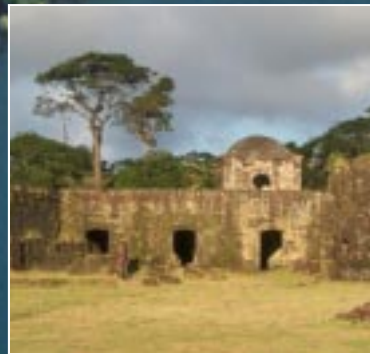
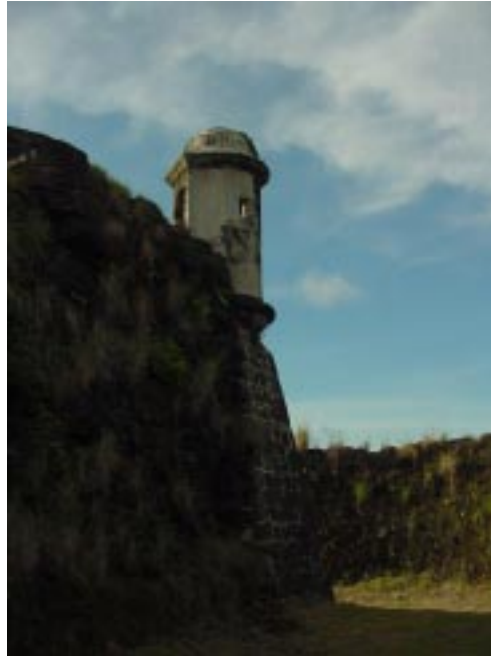


# **Castillo San Lorenzo, Panama**

Concepts for Interpretation  
and Site Planning:  
A Prelude to Master Planning





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# **CASTILLO SAN LORENZO**

## **PANAMA**

### **Concepts for Interpretation and Site Planning: A Prelude to Master Planning**

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In cooperation with:  
Interoceanic Regional Authority (ARI)  
National Cultural Institute (INAC)  
National Environmental Authority (ANAM)  
Panamanian Tourism Institute (IPAT)  
Panamanian Center for Research and Social Action (CEASPA)



July 2001

This work was completed for USAID/Panama by the USDA Forest Service International Institute of Tropical Forestry (under USAID-PASA No. 525-AG-98-00072-00) and Heritage Design enterprise team, with assistance from USDA-Foreign Agricultural Service, Office of International Cooperation and Development.

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## Table of Contents

|  | <i>page</i> |
|--|-------------|
| <b>I. Introduction .....</b>                                 | <b>1</b>    |
| <b>II. Background .....</b>                                  | <b>5</b>    |
| <b>III. Tourism at Castillo San Lorenzo .....</b>            | <b>11</b>   |
| <b>IV. Immediate Action Items .....</b>                      | <b>15</b>   |
| A. Develop a Map Brochure .....                              | 15          |
| B. Install Directional Signs .....                           | 15          |
| C. Install a Welcome Sign .....                              | 15          |
| D. Install Castle Feature Signs .....                        | 15          |
| E. Create Collateral Products .....                          | 16          |
| F. Create a Map Exhibit .....                                | 16          |
| G. Pilot Project for Volunteer Research .....                | 16          |
| H. Use Alternative Measures for Vegetation Maintenance ..... | 17          |
| I. Use Landscape Plantings .....                             | 17          |
| J. Remove Hazard Trees .....                                 | 17          |
| K. Conduct a Customer Analysis Survey .....                  | 17          |
| L. Conduct a Transportation and Facilities Inventory .....   | 17          |
| M. Eliminate Visual Intrusions .....                         | 17          |
| N. Provide Barrier-Free Access .....                         | 18          |
| O. Install a Moat Bridge .....                               | 18          |
| P. Improve Guard Rails .....                                 | 18          |
| Q. Define Pathways .....                                     | 19          |
| R. Cease the Use of Hazardous Chemicals .....                | 19          |
| S. Provide Sanitary Facilities .....                         | 19          |
| T. Provide Trash Collection .....                            | 19          |
| U. Conduct a Boundary Survey and Map Site .....              | 20          |
| <b>V. Long-term Master Planning .....</b>                    | <b>37</b>   |
| A. Interpretive Planning .....                               | 37          |
| 1. Themes and Storyline .....                                | 37          |
| 2. Layered Interpretation .....                              | 38          |
| 3. Design Elements .....                                     | 39          |
| 4. A Family of Signs .....                                   | 40          |
| 5. Guide Training .....                                      | 41          |
| 6. Volunteer Research Tourism .....                          | 41          |
| B. Scenery Management Planning .....                         | 42          |
| C. Visitor Activity Zoning .....                             | 43          |
| D. Transportation and Trails System Planning .....           | 43          |
| E. Site and Facility Planning .....                          | 45          |
| 1. Site Inventory and Analysis .....                         | 45          |
| 2. Visitor Analysis and Marketing Study .....                | 46          |
| 3. Synthesis of Information .....                            | 46          |
| 4. Architectural Guide .....                                 | 47          |
| 5. Design Narrative .....                                    | 47          |
| 6. Master 'Concept Site Plan' Drawing .....                  | 47          |

