Attachment A

National Park Service | Harpers Ferry Center

Wayside Exhibit Planning, Design, Fabrication, and Installation Specifications

November 2023

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Section 1. Definitions

1. Wayside Exhibit

A wayside exhibit is located in an outdoor setting offering orientation and/or site-specific interpretation that provides a meaningful connection to the landscape being interpreted.

2. Interpretation

Exhibits with a stated purpose of interpretation shall meet or exceed principles, standards, best practices, and competencies as recommended by the National Association for Interpretation (NAI).

The purpose statement for every interpretive exhibit shall justify, in one sentence, how it meets National Park Service (NPS) policies for interpretation.

Per NPS management policies, all interpretation shall be "grounded in (1) park resources, (2) themes related to the park's legislative history and significance, and (3) park and service-wide mission goals. The intent will be to provide each visitor with an interpretive experience that is enjoyable and inspirational within the context of the park's tangible resources and the meanings they represent. In addition, visitors should be made aware of the purposes and scope of the national park system.

"Interpretation will encourage dialogue and accept that visitors have their own individual points of view. Factual information presented will be current, accurate, based on current scholarship and science, and delivered to convey park meanings, with the understanding that audience members will draw their own conclusions."

3. Other Relevant Definitions

ABAAS: Architectural Barriers Act Accessibility Standards are the accessibility standards which pertain to the Federal sector. The ABA, or Architectural Barriers Act of 1968, requires access to facilities designed, built, altered, or leased with federal funds. (See also "Accessible," "ADA," and "Rehabilitation Act.")

Accessible: In context with the requirements of this contract, accessible is defined as in compliance with accessibility standards as specified in the *Programmatic Accessibility Guidelines for National Park Service Interpretive Media*. Federal laws, including the Architectural Barriers Act Accessibility Standards (ABAAS) and Sections 504 and 508 of the Rehabilitation Act, shall be followed. Universal Design and its seven principles shall be applied as a part of the NPS definition and requirements.

ADA: Americans with Disabilities Act of 1990. This law prohibits discrimination against individuals on the basis of disability. It applies to state and local governments, and public accommodations operated by the private sector. While there are exceptions, it does not generally apply to media and exhibitions that are federally funded and installed in federal facilities. Therefore, the term "ADA" or "ADA compliant" should not be used when referring

to accessibility compliance in federal government-owned and operated facilities. (See also "ABAAS" and "Rehabilitation Act.")

Assets: An asset is defined as something used within the exhibit, i.e., image, art, tactile, etc. Each asset shall have a unique number extension added to its corresponding exhibit number. Examples include image in layout is numbered HAFE-WE-202206-001-01.tiff, tactile and other graphic elements in the wayside exhibit are sequentially numbered (HAFE-WE-202206-001-02, HAFE-WE-202206-001-03, etc).

Audio Description (AD): Through words, AD describes visual content essential for understanding the content of a program. Audio description is used for a variety of media, including video, digital interactive programs, and exhibits. People who are blind or have low vision are the primary audience, but audio description can also be used by people who have print disabilities or auditory learning styles. AD is typically scripted and recorded by a professional. In some cases, AD text may be read by a screen reader and synthesized voice. Specific delivery systems and techniques vary based on the media and venue. AD is also referred to as video description, verbal description, descriptive video and descriptive audio.

Bulletin Case: Enclosed upright weather-resistant wayside with a hinged door and clear front used for displaying and protecting changeable information.

Contracting Officer's Representative (COR): For federal government contracts, an authorized representative of the contracting officer responsible for monitoring the quality and performance of work performed under individual contracts.

FPO: For Position Only. Placement images in a graphic layout used for design and review purposes. FPO images are not suitable for final production purposes. They often convey an idea, feeling, or draft approach.

Geospatial Data: Mapping source data that includes location information related to the Earth. When combined with a unified map projection, geospatial software can assemble and align this data to create a map that can interact with location-aware tools and future geospatial data.

Indefinite Delivery, Indefinite Quantity (IDIQ) Contract: A contract established for the purpose of awarding multiple individual projects over an extended period of time. The IDIQ contract establishes basic parameters for the type of work to be done, hourly rates, mark-up, contractor capabilities, and performance standards. Task Orders are negotiated under the IDIQ contract for individual projects and include a detailed scope of work describing the project's technical requirements and schedule.

Interpretive Writing: A writing approach that draws from technical, informational, scientific, historical, and cultural sources; it incorporates creative techniques and seeks to connect readers emotionally and intellectually to the meanings and significance of the resource(s).

IPTC Standards: The International Press Telecommunications Council (IPTC), based in London, United Kingdom, is a consortium of the world's major news agencies, other news

providers and news industry vendors and acts as the global standards body of the news media. The IPTC defined a set of metadata properties that can be applied to images, part of a broader standard developed in the early 1990s and known as the IPTC Information Interchange Model (IIM). Embedded IIM image information is often referred to as an "IPTC header". This basic set of metadata fields is branded as *IPTC Core*, in 2008 a second set branded as *IPTC Extension* was developed. (source Wikipedia)

Life-cycle Costs: An estimate that identifies ongoing costs associated with operating and maintaining the wayside exhibit, including maintenance contracts and service-life and long-term replacement costs.

Kiosk: Multiple upright waysides assembled with three or more sides, sometimes with a roof.

Map Types

Orientation Maps: Maps of a park or region that typically show administrative boundaries, roads, trails, rivers, and terrain represented with shaded relief or a digitally created perspective view.

2D Planimetric Maps: Maps that have a straight down view of the area with a consistent scale from corner to corner.

3D Oblique Maps: These maps are sometimes called panoramas or birds-eye views, 3D oblique maps are digitally rendered aerial views depicting natural and/or cultural landscapes. They show three-dimensional landscape features, terrain, and/or buildings. Some birds-eye view maps serve as geologic diagrams and natural science illustrations.

Image maps: Maps created from aerial photographs or satellite images.

Thematic maps: Base maps of parks and larger geographic regions overlaid with interpretive information.

Trailhead maps: Maps depicting hiking routes starting at specific location. Trailhead maps are typically orientated to match the viewers perspective and wayside direction.

Tactile Maps: Maps that are fabricated with tactile or three-dimensional layers including braille and other touchable elements. Created from a variety of solid materials, such as bronze or resin compounds, these models show a scaled representation of the landscape in layers or three-dimensional topography data. Textures, labels, and lines can be added to the surface of the map. Tactile maps are designed to be touchable for purposes of accessibility, often including braille, raised relief, and other tactile elements.

Mock-ups: Typically refer to working models that are fabricated simply, quickly, and at minimal cost to test a concept. Mock-ups are full-scale representations for the purpose of reviewing and testing tactile elements that are undeveloped and need further evaluation. Mock-ups are fabricated as specified in individual task orders.

Low Profile: A wayside that is inclined (typically 30 to 45 degrees) to enable a reader to view past it to a park feature or landscape that is being interpreted by the wayside. Low profile wayside panels are often 36"x24".

Plain Language: Communication that can be understood the first time by the general public. Use of active voice, short sentences, common words, and typically at the Flesch-Kincaid 8th grade level.

Pre-Production: This phase includes the preparation and delivery of the production-ready package from which wayside exhibits can be fabricated.

Pre-Proposal: The phase to gather the information that serves as the foundation for Proposal 1 and later phases. In this phase, the project team gains a clear understanding of the project's history, the park's resources, and the roles of other project team members and stakeholders.

Production: The build phase of work where technical drawings, specifications, and content details are used to complete fabrication.

Project Team: An interdisciplinary team that may be comprised park subject matter experts and leaders, regional staff, Washington Support Office staff, COR, contractor, park partners, and/or affiliated Tribes. The team members vary and are based on project needs.

Prototypes: More refined than mock-ups, and closer to the final product in material, fabrication, and operation. Prototypes are portions that have a particular need to be reviewed and tested prior to fabrication of more elements of the same design.

Punch List: A list of deficiencies to be corrected by the fabrication contractor before final acceptance of the wayside exhibits. The punch list is generated by the COR during a final walk-through inspection.

Purpose: Defines the interpretive goal of the wayside exhibit.

Rehabilitation Act: The 1973 Rehabilitation Act as amended prohibits discrimination on the basis of disability in programs and activities conducted by federal agencies or receiving federal financial assistance. It is one of the primary laws specifying accessibility requirements for NPS exhibitions. Section 504 of this law requires effective communication and accessibility for individuals with disabilities to programs and activities conducted or funded by Federal agencies. Section 508 of this law focuses on requirements for information and communication technology (ICT).

Site Analysis: Conducted as part of the Pre-Proposal, where each potential wayside location is analyzed, site photos are taken, reference materials are gathered, and discussions are documented for the preparation of the Trip Report and Wayside Proposal.

Subject: Identifies what is being interpreted, not the title of the exhibit.

Tactile Elements: Tactile elements provide critical access to the site's significance for visitors with some disabilities, such as blindness, low vision, and some cognitive and learning disabilities. For visitors without disabilities, tactile elements add richness that two-dimensional wayside exhibits do not provide.

Title: One or more words that captures the interpretive message of the wayside exhibit.

Trailside: A wayside that is low to the ground and most often used as identification panels for plants or architectural features. Trailside panels are often 6" wide by 12" high.

Trip Report: The written documentation of the information covered during the site analysis and in the close-out meeting during the pre-proposal and forms the narrative for the upcoming wayside proposal.

Upright Wayside Exhibit: A wayside that stands or is hung vertically that typically provides orientation and interpretation to the landscape at trailheads, campgrounds, and other outdoor visitor contact points. Upright panels are often 36" wide and 48" tall.

Universal Design: The design of products and environments to be usable by all people, to the greatest extent possible, without assistance, adaptation, or specialized design.

Wayside Design Drafts: A series of the actual graphic layouts with content integrated for each wayside panel.

Wayside Proposal: Provides the overall concept and direction for each wayside exhibit documenting everything from purpose to site conditions. The work here sets the foundation for moving forward into writing, design, and ultimately fabrication and installation. It is critical to present clear direction and requirements for each wayside, to understands goals, purpose, and what is to come later in the design phase. A well-structured and clear proposal will also determine if project is within schedule and budget, and other specific parameters.

Section 2. General Specifications

1. Universal Design

1.1 General Requirements

All wayside exhibits planned, designed, and fabricated for the National Park Service must meet or exceed requirements in all applicable law regarding accessibility. Laws include, but are not limited to:

- Architectural Barriers Act (ABAAS)
- Sections 504 and 508 of the Rehabilitation Act as amended
- 21st Century Communications and Video Accessibility Act

All wayside exhibits shall follow guidelines in the latest published version of the *Programmatic Accessibility Guidelines for National Park Service Interpretive Media* at https://www.nps.gov/subjects/hfc/accessibility.htm.

Written recommendations should clearly describe how the content and context of the proposed wayside exhibits will be accessible to individuals with visual, hearing, mobility, and cognitive impairments.

