visualizations for review. If necessary, vertical exaggeration shall be reduced to prevent mountains from spiking upwards and to prevent draped type and lines from blurring.

(5) The contractor shall provide a sample 1’ x 1’ section of the proposed final model for NPS review and approval before producing the final. The NPS shall select the area on the model that the 1’ x 1’ sample will show.

(6) Images draped onto the model shall be in perfect registration with the DEM below. The DEM or draped image shall be manipulated if necessary to keep drainages in narrow valley bottoms.

(7) In addition to topographic shading, land cover, aerial photographs and satellite images, draped images shall contain roads, trails, text labels, north arrow, scales, and other map elements as requested by individual task order.

(8) Draped images shall be prepared at the highest resolution possible for the model making process to maximize detail and legibility.

(9) If a subcontractor is used for fabricating the final model, the primary contractor shall provide them with digital files (a DEM and image for draping in the appropriate formats) and an inkjet printout to be used as a proof for color matching.

(10) The contractor shall treat all final models with a clear protective coating that minimizes glare.

(11) Depending on the park, visitors may or may not be allowed to touch the exhibited model. Models intended for occasional touching by visitors shall be constructed for extra durability from the highest density foam available and with extra protective coatings applied to the surface.

(12) To make models that will be routinely touched by visitors, the contractor shall provide physical models routed from foam to subcontractors for casting with weather-resistant materials such as bronze, plaster, and epoxy resin.

(13) Touchable terrain models shall follow Architectural Barriers Act Accessibility Standards (ABAAS). Touchable exhibits positioned horizontally (on a table or platform) should be placed no higher than 30" from the floor. In addition, if the exhibit is approachable only on one side, it should be no deeper than 24”. Touchable exhibits positioned on a vertical surface (such as a wall) shall be no lower than 15” above the finished floor and no higher than 48” above the finished floor. (ABAAS 308.3.1)

(14) Fabricate attractive, sturdy, display tables custom fitted to the size and shape of the final model.

(15) Provide for the shipping of the final tactile model and table to a park or other facility.

(16) If required by the individual task order, install the model and table at a park or other facility.

(17) Create models with raised tactile surfaces and lettering and Braille for use by people with visual impairments.

(18) Create portable models via vacuum forming, embossing, or other technologies with raised tactile surfaces that are lightweight and portable.

B. **File Delivery:**

The contractor shall provide the preliminary and final new media map files in digital format only. Files (under 7 megabytes) can be submitted as email attachments, files larger then 7 megabytes can be submitted via FTP (hosted by the contractor), or on optical media (CD-ROM and DVD-ROM). The exception to this is digitally-generated terrain models and their tables that require shipping by traditional means.

4. ADVANCE UNDERSTANDING

The National Park Service retains ownership of the compilation data, and all digital components used to generate all production-ready files.

5. PERFORMANCE

All work to be performed under this contract, will be directed by the Government through the issuance of individual task orders in accordance with the procedures outlined in Section G. In no event will the Government be responsible for any work performed by the contractor that was not undertaken pursuant to a duly executed task order signed by the Contracting Officer.

6. ACCESSIBILITY

All work performed under this contract shall be in accordance with Attachment J, *Draft* Programmatic Accessibility Standards for National Park Service Interpretive Media, dated November 2006. These standards are in the process of being finalized. Once finalized, the contract will be modified to add the final version.