---

## Table of Contents

|   | <i>page</i> |
|---|-------------|
| <i>F. Other Components of Master Planning</i> ..... | 48          |
| 1. Curatorial Plan .....                            | 48          |
| 2. Mitigation .....                                 | 48          |
| 3. Security .....                                   | 48          |
| 4. Research .....                                   | 48          |
| 5. Monitoring .....                                 | 48          |
| 6. Marketing .....                                  | 49          |
| 7. Funding Strategy .....                           | 49          |
| 8. Legal mandates .....                             | 49          |
| <i>VI. Bibliography</i> .....                       | 50          |

## List of Illustrations

### Figure

|  |    |
|--|----|
| 1. Castillo San Lorenzo location map .....   | 3  |
| 2. Lower Chagres River from castle .....   | 7  |
| 3. An inventory of Castillo San Lorenzo existing features .....                      | 8  |
| 4. Castle and bluff from Chagres River .....   | 9  |
| 5. 18 <sup>th</sup> century map of Castillo San Lorenzo area .....                   | 9  |
| 6. Chagres townsite along bay south of castle .....                                  | 10 |
| 7. Interior of castle .....  | 10 |
| 8. U.S. Military pillbox along shoreline .....                                       | 10 |
| 9. Rainforest and cove north of Castillo San Lorenzo .....                           | 12 |
| 10. Important sites along the Camino de Cruces .....                                 | 13 |
| 11. A possible Castillo San Lorenzo logo .....                                       | 21 |
| 12. Approach signs specifications .....  | 22 |
| 13. Recommended sign placement .....   | 23 |
| 14. Welcome sign example .....   | 24 |
| 15. Existing Castillo San Lorenzo signs .....  | 25 |
| 16. Orientation sign contents .....  | 26 |
| 17. Possible concepts for a portable exhibit .....                                   | 27 |
| 18. Parking area and castle .....  | 28 |
| 19. Another view of Chagres River from Castillo San Lorenzo (note mowed grass) ..... | 28 |
| 20. Approach road to castle parking lot .....  | 29 |
| 21. Approach road coming onto bluff .....  | 29 |
| 22. Castillo San Lorenzo approach road as it tops the bluff .....                    | 30 |
| 23. Castillo San Lorenzo parking lot .....   | 30 |
| 24. Vicinity of caretakers house .....   | 31 |
| 25. Caretakers house .....   | 31 |
| 26. Castillo San Lorenzo moat .....  | 32 |
| 27. Main access stairs from moat to top of castle .....                              | 32 |
| 28. A good location for a moat bridge .....  | 33 |
| 29. Crooked guardrails around moat in disrepair .....                                | 33 |
| 30. Unprotected edge of castle bluff .....   | 34 |

---

## Table of Contents

*page*

### ***List of Illustrations***

#### ***Figure***

|  |    |
|--|----|
| 31. Castillo San Lorenzo features .....  | 34 |
| 32. Castle stairs could pose a threat to visitors .....                                      | 35 |
| 33. Moss-covered walls of castle vaults .....  | 35 |
| 34. Layers of Interpretation for Castillo San Lorenzo .....                                  | 38 |
| 35. A family of signs .....  | 40 |
| 36. View to sea from from Castillo San Lorenzo .....   | 42 |
| 37. Possible locations of recreation trails at Castillo San Lorenzo (after URBIO 2000) ..... | 44 |
| 38. Factors to consider for site planning .....  | 45 |





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## I. Introduction

When the Spanish first sought trade routes across the Americas, they recognized the strategic importance of the Chagres River in providing easy access across half the Isthmus of Panama. Thus they built a fort, or castle, at the mouth of the Chagres River to guard the Atlantic approach to the route. The castle played a vital role in the history and politics of the Americas during the 16<sup>th</sup>–18<sup>th</sup> centuries. Its role is still important to the surrounding area, as an icon, a special place, and now especially for its tourism potential and the role that it can play in the future economy of the area.