Additional and specific requirements may be required in individual task orders.

1.2 Audio Description

Audio description (AD) voices the content of all wayside exhibit assets (text, images, models, hardware) and describes the related view (landscape features).

An AD script shall be written for every wayside exhibit. AD content shall describe each wayside element, maps, images/items within the wayside element, tactile elements, all text within the wayside element, and what the sighted visitor sees in the immediate setting and surrounding vistas related to subject being interpreted. Specific requirements shall be addressed in the task order.

1.3 Tactile Elements

Tactile elements use touch as way to convey meaning and understanding of important stories, connections, or context. They are a critical and often required way to communicate to those with disabilities.

Specific requirements shall be addressed in the task order.

1.4 Braille

For visitors with limited or no vision, braille text and labels give greater access to the site's significance. Whenever tactile elements are present, braille text shall be included, along with raised letter labels when space permits. In cases where braille is recommended, braille labels and text should be integrated within the wayside layouts with other graphics and text. Specific requirements shall be addressed in the task order.

Typesetting and fabrication of Braille shall follow current guidelines set forth in the "ADA and ABA Accessibility Guidelines" Chapter 7, Section 703, Signs.

All braille elements must be designed according to the *Programmatic Accessibility Guidelines for National Park Service Interpretive Media*.

2. Travel, Meetings, and Presentations

2.1 Introduction

National parks are located throughout the United States and its territories. Most wayside exhibit planning and design projects require travel to national parks to conduct site visits, present submittals, and install wayside exhibits. Based on a particular project's requirements, travel may also be required to other sites to research, conduct evaluations, and participate in meetings with subject matter experts, partners, and stakeholders.

2.2 General Requirements

A. Travel

1. Coordinate all travel with the COR.

2. The travel labor rate is one-half the hourly rate while in travel status to and from a site.

3. The contractor is responsible for all their own equipment required for work while on travel and at the job site (for example, measuring instruments, computers, projectors, ladders, lifts, dumpsters, etc.).

4. The contractor is responsible for all of their own transportation while on travel.

5. Adhere to government per diem requirements while on travel.

B. Meetings and Presentations

1. Develop agenda in coordination with COR.

2. Discuss with COR expectations for work to be presented.

3. Identify key participants for meeting.

4. Facilitate meetings, unless otherwise specified by the COR.

5. Document discussions and outcomes.

6. Conduct conference calls or virtual meetings as needed, unless specified otherwise in the individual task order.

7. For telephone/video/web-based meetings and presentations, provide and manage the remote meeting application, provide instructions to all participants for joining, and host the meeting.

3. Wayside Exhibit Location Criteria

3.1 Specific Requirements

A. Locations

All locations are to be approved by the COR, park, or regional/state compliance office, in accordance with the scope and the below specifications.

Considerations for location should include applicable law and policy, including but not limited to:

- ABAAS
- National Historic Preservation Act (NHPA) Section 106
- National Native American Graves Protection and Repatriation Act (NAGPRA)
- National Environmental Policy Act (NEPA)

Considerations should also include:

- Not impeding access to the resource, neither physical, visual, or auditory
- Making the least possible intrusion to the natural environment
- Avoiding creating an attractive nuisance, such as bottleneck crowds or wildlife disturbance.
- Avoiding groupings of multiple, small exhibits within a small area
    - Give priority to larger, double-sided, inline, or custom exhibits when content requires more space.
- Avoiding long-term damage to existing structures or ecosystems due to exhibit materials. See materials specifications for details.

B. Interpretive Exhibits

Exhibits shall be located and oriented strategically to connect the resource to the exhibit's interpretive message. The reader shall be able to observe the resource in all seasons without moving away from the exhibit, except for rare occasions when the exhibit is preparing the reader for a dramatic reveal.

When an exhibit's imagery depicts the scene where the exhibit is located, orient and fine-tune the exhibit's location to match the view in the imagery.

C. Informational Exhibits

Exhibits shall be located and oriented strategically to enable safe access to the resource.

Where visitor safety is a dire concern, the exhibit may intrude on the natural environment for the sake of gaining necessary attention, within limits set by policy and law.

Ensure the exhibit is oriented such that any maps or models correspond to their actual orientation in the environment.

3.2 Physical Access

Analysis of wayside placement shall carefully consider visitors with mobility disabilities. The precise location of the exhibit shall favor physical accessibility over interpretive value within the general bounds of the place-based wayside philosophy of placing the wayside within the sightlines of the relevant story associated with the landscape or feature within view.

Waysides placement shall favor locations for a front approach for a person using a wheelchair and shall require a front approach whenever a tactile element is present.

The contractor shall propose options to make a wayside physically accessible in the proposal phase. This is based on current site conditions. If a wayside cannot be made physically accessible, alternatives can be considered including duplicating content in an accessible location or noting content is available in other media.

Wayside placement shall carefully consider visitors who are blind or low vision. Placement shall include cane detectability analysis to ensure that the wayside base selection is appropriate for cane detectability compliance and the general safety and access to the wayside by visitors who are blind or have low vision.

Specific requirements shall be addressed in the task order.

4. Research and Content Development

4.1 General Requirements

1. Conduct research for all content including text, graphics, maps, illustrations, braille, foreign language translation, tactile elements, and audio description.

2. Collect and document all potential resources/references for use in the creation of wayside exhibits. Primary resources are preferred.

3. Acquire use rights, high-resolution production files for existing graphics or commission new work.

4.2 Government Furnished Materials

The physical condition of all government-furnished materials must be confirmed upon receipt and the loanee is responsible for any damage that occurs while in their possession. Fees for damages or loss will be assessed on a per material basis and fall within the requirements set forth in the government-furnished property clause.

4.3 Resource List

The resource list documents and tracks content elements proposed throughout the wayside development process. It is refined and submitted as requested in task order.

For each proposed exhibit, the resource list shall have the following, including but not limited to:

1. Historical quotations, relevant site-specific descriptions of the story or subject matter to be presented on the exhibit
2. All potential graphics to be used on the exhibit (historic photos, color transparencies, digital photographs)
3. Art references for new original illustrations (historic photos, 1st person descriptions, uniforms, plant, and wildlife identifications)
4. Cartography references for new maps (GIS and other geo-referenced data)
5. Tactile references (original objects, reproductions, photographs)
6. Audio description references (scene identification – names, distances)

Existing resources from the NPS should be specifically noted in this list.

4.4 Graphics

Graphics shall be the primary method for conveying meaning, information, and intent of wayside exhibits. The primary goal of any wayside is to visually connect to the landscape. Graphics, like symbols, can speak across multiple languages and ages. In addition, graphics:

- provide additional context
- communicate large spans of time
- show multiple perspectives
- show something about the resource that is not readily visible
- improve visual access to the resource
- provide orientation, safety, and protection
- invoke reactions/connection identified in the wayside exhibit purpose

4.5 Graphic Manipulation

Graphics can be altered, combined, and or overlayed to enhance or clarify the purpose of the wayside exhibit, although the original intent of an image should never be altered. Any alterations must be approved by the COR. The restoration of historical

photographs is acceptable. Removing or adding content in historical photographs to deceive or fake history is unacceptable unless is it obvious to the viewer or stated in text or graphic caption. In some instances, modifying a graphic including any blurring, masking, or enhancing of any kind is against the terms of the license. Source files shall remain unaltered as to have a comparison of changes with the production file.

4.6 Commissioned Graphics

Original illustrations, photographs, or other graphics shall be created according to the following specifications. Work commissioned under this contract is subject to ownership, licensing, and use rights covered in *Intellectual Property Guidelines for Harpers Ferry Center Interpretive Media*.

A. Research
   Provide research services to identify, locate, gather, originate, and validate reference materials necessary to develop an accurate depiction of the subject matter.

B. Stages
   Develop thumbnail sketches, rough preliminary sketches, or draft digital rendering techniques that represent the visual direction and style in order to facilitate discussion about the project. Size for developmental materials and final artwork will be specified in each task order.

C. Subject Matter
   Render any number of subjects required for an individual job, or from job to job, that will include but are not limited to: archeology, architecture, anthropology, botany, climate, cultural history, diagrams, ecology, geology, mechanical, military history, period furnishings, and wildlife.

D. Scale
   Where possible works shall be created at actual size. This ensures the level of detail matches the scale of the viewer.

E. Style
   Render subject matter in black and white or full color clearly and precisely in a technique that will reproduce well at final production size. Maintain a consistent rendering technique throughout the illustration, or series of illustrations despite the variety of reference materials employed or subjects covered in that particular task order.

F. Finals
   All scans or born digital files shall be provided at a 1:1 scale. Provide a scan or reproducible quality archival 1:1 scan or 100% of the original reflective art suitable for large format reproduction. Scan at the largest available resolution of the scanner to obtain the highest optical representation of the work. Specific requirements maybe provided in the task order.

4.7 Metadata Information

Embed metadata using IPTC (International Press Telecommunications Council) metadata standards in every final production file and original source graphic including commissioned work. Embedding metadata is not required for reference or research graphics.

Include information for the following metadata categories. On the left is government categories and on the right is where to record those categories in standard IPTC categories.

METADATA	**IPTC Header**
1. Creator	Creator
2. Creator ID	Creator Job Title
3. Description	Description
4. Keyword	Keyword
5. Copyright Owner	Copyright Notice
6. Source and link	Source
7. Credit	Credit Line
8. License Terms	Rights Usage Term
9. Media and Project	Job Identifier
10. Alternative Text:	Alt Text
11. Credit line	Credit Line

Metadata will also need to indicate the following specific information for every panel:

1. Panel Identification Number (ex: GUIS-332)
2. Size (ex: 36x48)
3. Material (ex: HPL)
4. Date of Manufacture

4.8 Use Rights

Use rights shall be obtained for all licensed graphics used on the wayside exhibits, including documentation of those use rights, unless otherwise stated in the task order. For custom licenses, obtain the follow rights:

One-time educational use in perpetuity for use on the wayside exhibit display with the ability to use the likeness of the wayside exhibit in other media to promote the wayside or meet accessibility requirements including 508 standards. This includes royalty free or subscription-based images like Adobe Stock, Getty, or iStock. The NPS has custom licenses with many stock graphic companies. Reach out to your COR for the most recent list.

Other terms must be approved by the COR and clearly documented in the use right documentation and license.

License agreement shall clearly indicate that the rights are being acquired on behalf of the National Park Service. Unless approved in advanced by the COR, license agreements may NOT contain any of the following:

1. Standard indemnification or hold harmless clauses which are typical in many license agreements.
2. Any clause which should subject the National Park Service to arbitration. Any such clause shall be removed in its entirety.
3. Any choice of law or choice of venue provisions which would subject the National Park Service to the laws or venue of a foreign country.

For additional information and guidance on graphic licensing for the government, see *Intellectual Property Guidelines for Harpers Ferry Center Interpretive Media*.