Castillo San Lorenzo (CSL) is a site of global importance. It was one of the original UNESCO World Heritage sites, designated in 1980. The work of Zapatero (1985), and more recently Urbio (2000), have made clear the historic significance of CSL. Its discovery as a tourism treasure has just begun. But it is a fragile resource, one that must be protected and preserved. A growing tourism industry must be balanced with site preservation. Careful planning is needed to accomplish this goal.

The present document provides a vision for tourism development for CSL and a framework to achieve that vision. It is not intended to be in-depth management planning, but rather to serve as an intermediate step and generate thinking for master planning. It contains:

- a vision of what CSL can become as a tourism goal
- suggested immediate action items addressing interpretation and site planning issues for short term management of the site
- a description of the master planning process for long range management

CSL is located within the larger San Lorenzo Protected area (SLPA), a large expanse of land west of Limon Bay (Fig. 1). The management future of this relatively undisturbed coastline and rainforest is now being decided. Jurisdiction over the area is with the National Environmental Authority (ANAM) and the Interoceanic Region Authority (ARI). Jurisdiction of the World Heritage Site of CSL lies with the National Cultural Institute (INAC) and with the Panamanian Tourism Institute (IPAT). It is important that all work planned for CSL tie into, and be consistent with, planning for the larger SLPA. The present document is a part of this effort.

Our recommendations for tourism management at CSL and SLPA have developed over the past year, during which time we made numerous visits to the area and held meetings with key agency and organization personnel. We have also talked extensively with tour operators and visitors at the site. This document incorporates the ideas of a number of international specialists on interpretation and tourism development, as well as a number of Panamanians who care deeply about the history and future of Castillo San Lorenzo.





Figure 1. Castillo San Lorenzo location map.



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## II. Background

**Castillo San Lorenzo (CSL)** is not just a fort, but an entire cultural landscape of villages, transportation networks, and associated features within the 28-hectare World Heritage Site designation. The story of CSL also includes the viewshed of the coast, of the lower Chagres River, and of the rainforest (Fig. 2). The role of these components in the history of CSL need only be identified and interpreted to make them visible and give them meaning to visitors. In addition to their intrinsic historical, archeological, and natural value, all of these individual resource components have important economic value for tourism (Fig. 3).

For hundreds of years CSL has played an important role in the history of the Las Cruces Trail across the isthmus, of which the Chagres River route was a part, as well as in the larger history of the Americas. There are many exciting stories to draw upon for interpretative inspiration; some of these are of global fame and significance. Some sources of this history are well known, but much research is needed to flesh out this history.

Phillip II ordered the construction of a fortification at the mouth of the Chagres River in 1582 to guard the river passage that connected with the land route of Camino de Cruces to Panama City and the Pacific (Zapatero 1985). A large castle was built here on a high bluff overlooking the Atlantic coastline (Fig. 4). A village grew up in its shadow. The history of the soldiers and settlers who lived here has yet to be learned - where they come from, how they modified the land, what they grew, how they survived in a foreign land - has yet to be researched.

The pirate forces of Henry Morgan in 1671 attacked and destroyed most of this first castle and its village on their way to sack Panama. Eye witness accounts of the event describe the fortification then as consisting largely of earth-rammed wood palisades surrounded by a deep moat; a large clearing existed in front of these walls (Esquemeling 1967). Structures inside the fort were made of earth with thatched roofs that burned easily during the devastating pirate invasion.

The castle was rebuilt and expanded into a stronger fortification with stone walls and outlying batteries. The village grew, according to maps made through the centuries, and spread from the bluff adjacent to the castle walls, to the low-lying area around the cove of the Chagres River (Fig. 5). Roof tile, ceramics and cobblestones washing out around the cove, along with relic garden plantings and roadways are evidence of this (Fig. 6).

The castle was destroyed again, in 1741, by the forces of the Admiral Vernon. Rebuilt afterwards into its present configuration, the castle remained a Spanish strategic center and even grew in importance (Fig. 7). It was one of the last strongholds of Spain on the coast of the Americas, and occupied by those forces perhaps as late as 1840. During the early 19<sup>th</sup> century the castle was used as a prison for political prisoners. A plaque currently at the site commemorates the life of one political prisoner incarcerated here.