4.9 Credits

Due to the limited space on a wayside exhibit, do not include credits. In cases where copyright owner or licensee requires a credit and there is no image or graphic alternative, a credit can be displayed for just that image. This must be approved in advanced by the COR. In many cases, a credit is provided but not required.

5. Text

Wayside exhibit text provides the story to the graphic, promotes a significant and meaningful connection, and keeps visitors and resources safe. The NPS has developed the following writing standards and requirements.

5.1 Style Guide

All exhibits planned and designed shall be produced in accordance with the most recent HFC Editorial Style Guide. (see https://www.nps.gov/subjects/hfc/national-park-service-style-guides.htm)

5.2 Proofreading & Editing

All text shall be free of spelling, punctuation, grammar, and stylistic errors.

Check all dates, facts, and labels. Examine text elements for consistency in treatment. Edit using *HFC Editorial Style Guide* (see https://www.nps.gov/subjects/hfc/national-park-service-style-guides.htm)

5.3 Writing Style

The writing style for wayside exhibits shall apply the principle of Plain Language as defined at www.plainlanguage.gov. Writers shall apply active voice in all exhibit text writing with exceptions only for unavoidable turns of phrase.

Writing shall not exceed eighth grade (academic) reading level, as defined by standard software tools for evaluating the reading level (i.e., Flesch-Kincaid Reading Level).

5.4 Hierarchy of text

Wayside exhibits shall establish a consistent hierarchy for the content and purpose of text in the exhibit. This hierarchy shall be reflected in the appearance of text in the wayside exhibit's design. Designs shall define characteristics of each level in the hierarchy, such as length, style, etc. Examples of hierarchical levels are: titles, subtitles, body text, interpretive captions, identification captions, and text for interactives.

5.5 Sources

All information provided in wayside exhibit text shall be accurate and reflect the most recent scholarship.

Wayside exhibit text shall not be plagiarized nor violate intellectual property rights law.

Full drafts of text shall contain footnotes within any separately submitted text documents, citing references where necessary for fact checking purposes.

Conduct background research to be able to interpret the wayside exhibit topics in projects where government-provided references are not adequate to do the task thoroughly and with factual accuracy. Where appropriate, use quotes to support the story being told. Quotes must be accurate and referenced.

5.6 Length of text

Text shall be brief while achieving project goals.

Text on any individual outdoor interpretive panel shall not exceed average reading speed for 45 seconds per language.

Maximum line length shall be no more than 50 characters per line. Line length may increase up to 70 characters on occasion, when necessary, upon COR approval.

Any exceptions must be approved by the COR.

5.7 Quotations

All quotations must be attributed, verified, and the source documented in the footnotes. It shall be clear in graphic layouts what is a quotation.

5.8 Include Multiple Perspectives

Keep in mind that any text that is not in quotations is assumed to be coming from the NPS voice and not the author or speaker like in an article, magazine, or ranger program. Avoid writing that could be interpreted as opinion or present a personal or political viewpoint. Posing questions for consideration can be a great method to help the reader consider multiple perspectives. Using quotes from a variety of sources is another great way to provide a personal perspective and historical context.

5.9 Translations

All final translations between any languages shall be created by human translators. All other specifications and guidelines apply to translations.

A. Text for languages in addition to English shall be translated and displayed as follows:

    1. Text at all levels of the hierarchy must be provided in each language, including title, captions, text for interactives, and map labels.

    2. Text in all languages shall be equally accessible.

    3. Text formatting shall be identical for every language.

        a. For example: Two languages shall use the same letter size even when the length of text requires different size text blocks.

    4. Text placement priority shall follow the identified audiences in order of population majority.

    5. All content within a wayside exhibit group shall use the same languages. Different groups may use different languages.

        a. Example: A set of orientation panels in an area of the park with known populations of Vietnamese speakers may contain both Vietnamese and English; other areas of the park may only have English.

    6. Additional requirements:

        a. Avoid Word-for-Word Translations

            Dynamic translation of key ideas is more important than following the word order of the original writing. Non-English wayside texts must engage visitors' interest effectively. Interpretive meanings and intent must survive translation and remain clear to both audiences.

        b. International Standards, not Regional Dialects

            Match the vocabularies and complexity heard on news broadcasts on

cable television; or compare translated texts to encyclopedia websites in the target language to gauge wayside text complexity.

c. Provide Visual Parity

Keep in mind that many languages require more space in print than English. Develop bilingual wayside exhibit content so that no visitor is short-changed, regardless of what language they read best. Side-by-side text block placement avoids non-English readers feeling insulted, but other alternatives do exist.

d. Edit Translated Text

Proofread and correct spelling, grammar, capitalization, and punctuation errors, following the rules of the target language. For Spanish wayside texts, follow the NPS Spanish Style Guide (**https://www.nps.gov/subjects/hfc/national-park-service-style-guides.htm)** for detailed word choices, park-specific natural history and military vocabularies, and formatting decisions that have been used in many NPS interpretive media projects. For other languages, use the *Chicago Manual of Style*, Chapter 10, Foreign Languages for initial guidance on the differences in punctuation and capitalization rules. Style guides for major non-English newspapers can also be found on the Internet for most languages used in NPS wayside exhibits.

6. Maps

Maps are a critically important graphic and communication tool in wayside exhibits. While the capabilities of digital maps continue to advance, wayside maps can focus users' attention on the most important aspects of story, orientation, or experience at that specific location and generally at a much larger size.

The NPS has a rich history of cartographic standards and styles which is required by anyone creating maps for the NPS. The map standards provide a consistent language and visual experience across the entire park experience. Map standards are provided as a written document and as an Adobe Illustrator file with the line, symbol, and text styles included in the file.

New wayside maps and modifications to existing maps shall be created according to the NPS *Wayside Exhibit Map Standards*. Refer to the *Programmatic Accessibility Guidelines for National Park Service Interpretive Media* for map accessibility guidelines.

6.1 Presenting Trail Access Data on Maps

Trailhead maps should include trail access data to allow visitors to make their own informed choices about which trails are right for them. This information allows the

map to represent the trail conditions accurately and efficiently. Trail Access data requirements are managed by the US Access board and documented in the Outdoor Developed Areas standards manual. The five key requirements are:

1. Length of the trail or trail segment
2. Type of trail surface
3. Typical and minimum trail tread width
4. Typical and maximum trail grade
5. Typical and maximum trail cross slope

Trail Access inclusion requirements will be identified at the task order level. Data will be provided by the government, unless otherwise specified in the task order. The NPS has developed several examples of representing this data on maps data on maps. Please refer to the NPS Trailhead Signage Guide. All trailhead signage must follow trailhead signage specifications in ABAAS.

A. Map Types

Types of wayside exhibit maps include, but are not limited to, orientation, image, thematic, safety/resource protection, and trailheads.

Depending on the map design, all maps above maybe displayed as 2D planimetric, 3D oblique maps, and tactile maps. Descriptions are provided in the **Definitions Section**.

7. Graphic Identity

A. General Requirements

Any standalone outdoor wayside exhibit on NPS property shall contain NPS graphic identity, unless other specified by the task order. For wayside exhibits installed on non-NPS property, please see the guidelines under "Shared Graphic Identity."

B. Graphic Identity Suite

1. NPS arrowhead
2. Black band
3. Logos for NPS trails, heritage areas, and other programs
4. FLREA identifiers (U.S. Fee Area and "Your Fee Dollars At Work" logos)
5. Use of NPS Rawlinson and Frutiger font families

C. Small Parks and Administrative Units

Where a smaller area of the park typically uses its own identifier (such as a legislated unit or park district) within a larger administrative unit, the primary identifier shall be determined by the park, COR, and/or the task order.

D. **Shared Graphic Identity**

There can and will be occurrences where partner organizations will have their graphic identity share space with NPS graphic identity. This should be handled at the task order level by the COR or the park, in coordination with the regional or national partnerships, communications, and/or branding offices.

If the NPS identity and black band is retained as part of the design, no other logo shall occupy any space within the black band.

8. Wayside Exhibit File Naming

All wayside exhibits and their components shall be organized and tracked according to their unique exhibit number. Wayside exhibits are defined as singular outdoor structures requiring a discrete and complete installation including all assets.

Each unique exhibit shall have its own unique number. All exhibit numbers start with the four-letter Park Acronym followed by a series of identifying numbers.

See the Wayside Exhibit *File Naming and Folder Structure* for more information.

9. Production Cost Estimates

9.1 Introduction

Individual task orders may specify a target production range cost or "design-to" range figure for the project. Production Cost Estimates are prepared based on the Wayside Proposal and refined at later stages of the project. They are based on industry standards and a reasonable allocation of project funding. The purpose is to ensure that the project, as designed, can be built within the available budget.

Individual task orders will specify what is to be included in the production cost estimate. Since budget formulations vary by project, the contractor consults with the COR if there are any questions about what is included in the design-to figure. Generally, the design-to figure includes all costs for fabricating and shipping, and when specified in the individual task order, may include removing and installing wayside exhibit structures and elements. Depending on the project, estimates may also include media development costs such as image acquisition, original artwork, illustrations, cartography, photography, and 3D models.

The contractor may also be required to provide life-cycle cost estimates. The purpose of these estimates is to identify ongoing costs associated with maintaining and/or replacing the wayside exhibit.

9.2 General Requirements

All levels of production cost estimating adhere to the following criteria:

1. Provide the most accurate pricing information available for the current state of project development.

2. The Production Cost Estimates are equal to or less than the design-to cost and are realistic representation of the cost for producing the wayside exhibits as designed. Estimates are not arbitrarily priced to match the target budget, and do not include a contingency.

3. All design changes that increase the Production Cost Estimate above the target production budget, whether initiated by the contractor or requested by the government, are documented and appended to the Production Cost Estimate as alternate/additional items.

4. Production Cost Estimates are itemized by wayside exhibit and prepared in a computer file that can be translated or opened by the most current versions of Microsoft Word or Microsoft Excel.

5. All cost data related to the project are considered proprietary information that will not be shared outside of the government. Federal regulations preclude outside firms from bidding on production of the project if they have received project-specific details in advance of other potential bidders.

9.3 Fabrication Cost Estimates

If required, individual task orders will identify what items need to be included in fabrication cost estimates. Some items may include:

1. Panels
2. Bases
3. Custom elements and ancillaries
4. Graphic procurement, not to include labor
5. Custom art, diagrams, photography, and other imagery
6. Cartography
7. Installation/Removal
8. Accessibility accommodation, i.e. audio description

9.4 Lifecycle Cost Estimates

Lifecycle cost estimates shall state the estimated lifespan of each exhibit.

The cost estimate shall state the expected repair and/or replacement cost over each exhibit's lifespan. The cost estimate shall extrapolate each wayside exhibit's cost through the point of expected complete replacement, to include two midway points. Costs shall be adjusted for inflation. Example: Cost to replace at 30 years, $5,000; total repair cost after 20 years, $500; total repair cost after 10 years, $200.

10. Custom and Tactile Wayside Exhibit Elements

10.1 Introduction

The use of custom and tactile elements is important to the effectiveness of interpretive wayside exhibits. They enhance the aesthetic appeal of an exhibit by providing dimensionality; contribute to increased accessibility for visitors with certain disabilities and invite visitors to physically engage with the wayside exhibit, which increases visitor interest.

10.2 Custom Elements

Custom elements refers to any wayside exhibit element that requires detailed subject matter, creative, technical, and/or artistic input to inform and direct its production by a creative or technical specialist. Custom element production requires creative and technical expertise as well as regular coordination and review by the COR.

Custom elements production may include the creation of original images and art, creation of electronic programs, creation of custom three-dimensional and scenic elements, design and creation of custom mounts for accessioned and non-accessioned objects, and all other specialized wayside exhibit elements listed in the Custom Elements Reference Package. The contractor shall develop a production plan that includes work-in-progress reviews for all custom elements and shall produce all elements in accordance with the Custom Elements Reference Package as specified in individual task orders.

Custom elements include, but are not limited to, original illustrations and artwork, photography, models, sculptures, models, reproductions, artifacts, life-sized figures, historic objects, maps and topographic models, and electronic programs.

10.3 General Requirements

When tactile elements are incorporated into wayside exhibits, accessibility and durability are primary considerations in the design of these elements. The wayside exhibit element must be relevant to the wayside purpose and enhance visitor understanding. Tactile elements are low maintenance except when the nature of the tactile is such that routine maintenance will be required and the requirement for such maintenance is included as part of the Wayside Proposal.

10.4 Specific Requirements

A. Durability

1. Design

Tactile elements endure more wear than typical wayside panels and bases. When designing tactile elements, specify materials that are appropriate for the physical environment and for the particular use intended.

Specify durable, heavy-duty materials that can withstand hundreds of thousands of uses a year for years on end; always anticipate aggressive use of the tactile element.

Wayside exhibits are outside and exposed to sun, wind, and the weather, spray from nearby bodies of water, and so forth. It is the responsibility of the designer and the fabricator to inspect site conditions and take them into consideration when designing and fabricating a tactile model or interactive. During the site visits, the designer and the fabricator consider and review the following:

a. Physical access to the entire wayside display: discuss and determine potential solutions to all, if any, barriers to access.

b. Temperature range of the location: it is important to determine how hot it will get to the touch.

c. Harshness of the environment: particularly if the exhibit is placed in a partially unprotected area. Other factors to take note of include factors requiring especially durable materials, such as a corrosive marine environment, especially harsh weather conditions, nearby blowing sand, etc.

d. Water Drainage: Tactile elements should be designed to allow water to drain off.

2. Fabrication

Best practices for fabrication of more durable tactile models include the following:

a. Cast model as one piece, or in as few pieces as possible, to reduce seams and increase structural integrity. Design and fabrication is such that visitors cannot flex, wiggle, or shift any element of the model unless intended as part of an interactive experience.

b. Reduce or eliminate applied, glued-on, screwed-on, small elements that can potentially be pulled off by visitors.

c. Where applicable, use color that runs throughout the tactile models to avoid visible chipping.

d. Heavy-duty sprayed-on clear protective coating should be applied as the final finish over painted finishes. Avoid finishes which are not fully sealed and which are not cleanable with a damp cloth. Finishes created from rough and loosely-bound together fragments of a material held together by glue tend to continuously shed this material, as they are constantly touched by visitors. It is also problematic for park maintenance crews to clean or maintain such finishes over time.

B. Accessibility

All tactile elements are required to meet accessibility requirements specified in Section 2, 1. Universal Design in this document, and the recommended approach to developing a tactile exhibit as described below.

1. Accessibility Guidelines for the development of tactile elements:

When exhibits are planned with accessibility in mind, tactile elements provide effective communication for a wide range of visitors. In particular, tactile elements convey key interpretive messages, information, and education for visitors who are blind or have low vision or learn more effectively through touch and exploration.

Tactile elements and anticipated outcomes relate to the purpose, core themes, and central messages within the exhibit. For example, if an exhibit's core message is about the architecture of a historic house and the only tactile opportunities are to touch a few reproductions of decorative objects found within the house, it is doubtful that these tactile elements would convey the core messages and meanings of the exhibit. If this exhibit included a tactile floor plan and model of the house that visitors could touch in order to learn about the overall layout and architectural features of the house and are given audio navigation to guide them in their exploration, it is likely that these tactile elements will help to effectively communicate the core meanings and messages of the exhibit, particularly for visitors who are blind or have low vision.

2. Consider the following when designing tactile exhibit elements:

a. Tactile exhibit elements follow the guiding principles of Universal Design:

i. Useful for people with diverse abilities;

ii. Accommodates a wide range of preferences and abilities;

iii. Simple and intuitive to use;

iv. Communicates perceptual information regardless of the ambient conditions or the users sensory abilities;

v. Has no moving parts that are hazardous to use;

vi. Can be used with a minimum of effort; and

vii. Easy approach and use regardless of the user's body size, posture, or visual acuity.

b. When specified in the individual task order, include one or more consultants from the accessibility community on the design team to provide evaluation of the proposed tactile exhibit's ability to communicate clearly to visitors with disabilities.

c. Introduce tactile exhibit elements during the Wayside Pre-Proposal or Wayside Proposal 1 (unless specified in the task order) in the exhibit planning and design process, and not as an after-thought.

d. The use of touch and tactile exhibit elements is recognized as a part of a natural multi-sensory learning strategy that people of all ages and abilities use.

e. Tactile exhibit elements are audio described.

f. Textures are used to represent the concept of color or a pattern. For example, a tactile representation of our nation's flag may include three different textures for red, white, and blue. When textures are used, audio description and a color key clearly explain the textures.

g. Develop tactile exhibits that facilitate a front approach by wheelchair users; in instances where this may not be possible, such as historic structures, approval must be given by the COR.

C. Tactile Maps

Tactile maps are designed to be touchable for purposes of accessibility, often including braille, raised relief, and other tactile elements. Created from a variety of solid materials, such as bronze or resin compounds, these models show a scaled representation of the landscape in layers or three-dimensional topography data. Textures, labels, and lines can be added to the surface of the map.

Additional specific requirements regarding tactile maps may be included in the task order or provided by the COR.

D. Maintenance

Design tactile exhibit elements to require minimal maintenance other than cleaning.

E. Life-cycle Cost

Estimate the useful life span of each tactile element, considering the estimated visitation, the type of use, and other considerations, and provide repair or replacement costs. Where an interactive element requires routine maintenance, including cleaning, identify the types of maintenance and estimate the annual cost of maintenance, including material costs.

10.5 Mock-Ups and Prototypes

A. Introduction and Definitions

Mock-ups or prototypes may be required for tactile elements or unusual/innovative approaches to test the idea and work out problems before making a final decision about their use. Mock-ups may also be used for testing the interpretive effectiveness and accessibility.

Mock-ups typically refer to working models that are fabricated simply, quickly, and at minimal cost in order to test a concept. Mock-ups are full-scale representations for the purpose of review, testing, and evaluation. Mock-ups are fabricated as specified in individual task orders. Mock-ups are for review only and are not incorporated into the final wayside exhibit.

Prototypes are more refined than mock-ups, and closer to the final product in material, fabrication, and operation. Prototypes are portions of the wayside, such as interative mechanisms, that have a particular need to be reviewed and tested prior to fabrication of more elements of the same design.

B. Planning and Design Phase

The COR will identify when a mock-up shall be needed during the Planning and Design phase. Mock-ups are made from rudimentary or inexpensive materials, such as PVC, glue, and cardboard, to test the idea for effectiveness.

1. In each case, the mock-up or prototype is fabricated to demonstrate and test the functional characteristics required in the final production version.

2. If necessary, revise the design based upon review comments provided by the COR and information gained from fabrication and testing of the mock-up or prototype.

C. Production

1. Requirements for the purpose, number, and type of mock-ups and prototypes are specified in individual task orders.

2. Along with each mock-up or prototype submitted, provide the COR a report, with photo documentation, of the performance of the mock-up.

3. Unless otherwise specified in individual task orders, prototypes are corrected in accordance with the review and approval by the COR and incorporated into the final exhibit along with the other elements of the same design.

Section 3. Planning, Design, Fabrication, and Installation Process

1. Introduction

The process followed in these specifications is organized into several phases of work. These phases are based on NPS terminology and methods for structuring work and creating a predictable workflow, with adaptations to fit the specialized requirements of wayside exhibit development.

Phases of work are as outlined below.

2. Pre-Proposal

2.1 Introduction

The purpose of this phase is to gather the information that serves as the foundation for Wayside Proposal 1 and later phases.

In this phase, the contractor and the identified project team gains a clear understanding of the project's history, the park's resources, and the roles of other project team members and stakeholders. Wayside media team works with the park staff and subject-matter experts to evaluate potential wayside exhibit locations, site conditions, and landscape features, as well as determine the wayside exhibit purposes and content based on site-specific features, events, and park primary themes.

2.2 Review Government-furnished Materials

2.3 Travel to Site

2.4 Initial Meeting and Presentation

This initial meeting orients team members to project goals and process. Ideally, this is an onsite meeting.

A. Initial Meeting

Plan and facilitate the meeting. Communicate with the COR to set the date, time, and meeting location. Coordinate travel and meeting location and time. Submit agenda to the COR for review and approval, three business days or as coordinated with the COR, prior to the meeting.

At a minimum provide an agenda, and any special facilities or government-furnished equipment or materials needed. Ensure that the facility and materials are ready. Record and collect all relevant information, comments, ideas, and products generated.

B. Presentation

The presentation at a minimum should include:

1. Components of what makes a good wayside exhibit, including examples demonstrating qualities and principles
2. The process and stages of wayside exhibit development
3. Roles and responsibilities
4. Contract Deliverables
5. Site Analysis schedule
6. Potential Project Schedule
7. Set time and date for close-out meeting

2.5 Site Analysis

During the site visit, a Site Analysis is conducted, where each potential wayside location is analyzed, site photos are taken, reference materials are gathered, and discussions are documented for the preparation of the Trip Report and Wayside Proposal.

A. Site Analysis

Conducting an analysis of potential wayside exhibit sites with park staff and subject-matter experts will form the basis of the Wayside Proposal, and includes the following tasks:

1. Visit and identify potential exhibit sites with park staff and subject-matter experts.

2. Identify site-specific significance and meaning.

3. Identify the following for each wayside exhibit:

   a. Subject or Resource

      For informational waysides, determine the subject. For interpretive waysides, determine the resource.

      Determine the subject or resource for each location discussing interpretive and visual connections, and requirements for orientation, safety, or resource protection. Ideas and information captured here is documented in the purpose and notes section of wayside proposal.

   b. Purpose

      The following example illustrates the principle that a wayside should have a singular purpose.
      - For 6x12 trailside marker with danger notices

- Subject: dangerous manchineel tree
- Purpose: prevent serious injury to visitors who might touch the tree

The following example illustrates the principle that a wayside should have a singular meaning.