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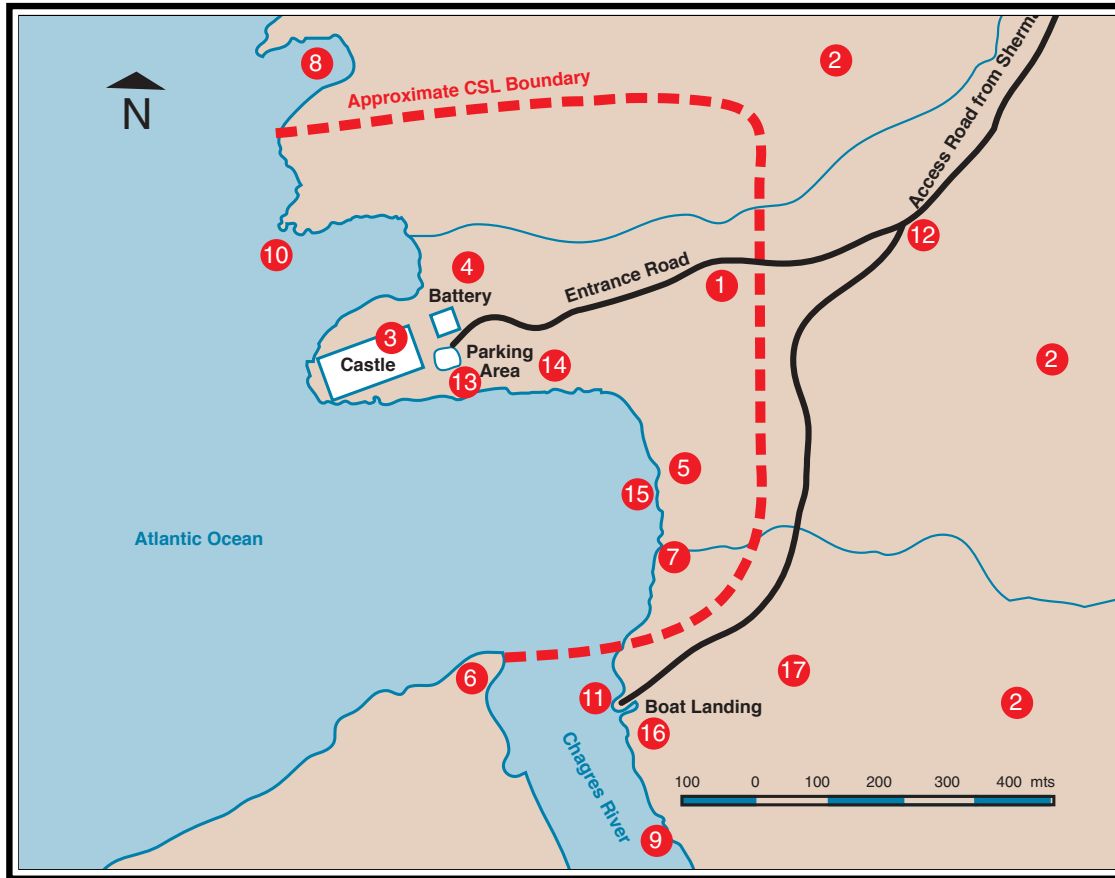
The village of Chagres thrived even after its castle was deserted. During the California gold rush in 1849, ships carrying hopeful miners landed here and transferred to smaller boats and canoes for the trip to Panama and the Pacific. According to maps of the period, the village expanded to include a boat landing on the opposite bank of the river. CSL key role in the trans-isthmus passage ended with the completion of the Panama Railroad in 1854, which bypassed the lower Chagres River and made Colon its Atlantic terminus.

In 1914, the remaining residents of the village of Chagres were relocated down the coast and the area was incorporated into the United States military reservation of Fort Sherman. Pillboxes along the shoreline of the bay are evidence of this occupation, as is a anti-aircraft gun emplacement (Fig. 8). Roads were constructed, often apparently built over the old stonework of castle roadways. Generally, this military occupation protected the site as it grew back to rainforest through the 20<sup>th</sup> century.