- For 42x24 interpretive wayside
- Resource: Manchineel tree
- Meaning: The tree is endangered and the stuff of legends.

c. Orientation & Photos

Record the viewer's standpoint and direction of view using local/magnetic compass directions (north, northeast, east, south, etc.) for each side of the wayside.

Obtain site location's latitude & longitude information within 5 feet or less.

Take site photos (photos that include latitude and longitude metadata) for documentation of the wayside's contextual location and orientation, in the direction of view of each wayside, with a marker showing where the base will be installed and shoot additional images to document unique or unusual site or resource conditions.

d. Panel Material

Discuss environmental conditions, potential vandalism, and the relative permanence of the information to be conveyed and note consensus on the panel material decisions.

e. Base Structure

Assess and take note of each site's condition and note the team consensus on base style, size, material, mount, and color. Take note of any custom base and installation needs, including site-specific measurements and photographs.

The NPS has a standard list of hardware specifications included in the *VIS and Wayside Hardware Specification Manual*. Any hardware outside of this manual is custom hardware.

f. Site conditions

Access and take note of each wayside exhibit location for safety, accessibility, including any landscaping, curb cuts, or site hardening work required. Note archeological issues and other compliance requirements. Identify and note any existing signs that need to be removed when new

waysides are ready.

B. Develop sketches to facilitate discussions and agreement.

Offer several visual solutions, or options, to convey messages and ideas. Develop pencil sketches on-site to facilitate the discussion. Use these sketches to promote discussion and clarify the focus of each wayside.

C. Review site-specific resources.

Review an initial selection of graphics in hand or based on knowledge of what is available to inform the on-site discussion. Review the graphic and content resources available including quotes, drawings, photos, or other sources provided by the park. These resources can be used to determine wayside location and orientation. Note all possible images in the wayside proposal and identify gaps in images and information.

2.6 Identify Resources

Verify accurate sources of content, including books, exhibits, films, and images in order to visualize the wayside and its text. This can include both park and local collections.

Identify resource materials, footnotes, bibliographies, graphics, and artifact collections relevant to the wayside content. Record enough source information so they can be located and properly acquired when needed. Document & verify ownership of these resources (i.e. park-owned, privately-owned, etc.). Gather reference material for proposed illustrations and maps.

2.7 Trip Close Out Meeting

During the closeout meeting, the team reviews:

1. Summary of the trip, sites and areas visited, who participated.
2. Discuss available park resources.
3. A list of potential wayside exhibits and the corresponding subject.
4. Review park themes.
5. Identify park concerns.
6. General site conditions.
7. Possible issues including accessibility, communication, logistical, graphics, resources, and compliance.
8. Overall graphic direction (discussion, samples, or sketches).
9. Panel and base material suggestions and maintenance concerns.
10. Custom elements (including illustrations, cartography, tactile models)
11. Summarize decisions made during meeting and any outstanding questions or issues, including any known or potential changes to the task order.
12. Review schedule, budget, and next steps.

2.8 Trip Report

The Trip Report is the written documentation of the information covered in the close-out meeting and forms the narrative for the upcoming wayside proposal. It is delivered post-site visit.

3. Wayside Proposal

3.1 Introduction

Work in this phase is organized into two sub-phases: Wayside Proposal 1 (P1) and Wayside Proposal 2 (P2). The proposal document can be prepared using the Wayside Exhibit Planner Database, FileMaker Pro.

The Wayside Proposal provides the overall concept and direction for each wayside exhibit documenting everything from purpose to site conditions. The work here sets the foundation for moving forward into writing, design, and ultimately fabrication and installation. It is critical to present clear direction and requirements for each wayside, to understands goals, purpose, and what is to come later in the design phase. A well-structured and clear proposal will also determine if project is within schedule and budget, and other specific parameters. See *Sample Wayside Exhibit Proposal*.

3.2 Data Requirements

Structured data plays a key role in managing all the various data points captured in a wayside exhibit proposal. The specifications below document the data needed for each wayside exhibit and how it is to be identified, named, and organized.

Harpers Ferry Center has a FileMaker Pro-based content management application called the Wayside Exhibit Planner (WEP). Contractors may use the Wayside Exhibit Planner or an approved software application of their choice in managing project content. The NPS does not provide any technical support for the WEP.

The WEP is the preferred database among HFC staff and can easily be transitioned to other COR's or other contractors. The desired data points are already in place, many with drop down options, making the entries easier and less time consuming. The idea of the database is to make reports for future work:

- Wayside Proposal 1
- Wayside Proposal 2
- Cost Estimate
- Panel and base order list for scope of work

A. Data Points

Data points include:

1. Exhibit/removal number
2. Exhibit Subject
3. Exhibit Purpose or Meaning
4. Geolocation
    a. Location description
    b. latitude and longitude in decimal degrees
5. Orientation (by panel)
    a. Reference shall be from the viewer's standpoint and direction of view
    b. Use compass rose heading (NSEW) by local compass, not true
    c. If the exhibit has multiple sides, orientation shall indicate the panel number facing the viewer
6. Map type and any special cartography notes
7. Record any compliance needs and status
8. Accessibility needs and status
9. Site condition notes, for installation; for removals, note existing installation conditions
10. Base
    a. Base description to include size either from the *VIS and Wayside Hardware Specification Manual* or custom
    b. Base material
    c. Base finish
    d. Mount type
11. Panel, including bulletin boards
    a. Panel size
    b. Panel material
    c. Double vs. single sided
    d. Number of duplicates (back up panels)
12. Graphic
    a. Proposed images, note any custom illustrations
13. Custom elements and ancillaries
    a. Type (tactile, sound, lighting, brochure rack, other)
    b. Brief description
    c. Purpose
14. General notes
    a. Miscellaneous documentation and notes

3.3 Format Requirements

Wayside Proposal information needs to be provided in a database or structured data format.

Wayside Exhibit Planner Database file for the specific project or data with instructions on how to import the data into the Wayside Exhibit Planner Database.

Unless otherwise specified in the task order, submit two hard paper copies and an electronic PDF copy.

3.4 Develop Wayside Proposal 1

Wayside Proposal 1 shall include the following sections:

A. Cover Page

Include:

1. park name
2. iconic photo of park
3. area included
4. lead project team members
5. date prepared

B. Narrative

The narrative is formed from the Trip Report, with updated and refined information, including:

1. Project overview
2. Overall accessibility approach and concerns, including proposed approach for audio description and inclusion of tactiles
3. Names and roles of project participants, including reviewers and subject matter experts
4. General artwork or custom elements
5. General graphics discussions
6. Site preparation
7. Description of tribal consultation needs and/or partner involvement
8. Role of the proposed wayside exhibits within the totality of the park's or area's interpretive programming, using relevant language from park planning documents

C. Map of proposed exhibits and removals

Where necessary to detail areas or deal with complex or extensive geography, multiple maps showing smaller areas may supplement a full parkwide map.

The map shall include all proposed new exhibits and all proposed material for removal. Each entry shall be numbered, with a different numbering system for new exhibits vs. removals.

The base map shall show identifiable ground features in enough detail to be used as reference points, such as major roads and facilities, to locate wayside exhibits to be installed or removed.

The map shall contain the following information:

1. Exhibit numbers

2. Removal numbers

D. List of all proposed exhibits and removals

Include:

1. exhibit number
2. subject
3. panel material
4. description of base (size)
5. base material
6. mount type
7. location

E. Wayside Exhibit records

For each wayside exhibit, include all the information listed unless otherwise specified in a task order.

1. Base Sketches

   a. Include standard base hardware drawings. The NPS will provide existing drawings for standard wayside exhibit bases.
   b. A 3-dimensional sketch shall accompany any proposed custom base, mount, or footer.

2. Graphic Layout Sketches

   a. Communicate the intended graphic layouts for every proposed exhibit containing graphic layouts.
   b. Clearly and legibly represent the hierarchy, focus, proportions, and composition of elements for each wayside.
   c. Each sketch shall have annotations where necessary to communicate design intent.
   d. Illustrations – note purpose, content, and style references
   e. Tactile Elements – note purpose, content, style references, and manner of attachment as well as a rough line sketch from one angle
   f. Other Custom Elements – note purpose, treatment (if audio), content sources, electrical and/or mechanical requirements, and manner of attachment
   g. Maps – note purpose, orientation, and style
   h. Text = Title only

3. Site Photographs

   a. At least one photograph of each proposed new exhibit and removal shall show a marked, specific site in context to its surroundings.
   b. Every photographed site for a proposed interpretive or informational

wayside shall include the desired view when interacting with the wayside.

F. Cost Estimates

All cost estimates shall reflect the most accurate pricing information, per wayside exhibit, available for the current state of project development.

Individual task orders will identify what items need to be included in cost estimates.

G. Updated Project Schedule

H. Draft Resource List

Update initial list of identified resource materials, footnotes, bibliographies, graphics, and artifact collections relevant to the wayside content. Record enough source information so they can be located and properly acquired when needed. Document & verify ownership of these resources (i.e. park-owned, privately-owned, etc.). Gather reference material for proposed illustrations and maps.

3.5 Submit Wayside Proposal 1

Then participate in a conference call to reconcile COR review comments and provide written documentation of all decisions made.

3.6 Develop and Submit Wayside Proposal 2

The Wayside Proposal 2 reflects approved changes, refinements, and selections from Wayside Proposal 1, including an updated production cost that meets the established production budget.

Participate in a conference call to reconcile COR review comments and provide written documentation of all decisions made.

3.7 Update Project Schedule and Resource List

4. Wayside Design Drafts

4.1 Introduction

Guided by the Proposal, reference material, and graphics package, the planner will research each exhibit topic and work with the designer to develop draft wayside exhibit design layouts that are compiled into a Wayside Design Draft for review and approval.

The Wayside Design Draft is a series of the actual graphic layouts with content integrated for each wayside panel. The contractor shall develop the Wayside Design Draft from the approved Wayside Exhibit Proposal 2 and approved Resource List. All graphic layouts shall be created using NPS wayside grids. Grids will be provided to contractors upon award and can be accessed by DOI employees at the Harpers Ferry Center SharePoint page (https://doimspp.sharepoint.com/sites/nps-hfc-waysides).

The Wayside Design Draft shall visually show the intentions for each exhibit panel. Multi-panel wayside exhibits or wayside exhibits with additional three-dimensional components shall be illustrated as a single scaled rendering, in either 2D or 3D, in addition to each panel layout.

4.2 General Requirements

All assets included in more than one of the above components shall match to their current level of development when submitted in the complete design package. For example: text in the text document shall match text placed in the layouts.

There are three formal iterations of refinement for each graphic layout design package: draft, revised, and final.

The Design Draft 1 (DD1) is the **initial** graphic layout of the wayside exhibits, including full text and all the intent images.

The Design Draft 2 (DD2) is the **revised** version, of which there could be several revisions, but shows suggested edits and changes from the first draft.

The Design Draft 3 (DD3) **final** deliverable in this phase is the approved wayside design package, including final images, maps, illustrations, and acquired rights for use. Once the design has been approved, the project can move onto the next phase.

4.3 Design Package Components

A complete design package contains the following components. See the details on each component below for completion standards. See quality standards for each component in other sections of these specifications.

A. Graphic Layout

An individual exhibit panel's layout shall be complete when all of its component assets and their placement require no further editing.

For additional specifications, see Section 2-4.4 General Specifications and Section 3-4.4 Planning, Design, Fabrication, and Installation Process.

B. Text

Update per general requirements.

For additional specifications, see Section 2-5 General Specifications.

C. Maps

Map drafts shall be included in design packages or interim review products in the following iterative order.

1. Sketch, photograph, and draft render to show style and scale with all map overlay elements such as pictographs and labels, and enough sample content to illustrate the use of each label
2. Final render, photograph, georeferenced 2D or 3D data with all content, labels, and legends placed and properly scaled.

For additional specifications, see Section 2-6 General Specifications.

D. Illustrations

Illustration drafts shall be included in design packages or interim review products in the following iterative order.

1. Line sketch and sample color reference
2. Full-color sketch
3. Complete illustration

For additional specifications, see Section 2-4 General Specifications.

E. Tactile elements

Tactile element drafts shall be included in design draft packages or interim review products in the following iterative order.

1. Detailed sketches from multiple angles (draft sketch, revised sketch)
2. 3D digitally rendered view of real data at scale; animated or rotating preferred
3. 3D model mock-up (if identified in the proposal)
4. 3D file suitable for fabrication

For additional specifications, see Section 2-10 General Specifications.

F. Custom Base Drawings

Custom wayside bases shall be detailed and illustrated as drawings. The drawings shall contain multiple three-dimensional views and details for a fabricator to understand design intent. Details specifying how the exhibit is built, for example, specific construction techniques and hardware, are necessary only to the extent

required to clarify design intent and to describe non-standard, unusual, or critical materials and processes.

G. Other custom elements

Other custom elements, such as additional hardware including audio, shall be included in design packages or interim review products.

Other specific requirements may be included in the task order.

H. Bibliography and Graphic, Map, and Illustration Source Information

Graphics and research information can be found in Section 2-4 General Specifications.

I. Schedule

Updated schedule for deliverable and timetable for completion.

J. Cost estimate

For additional specifications, see Section 2-9 General Specifications.

4.4 Graphic Layouts

Graphic layouts shall be created using NPS wayside grids according to the National Park Service grids on our website.

Graphic layouts shall be designed for legibility and to meet National Park Service accessibility requirements.

An individual graphic layout shall be prepared for each exhibit graphic element that needs to be output and mounted separately during production. Each shall be identified with a unique exhibit number.

All graphic layouts shall be prepared using approved software application programs. See software in Section 3-5.3A Planning, Design, Fabrication, and Installation Process below.

A. Data Requirements

Layouts for digital design and production-ready work shall be accessible on Macintosh or Windows PC, using Adobe InDesign.

Graphic layouts shall be organized according to exhibit number. Each layout will be one page and its own file. Additional data requirements may be included in the task order.

Graphic layouts include a slug at the bottom of each page, and should include:

1. Park name
2. Exhibit number
3. Size of exhibit
4. Percentage of actual size
5. Date (this is automatic within the grid file)

B. Typography

The government requires the use of the Frutiger Pro and NPS Rawlinson. The contractor shall acquire a license from the Linotype for Frutiger light, light italic, roman, roman italic, bold, bold italic, black, black italic, and ultra black. NPS Rawlinson will be provided by the government with guidelines. The guidelines will describe the circumstances as to how the typefaces are utilized and the importance of ensuring graphic consistency for all NPS wayside exhibits. The use of supplemental fonts for design, regulatory, or partnership will be specified or approved at the task order and design phase.

The contractor shall develop typography in accordance with the most current version of the *Typographic Standards*.

C. File Naming

The National Park Service has created a digital-file naming convention for all wayside exhibits that shall be used for all files delivered to the government. The naming convention assures compatibility with all computer platforms and archiving systems, and ensures unique file names regardless of the creator. See the Wayside Exhibit *File Naming and Folder Structure* for additional guidance.

D. Color Management

The contractor shall adopt a color-managed workflow to ensure color accuracy and consistency.

4.5 Text

Text in graphic layouts shall appear in the formats proposed for the layouts.

All text shall remain as text and not converted to vectors or outlined.

A. Text Submittals

All stages of text submittals shall be provided as a section 508 compliant digital text document in addition to appearing in graphic layouts as the project progresses.

Every text asset shall include a word count.

5. Pre-Production

5.1 General Requirements

Based on the approved Wayside Design Draft 3, a production-ready package shall be created from which wayside exhibits can be fabricated.

The production-ready package consists of:

1. production-ready digital layout files and high-resolution graphics
2. hardware drawings to support fabrication of custom bases
3. full-size, high resolution color paper proofs
4. 3D printed model of tactile elements

The following specifications shall direct the development and handling of the files.

5.2 Paper Proofs

Each full-size, high-resolution sheet shall be clearly identified with the following minimum information:

1. Project Name: NPS Alpha code plus project ID
2. Date of submittal/revision
3. Wayside exhibit number(s)

5.3 Production-Ready Files

All production-ready layouts shall contain only final text, assets, and other layout elements after all design work is complete.

A. Software

Each individual exhibit shall be created as a unique InDesign file except in cases where only a "You Are Here" or small site-related change is made. InDesign Layers or separate graphic files are used to distinguish the multiple panels in a single layout file.

All panel layouts shall be created in Adobe InDesign. Graphic files can be created in any program but the final delivered file must be compatible with Adobe Photoshop (raster) or Adobe illustrator (vector).

Files including all InDesign layouts, Adobe Illustrator map files, and all Adobe Photoshop graphic files shall be developed at full scale (Wayside Exhibit Grids are all built at 1:1 scale) and at resolution appropriate for the intended panel material.

B. Edit digital images:

Unless otherwise prohibited, provide high-resolution image editing services. Edit high-resolution scans for use on wayside exhibits. This includes but is not limited to:

1. Joining photographs to create panoramic images
2. Image clean-up and restoration
3. Lightening and darkening image areas for legibility
4. Creation of complex masks for sky addition and object or figure isolation.

C. Provide high-resolution scanning:

The contractor shall provide high-resolution scanning services suitable for large format graphics and have the capability to handle a wide variety of original media including: transparencies/ negatives (35mm, all sizes of 2.25, 4x5, 8x10) and prints of all sizes, including original art that may exceed 3 x 2 feet. Each high-resolution scan shall be provided to the COR with a color proof that accurately reflects the color and detail of the scan.

Unless otherwise specified by the COR, the following image resolution specifications shall be followed:

1. Resolution: 150-200 dpi at final image size and cropping
2. Color Space: RGB or Grayscale
3. Profile: Adobe RGB or Gray Gamma 2.2
4. File type: PSD, TIFF, pdf with no compression, or DNG

Porcelain panels requires higher resolution images and scanning services may require consultation with a porcelain vender. All media resolution for use on porcelain must be approved by the COR.

D. Provide all digital source files including:

1. Raw scans.
2. Photoshop layered edited files that may have been flattened to create the final production files.
3. Data files acquired or created in the creation of maps including GIS shapefiles, geo-referenced imagery, original layered renders, USGS vector data, digital elevation models (for shaded relief), and other accurate digital sources in the public domain.
4. Native source files for 3-dimensional illustrations, maps, and custom bases.
5. Metadata must be included in the final digital file and includes information fields supplied by the COR. See Section 2-4.7 General Specifications for additional information.

E. Production PDFs

Upon approval of final layouts, a production PDF shall be created for fabricating the exhibit panel. All digital panel vendors print panels from the production pdf. Production PDFs shall be created using specifications found in the wayside production job option settings file. A PDF generated from these settings meets requirements for bleed, transparency, and color management from common wayside panel fabricators.

F. Color Management

The design and production processes shall be color managed from beginning to end using ICC (International Color Consortium) and ColorSync color management as follows:

1. All raster images shall be in the RGB color space.
2. All vector files including maps shall be in the CMYK color space.
3. Color working space shall be Adobe RGB (1998). The Adobe RGB (1998) profile shall be embedded in all RGB files.
4. Color settings for InDesign and other Adobe applications shall be North American Prepress 2 setting.

G. Final Deliverables of Panel Production PDFs

Submit of any updated production PDFs upon completion of fabrication

H. Accessible Panel PDFs
1. Section 508-compliant, accessible PDF for each exhibit.
2. All images shall have unique ALT text.
3. At a minimum, the PDF shall pass the Adobe Acrobat Accessibility Full Check found under the "Tools" section of Adobe Acrobat.
4. In addition, the contractor shall use and submit the PDF File Remediation checklist to verify accessibility compliance, which can downloaded from: https://www.section508.gov/test/documents/

6. Production: Graphic Panels

6.1 General Requirements

The work includes the production of wayside exhibit graphic panels. All two-dimensional graphic proofs and panels shall be printed from final production graphic layouts provided in digital format.

A. Placement and Final Images

Placement images are acceptable in drafts. All placement images shall be identical to the intended final image in content.

Final images shall be fully prepared in adjustments for color balance, saturation, image sharpness, and other minor touch-up work as needed for all production-quality scans.

For image file naming system, please refer to the Wayside Exhibit *File Naming and Folder Structure.*

B. Size and Thickness

To be compatible with our wayside full-frame base system:

1. All panel dimensions are 1/8" smaller than their named or listed size. InDesign grids are built to the exact trim size required and include a 0.25 bleed.

2. All panels are fabricated in a rigid substrate (see Wayside Graphic Panel Types below) with a thickness of no greater than 1/8-inches (0.125) and a minimum of .030 inches.

3. Have the capability to produce a single piece at least 48 inches in width or height with no seams

C. Durability and Performance

a. Panel must be able to withstand temperatures from -65 degrees Fahrenheit to 350 degrees Fahrenheit.

b. Color images shall be printed using ultraviolent resistant inks and finishes. Image shall bleed off the edge of the trimmed panel.

c. Panel imaging must be free of lines or visible dot patterns, ability to print 6pt sans serif typefaces without ink-choking, discernable saw-tooth edge, or other character defects.

d. Panel must have a minimum Barcol hardness factor of 50, tensile strength of 12,000 psi, comprehensive strength of 20,000 psi, and flexural strength of 18,000 psi, minimum impact strength must be at 6 ft lbs/in notched with a fire resistance of 350 degrees Fahrenheit.

e. Face must not be permanently defaced by seam, acid aromatics, scratching, inks, or paints and should be readily wiped clean with paint remover and solvents without affecting the appearance or legibility of finished or graphics.

f. Face shall retain legibility and finished appearance when sprayed with a 10% solution of hydrochloric, nitric, or sulfuric acid for one half-hour or

when scrubbed by a brush or medium hardness using common commercial cleaning compounds such as ammonia, laundry soaps, detergent, carbon tetrachloride, or petroleum-based solvents.

g. All panel materials must be one-piece material, no laminates will be accepted.

h. Panel must be router cut, the edges must not be crazed or cracked, and the finish must be smooth, clean, and neat. Panels shall have eased edges and radiused corners for safe handling.