Today, CSL is being recognized as one of the most unique and premier tourist destinations in the Americas: a mysterious castle with hidden stories of great historical importance; an unspoiled rainforest with beautiful sea vistas. In the past two years, what had been a trickle of mostly local visitors, has grown to a flood of international tourists. Recent construction of cruise ship terminals at Colon is expected to dramatically increase this trend. CSL is under siege and threatened by unregulated tourism.



Figure 2. Lower Chagres River from Castle.



Existing Features

1. Patterns of old cobble and stonework found next to the existing approach road
2. Rainforest of the 28 hectare area (views, wildlife and sounds)
3. Castle
4. Batteries and hilltop archaeological area
5. Chagres settlement and the Chagres port
6. *Fort de la Pointe* in a French map from 1764, on the west bank of the mouth of the river, and the site occupied in the 1850 decade by the population of Turnia.
7. Existing atracadero
8. Small bay north of the castle
9. Views upriver (foreground and background)
10. Views to sea (and other cove)
11. View from boat ramp of fort and its layers of construction
12. Roads, trails
13. Parking area
14. Caretaker's house and lawn
15. Pillboxes, other U.S. military evidence
16. Boat landing
17. Old railroad bed

Figure 3. An inventory of Castillo San Lorenzo existing features.





Figure 4. Castle and bluff from Chagres River.