D. Color Management

Fabricator shall use color management throughout their process to meet required color specifications. It is the responsibility of the fabricator to adjust to meet the requirements of their material.

E. Proofs

Have the capability to produce full-size, high-resolution color paper proofs if required in the task order. Provide full size, high-resolution proofs to the COR for review and approval prior to fabrication. Full size, high-resolution proofs shall be right-reading images on embedment substrate (printed in actual color to be used in the production).

6.2 Wayside Graphic Panel Types

Produce the wayside graphic panels from the elements included in the approved Production Files. Produce wayside panels in the following panel materials unless otherwise specified in the task order. Other panel materials maybe requested or proposed in a project. All materials must be approved by the COR.

A. Fiberglass Embedded Panels

1. Each panel shall consist of a solid one-piece panel embedded in fiberglass with gel coat additive. Images shall be printed on a specially formulated substrate capable of resin saturation to ensure a true fiberglass embedment.

2. Imaged Substrate Embedment

The imaged substrate shall be embedded in fiberglass according to the following specifications:

a. Resin shall be non-yellowing R-70 clear resining or UV stabilized, acrylic modified polyester resin, reinforced with high solubility, chopped strand fiberglass mat so that the index of refraction ensures

total clarity of all color, copy, and graphics. Glass fibers should not be readily discernable on the panel face.

b. Panel must have a glass content of no less than 28% of the total panel weight.

B. High Pressure Laminate (HPL) Panels

Outdoor Grade: High pressure laminate graphic sign material shall be composed of several layers of phenolic (opaque) resin impregnated kraft filler paper collated to a thickness from .093" and, surfaced by a layer of coated inkjet graphic image substrate, digitally imaged with ultra-violet (UV) resistant, pigment based process color inks, two UV resistant melamine (clear) overlay sheets, with a modified acrylic overlay for further UV resistance and hardness, which has been pre-consolidated with an industrial optical coating. The optical top coating ensures UV resistance of over 97% of all harmful UV rays and further tempers the surface to resist vandalism and provides a surface that accommodates easy cleaning of graffiti without degrading the graphic surface.

Layers of material shall be assembled and heat/pressure consolidated in laminate presses at approximately 1300 PSF at temperatures exceeding 295 degrees Fahrenheit. Once cooled, the paper shall completely absorb the melamine to ensure a solid thermoset plastic.

C. Aluminum Panels

Each panel shall consist of a solid one-piece panel with 1200 dpi or higher ink jet graphics printed directly on aluminum, then finished with clear hard coat.

Panels shall be high-resolution capable of single and or double-sided printing. Panels are direct imaged or image transferred using UV resistant pigments and finished with a clear baked-on powder coat. Panels shall have the capability to display a matte or glossy surface. Vinyl wrapped aluminum panels are not acceptable. Must be capable of providing piece at least 48 inches in width or height with no seams.

D. Porcelain Enamel Panels

1. Porcelain Enamel Imaging

Line art/script shall be screened one color at a time with intermediate firing of each color before subsequent color is screened. The quality of the screen image shall be of high resolution with no ragged edges.

Line art shall be screened over background colors, so that characters are not obscured by the application of color.

Line art resolution shall be accurately printed at a standard which accepts as a minimum ½ point line thickness and type in sizes as small as 4 lines per inch (lpi). Black and white and color photographic / lithographic imaging shall be available at a resolution of up to 200 lpi.

Multiple color work shall maintain (+ / -) 1/500 registration of all layers, one to another. Color layers shall be fully opaque, with no bleed-through, or change in hue, value or intensity as a result of the layering of color in the imaging process. Color shall match the specified color as converted from PMS reference to porcelain enamel and as approved by the COR as a match sample prior to imaging the job. Colors shall match CMYK with color shift base on inherent qualities of base frits.

2. Produce porcelain enamel panels as follows:

    a. Image in tight register in full color on a panel size range from 6" x 6" up to 42" x 72".

    b. Maintain a capacity to handle the above-described imaging in a group of subjects (average 30 subjects) comprising one job. All production phases of the work described shall be concurrent and continuous.

    c. Fuse glass (enamel) to various substrates including enameling steel, stainless steel, and plate glass.

    d. Image four-color process images in perfect registration of separation rulings up to 150 lines per inch.

    e. Image fine line detail including mezzotint and other special effect conversion screens, 150-line half-tones and duotones, and 6 point serif typefaces without discernable saw-tooth edge or other character defects.

    f. Mechanical and chemical substrate preparation prior to imaging.

    g. Fabricate, image, and reclaim screens.

    h. Mix, apply, expose, develop, and fix enamel bearing photosensitive emulsions.

    i. Mix and match enamel colors to PMS color specifications or government-furnished color swatches.

    j. Maintain facilities and equipment required to prepare films, mix and match colors, fabricate screens, image screen stencils, screen print,

apply pre-sensitized coatings, prepare metal for the enameling process, and image and fire porcelain enamel exhibits.

k. Capability to round the panel edges and apply a continuous coat of porcelain enamel around the edges from the front of the panel to the back.

3. Film Preparation

Prepare film mechanicals (positives and negatives) to include the development of approved layouts.

Prepare original black and white and full color illustrations and photographic images for reproduction (i.e. the intermediate photomechanical steps required to convert original images into necessary film form for porcelain enamel panels.

Provide table work to include paste up, negative stripping, and assembly of film positive and negative elements into final color separated and registered format required for porcelain enamel panels.

7. Production: Wayside Exhibit Bases

7.1 Introduction

The work includes the production and delivery of wayside exhibit bases, structures, ancillary hardware, and equipment using standard and custom materials. If the design calls for standard wayside bases and materials, the contractor shall follow the specifications documented below and in the *VIS and Wayside Hardware Specification Manual*. The standard wayside exhibit base design follows a long tradition of durability, compatibility, and affordability.

The contractor may suggest changes to any standard design that would improve any of the three factors mentioned above. Custom hardware and materials shall be identified in the task order or part of the design process that is reviewed and approved by the COR. These may include but are not limited to electrical or solar components for internal or external lighting and audio units, and custom mounts or support bases for three dimensional models.

The NPS wayside exhibit standard frame-captured base is part of an integrated system that ensures panel and base work together from any era of fabrication and with any panel material. A panel produced today will fit into an older base and a newer base will accept an older panel. If a standard frame is part of the design the following rules apply.

A. Relationship Sizing

All frame-captured panels shall share a consistent relationship to their frame.

BASE RULE: Frame width and height are always 1/2" larger than the nominal panel size.

PANEL RULE: Panel size is always 1/8" under the nominal or listed size.

B. Backing Plate

To support a variety of panel materials, frames shall include a rigid carrier (or backing) plate. The plate not only provides support for the panel but also serves as the structural integrity for the frame and base.

C. Frame Capture System

The NPS full-frame panel capture specification in the *VIS and Wayside Hardware Specification Manual* fully captures the wayside exhibit panel on all four sides, protecting panel edges and allowing for easy slide-in/slide-out installation and replacement. The space tolerances accommodate slight panel trim errors and allow for expansion and contraction of different panel materials. Complete fabrication drawings are provided in the manual.

1. Aluminum

   Created using a custom acquired NPS "F" extrusion. The frame features a removable top or bottom extrusion secured with standard Phillips's head fasteners which allow easy installation and removal of the graphic panel.

2. Steel

   Created using two pieces of break-formed angle welded together. The frame also features a removable top or bottom frame piece secured with standard Phillips's head fasteners which allow easy installation and removal of the graphic panel. These standards apply to frame captured wayside exhibits.

D. Shop Drawings

As noted in the introduction, wayside exhibit fabrication is a combination of standard and custom hardware. The *VIS and Wayside Hardware Specification Manual* contains detailed fabrication drawings and materials specifications for all standard wayside exhibit base configurations. Shop drawings for standard hardware should be based on the drawings provided in the manual.

Custom hardware will include design intent drawings that communicate the overall design functions of the base or structure. In both cases, standard and

custom, the contractor shall prepare detailed fabrication drawings that clearly demonstrate how the base will be built including footer details.

Shop drawings shall be prepared for 11" x 17" or 8.5" x 11" printing and remain clear and legible. Each drawing shall be identified with the park name, contractor's name, wayside project number, drawing number, sheet number, and date of submittal. The drawing number shall correspond with the location plan if applicable. The shop drawings shall include elevations, plan views, and sections; isometric, axonometric, three-dimensional, or other views to help describe the fabrication method; details on connections of materials; material descriptions; hardware; complete dimensions; paint and finish descriptions; footer details; stone and other masonry details as specified; engineering and specifications.

E. Durability and Engineering

Wayside exhibit bases are installed outdoors in every corner of the United States and its territories. Material specifications below and those identified in the *VIS and Wayside Hardware Specification Manual* are designed to survive the widest extent of conditions possible including extremes in temperatures, wind, humidity, UV exposure, and air and ground compositions.

Additional design and performance requirements shall be specified under separate task order. These may require an engineer for design approval. Requirements may include but are not limited to wind and structural loads, underground depth requirements, and or environmental regulations. Other state and local requirements may apply.

F. Styles

Typical wayside bases include, but are not limited to:

1. Low-Profile

   A wayside that is inclined (typical 45 or 60 degrees) to enable a reader to view a park feature that is being interpreted by the wayside.

2. Upright including wall mounted

   A wayside that stands or is hung vertically that typically provides information (rather than interpretation) at trailheads and other outdoor visitor contact points. Upright panels are often 36" wide by 48" high.

3. Trailside and ID

   A wayside that is low to the ground and most often used as identification panels for plants or architectural features. Trailside panels are often 6" wide

by 12″ high.

4. Kiosk

   Multiple upright waysides assembled under roof with three or more sides.

5. Bulletin Case

   Enclosed upright weather-resistant wayside with a hinged door and clear front used for displaying and protecting changeable information.

7.2 Materials

Aluminum and weathering steel are the standard materials for the frame, backing plate, and post design as specified in the *VIS and Wayside Hardware Specification Manual*. Wood, stone, concrete, brick, iron, plastic, galvanized and stainless steel, bronze, and other materials may be incorporated into the design and serve as posts, mounts, kiosk shelters, railings, and other support elements. All fasteners shall be galvanized, aluminum, or stainless steel. All designs shall avoid direct contact between different metals to avoid oxidation and corrosion. All materials shall be new and of first quality unless specified in the task order.

Aluminum and weathering steel shall meet or exceed the specifications in the *VIS and Wayside Hardware Specification Manual* or be an "approved equal". A limited number of materials have been specified by manufacturer's trade name. These products are specified as examples and not to limit use of alternative products and suppliers that are of equal or superior quality.

7.3 Accessibility

Providing safe and approachable access to all wayside exhibit bases is a critical component of our standard system of design specifications. Wayside base specifications include design features such as rounded edges for safety, as well as install heights and cantilever design that can accommodate front approach for wheelchairs. Additional accessories including the cane detection bar provide more choices and options to meet the requirements for protruding objects in ABAAS along accessible routes and circulation areas. These design elements will either be identified in the task order or approved by the COR during the planning process.

Refer to guidelines and specifications in the *Programmatic Accessibility Guidelines for National Park Service Interpretive Media* for additional requirements and considerations.

7.4 Welding

Provide high-quality welding of aluminum and steel. All metal components to be joined shall be beveled before welding to ensure deep fusing by the gas or electric (TIG) process. Filler of the same metal shall be applied neatly and uniformly, ideally

requiring minimal grinding or sanding of excess material. Any subsequent grinding filing, or sanding shall be undetectable and shall not distort the surfaces or edge contours of the joined parts. Overground and weakened joins are not acceptable. All metal components shall be free of weld spatter and any other marks related to the welding and finishing process.

When welding Core-Ten steel, the welder shall use E7018 or SG2 Metal Inert Gas (MIG) wire.

All sharp edges on assembled or welded components shall be ground smooth to avoid risk to visitors.

All drilled holes shall be free of burrs and chamfered. Any computer numerical control (CNC) routed openings that are visitor accessible shall be eased and de-burred to remove sharp edges.

Other standards for welding shall be as recommended by:

American Welding Society
550 NW LeJeune Road Miami, Florida 33126
305-443-9353
800-443-9353
www.aws.org

7.5 Finishes

Wayside exhibit bases are installed in every climate, elevation, and latitude. In addition, bases are often never touched again after installation unless they are damaged or no longer needed. Finishes are chosen for durability, ease of maintenance, design aesthetic, or to match an existing finish. Finishes shall be completed as per the approved design or individual task order.

A. Unpainted

Unpainted options shall include but are not limited to sanded aluminum, stainless steel, and galvanized steel. Weathering steel is naturally unpainted.

B. Finishing

Provide paint, powder coating, staining, and other chemical treatments to a variety of materials including but not limited to wood, aluminum, and steel. Finish shall be specified in the task order or recommended and approved by the COR. Specifications for aluminum bases are detailed in the *VIS and Wayside Hardware Specification Manual*.

1. Color

The NPS has developed three standard colors. Details are provided in the manual.

2. Touch Up

   The contractor shall supply matching touch-up paint and primer with all painted base orders and offer touch-up paint kits (primer and separate paint) as separate orders. Touch-up paint can be supplied in aerosols, pens, or bottles depending on the type of paint. Multi-part epoxy paints can be provided as matched single-part metal enamel (topcoat) and separate etching primer. All paint shall be shipped according to federal regulations regarding hazardous chemicals. As a standard practice, no paint shall be shipped by air transit.

3. Paint Chips

   To assist with future paint matching and color documentation, a 2”x2” finish chip for every color and material used in the base shipment shall be supplied with a base order. The chip shall be made of the same material used in the order.

8. Installation

Wayside exhibits are installed according to installation plans and assembly instructions. Installation includes the removal of existing wayside hardware as specified in the task order, and assembly and installation of all wayside exhibit elements including bases, panels, ancillaries, accessories, and accessibility features. Work may also include connecting to power or installing solar for lighting or other electrical hardware.

8.1 On-Site Removal/Installation Meeting

Coordinate with the COR to schedule an on-site installation/removal meeting with the following agenda:

1. Assess existing conditions which impact the installation of the wayside exhibits, including access to installation location, parking, and weather.

2. Field-verify and precisely mark wayside exhibit location as identified in task order.

3. Coordinate and locate a secure laydown, storage, and staging area for the exhibits, contractor materials, and installation equipment.

8.2 Equipment

The contractor shall provide all the equipment and machines to complete the work. The equipment shall be clean and free of any plant materials, seeds, or dirt from a previous job site. The contractor shall provide earthmoving equipment, augur, lifts, concrete mixing equipment, and all other tools. The contractor shall ensure that all personnel using this equipment are trained. The contractor shall not use government-furnished equipment or tools for installation.

8.3 Removal of Existing Exhibits

Remove, recycle, and dispose of existing wayside exhibit structures. Where structures are removed, all holes and surrounding ground area at the removal site shall be filled and repaired.

8.4 Safety

The contractor shall provide adequate personnel to install the wayside exhibits and components specified in task order.

Equipment operators shall be fully trained.

Installation crews shall be required to wear Personal Protective Equipment (PPE) at all times while on-site installing the wayside exhibits. PPE includes high-visibility vests with conspicuity, reflective stripes, gloves, ear-plugs, goggles, and hard hats as required for using tools or operating machines used during the installation.

A. Work Zones

   Provide a visual and physical barrier between the wayside exhibit installation work zone and public foot traffic to keep out unauthorized intrusions, for safety of the public and for the protection of the work being performed.

B. Barriers

   Safety cones, self-supporting orange construction fencing, and caution tape, and panels or sawhorses identified with signs, are acceptable components of work zone barriers. Work zones include power tool stations as well as installation work areas. Power cords, tools, hoses, and hardware shall be kept inside the work zones.

C. Signs

   Provide signs on the work zone barrier, identifying the area as a work area and closed to the public. If hard hats are in use in an area, identify it as a hard hat area, only.

D. Access

Provide clear, accessible passageways to areas of public access which pass through the work zone. Separate the public access from the work zone using barriers on both sides, identified by signs.

8.5 Assembly and Installation

A. Assembly

Assemble all wayside exhibits according to COR-approved shop drawings specifications.

B. Staging Area

Waysides shall be stored on-site during installation in a designated staging area. Prior to the installation, the contractor shall coordinate with the COR to locate a secure staging area and plan how wayside and equipment storage shall be accomplished so as to provide protection of the waysides, contractor equipment and tools, and to minimize disruption of park operations. The contractor shall submit their plan for staging and parking, with the COR for review and approval prior to the installation.

C. Underground Utilities

The contractor shall ensure that all underground utilities are located and flagged before any excavation and wayside exhibit installation occurs. If it's on NPS property, the contractor shall work with NPS staff to identify and flag. The contractor shall bear the responsibility of costs of any repairs if the site is not surveyed and flagged prior to installation. Where installation problems may occur due to underground utilities the contractor shall inform the COR in writing and coordinate an alternate location for the wayside exhibit or shall hand dig the site.

D. Installation Site Closure

The general installation site shall be open to visitors during the installation period. The immediate area where the work is occurring shall be closed off by the contractor with stanchions, caution tape, and "Do Not Enter" signs.

To protect site installation crews in high-traffic vehicular areas, the installation site shall be protected with warning barricades, roped enclosures, and signs. The barricaded area shall be large enough to allow staging of equipment, storage of waysides and components, and waste debris while working.

Along roadways the contractor shall park all equipment and vehicles in a safe operating location to eliminate the potential for accidents. Hi-visibility safety signs shall be erected on both sides of the roads, and in advance of the work zone. Vehicles in roadway work zones shall be fitted with yellow flashing lightbars or beacon style lights. Work zones located along curves or in blind site lines shall

employ a flag-person and additional warning signs to maintain a safe work zone.

Work areas in pedestrian zones along sidewalks, trails, or the visitor center shall be protected with warning barricades, roped enclosures, and signs. Holes for footers or post installation shall not be left open and unprotected. Concrete footers with exposed rebar shall be covered during the curing process.

The contractor shall work with the park contact to provide a detour route during site closures, if necessary. In the event of overnight closure such as for foundation pours, the site shall be protected and barricaded to prevent pedestrian and visitor injury as well as theft of materials left unattended.

Recycle shipping containers and packing materials at the installation site that are not retained for re-use.

Install and wire to code of basic indoor and outdoor electric lighting components including standard light emitting diode (LED) fixtures, sockets, junction boxes, diffusers, and conduit.

E. Site Condition and Cleanup

During the installation, the contractor shall maintain all areas in a clean condition on a daily basis and provide means of preventing dirt, weeds, or waste material from being tracked into adjacent areas of the site. The contractor shall provide bags and containers for storage of trash. The contractor shall be responsible for removing waste materials generated during installation from the park daily. The contractor shall not dispose of their waste within the park, on park grounds, in dumpsters, or containers that belong to the government or to other contractor's working on-site.

The contractor shall thoroughly clean wayside structures and surfaces to remove handprints, dust, and miscellaneous markings generated during the installation. The contractor shall handle all acrylic, glass, and graphic panels with clean gloves.

The contractor shall refill all holes and repair all surfaces disturbed during installation of waysides and structures with identical materials. Ground surfaces shall be cleaned up, smoothed out, and reseeded with matching grass.

F. Existing Work

The contractor shall request authorization from the COR prior to cutting, drilling, altering, or removing material within the site. The contractor shall not cut down trees, trim trees or remove bushes, shrubs, or other plant vegetation without coordinating such work with the COR. Work that is replaced shall match existing work. The contractor shall restore anything damaged or defaced due to the contractor's error during installation to the original condition. Restoration work shall be coordinated with the COR prior to start of work.

8.6 Walkthrough Inspection

Coordinate with the COR to schedule an on-site final walk-through meeting with the following agenda:

1. Verify that all items identified in task order have been assembled and installed. Each wayside exhibit shall be inspected against the shop drawings to confirm signs were installed in accordance with contract specifications.

2. Verify that all wayside exhibits identified in task order have been removed and surrounding areas have been restored to smooth ground level.

3. Identify punch-list deficiencies (items that need to be corrected by the contractor). Record and maintain a list of the punch-list deficiencies as they are identified by the COR and provide a copy of the list to the COR after the walk-through inspection.

4. Conduct a project closeout session with the COR and park staff. Return any remaining Government Furnished Materials in the contractor's possession.

8.7 Punch List

Prepare and submit an installation punch list to the COR. When required, travel to installation site and complete or correct punch list items.

9. Closeout

Work in this phase includes the preparation and organization of all final wayside exhibit materials
and documentation.

Closeout includes providing the following:

1. Final editable InDesign files with linked images and fonts, including all revisions and corrections made during production.
2. Raw scans and layered graphic production files
3. Source files for three-dimensional elements
4. Source file for proposal
5. Production PDFs
6. 508-compliant PDF of each wayside exhibit
7. 508-compliant Word document of audio description
8. Return any government-furnished property.
9. Final resource list
10. Finish chips for base paint matching
11. Graphic use rights and license information