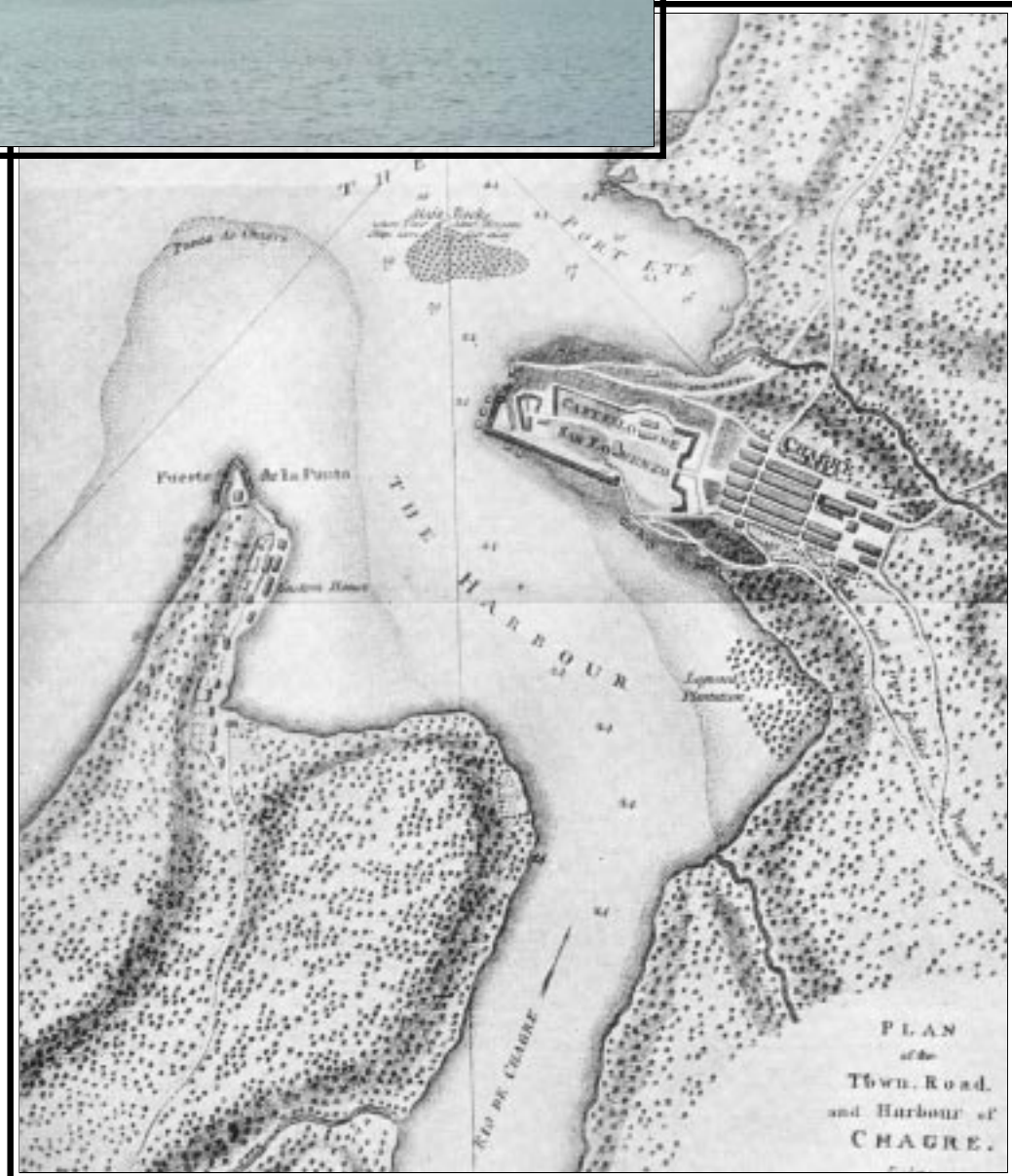


Figure 5. 18<sup>th</sup> century map of Castillo San Lorenzo area.



Figure 6. Chagres townsite along bay south of castle.



Figure 7. Interior of castle.



Figure 8. U.S. military pillbox along shoreline.

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### III. Tourism at Castillo San Lorenzo

There is great potential for increased tourism at CSL. Our vision of this is as follows:

**Castillo San Lorenzo is a discovery zone**, inviting visitors to explore and find meaning in the natural setting, the cultural landscapes, and historical structures of the site. The natural setting and the heritage integrity are respected and management decisions are guided through zoning areas by defining limits of acceptable change. Low impact, soft eco-tourism preserves its ‘wilderness’ setting and ‘lost city’ flavor for future generations to discover.

**Castillo San Lorenzo is maintained and managed in adherence to strict conservation guidelines**, archaeological resources are protected and the historical ruins are stabilized. The rainforest and its wildlife are also protected as a valuable part of the visitor experience to the site (Fig. 9). No inappropriate intrusions of sound or site are allowed.

**Castillo San Lorenzo offers interpretation that encourages visitors to make their own connections and draw their own conclusions.** Interpretive presentations are layered and range from discovery recreation (where the visitor becomes the archaeologist searching for clues), to brochures, to low-impact signage and sign structures, and guided tours. Signage features historic images and quotes, allowing the fort and its inhabitants and contemporaries to speak for themselves.

**Castillo San Lorenzo offers visitor opportunities that are integrated with those of the larger SLPA**, exploring history and nature through a SLPA visitor center, trail networks, a few signed roadways and interpretive kiosks. At CSL, visitors are offered the choice of many recreational experiences. ‘Interpretation as recreation’ opportunities range from primitive exploration of the forest-covered features, a network of pedestrian and bicycle trails, tie-ins with boat travel routes, and perhaps access from Sherman by quiet, non-polluting electric trams, allowing visitors a chance to experience wildlife along the way.

**Castillo San Lorenzo is a showcase of Panama’s TCI agenda** - linking tourism, conservation and research. CSL is a model project for world heritage tourism; Panama is known and respected internationally for its unique approach.

**Castillo San Lorenzo is tied to other significant Spanish Colonial trans-isthmus sites as a part of a larger heritage corridor** that includes Portobelo, Camino de Cruces, Panama Viejo, and possibly, Casco Viejo (Fig. 10). Interpretation through all these sites consists of a single or related storyline that between the sites tells the whole story of Spanish in Panama and beyond. Common design elements create also a visual link between the sites.

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**San Lorenzo is identified as a key component of new government strategy to integrate low-impact tourism with conservation and scientific research, and creating strategic alliances with local communities.** A network of natural and historic attractions are envisioned, connected by travel routes. The foremost of these, the “*Route of the Treasures of the Americas*” consists of two principal trans-isthmian historic routes, including the Camino de Cruces/Rio Chagres to CSL. Collectively, these sites create a critical mass of attractions for visitors and serious students of history, which is unsurpassed in Panama, and perhaps, the world. This heritage corridor links SLPA with other parks, historic sites, and the world-famous Canal system, to become the premier tourist attraction of Central America.

To achieve this vision, to reach these very attainable goals, several steps have to be taken along the way. The first is to address the emergency situation created by the sudden increase in tourism. The other is to plan for long-range management. The following section makes recommendations for short-term solutions, the remainder of the document then outlines master planning elements for the long-term.



Figure 9. Rainforest and cove north of Castillo San Lorenzo.



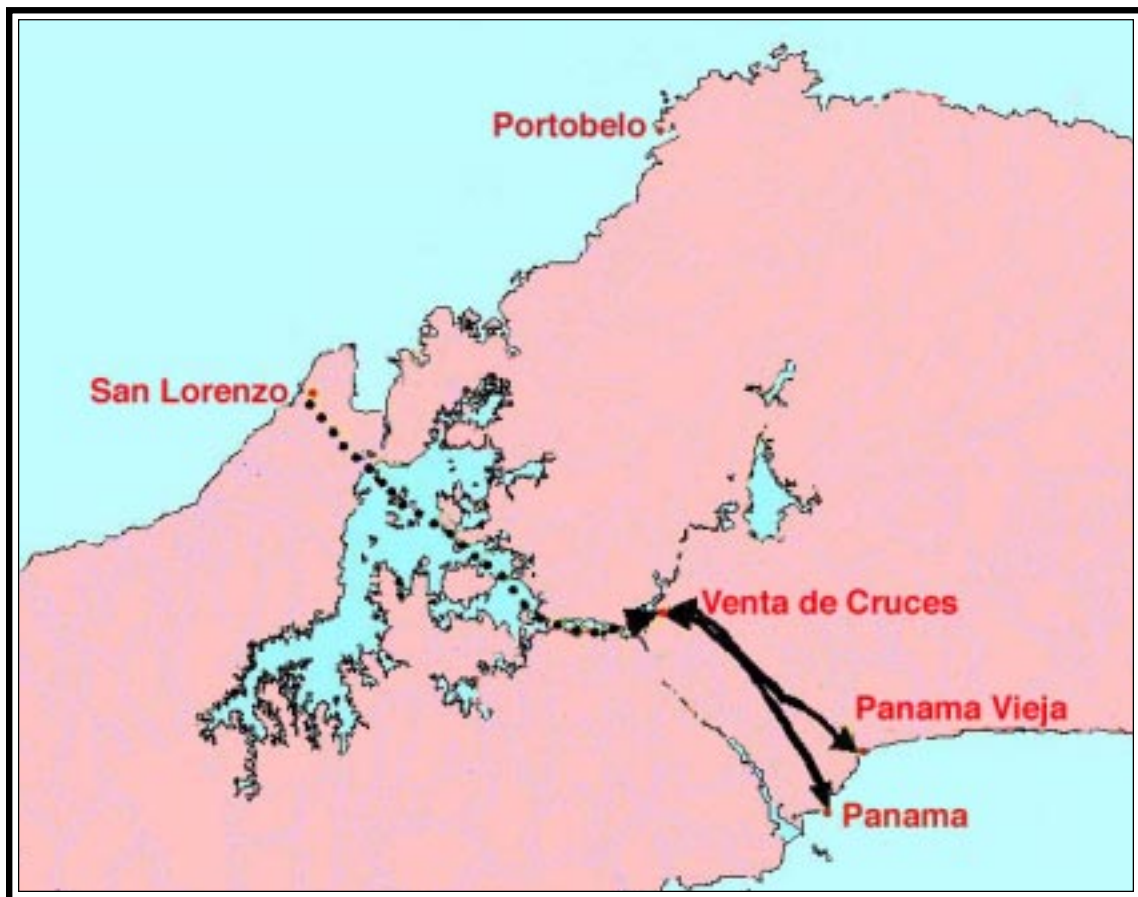


Figure 10. Important sites along the Camino de Cruces.



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## **IV. Immediate Action Items**

This is a compilation of the immediate action items for interpretation and site planning identified to deal with the tourism influx. These can be applied to a short-term maintenance and operation plan for CSL, while long term management planning is undertaken.

### **A. Develop a Map Brochure**

A high-quality map brochure would help fill the information gap for visitors to the site. This brochure should include a map of the area, a diagram identifying features of the Castle, a basic history of the site and visitor information (all text should be bilingual [English/Spanish]). This brochure could be free with the price of admission (if admission is charged at the SLPA entrance gate).

The publication of a map brochure is the easiest short-term solution for Castle interpretation. It serves the same purpose as signage, but with no site impacts. This brochure would have to be consistently made available to all visitors.

### **B. Install Approach Signs**

Directional signing to the site is another needed quick fix. Visitors should not have to wonder if they are on the right road, or which way to turn at an intersection. Also, it is important that all signs at, or leading to, CSL visually and thematically tie together. Signs leading visitors from Sherman to the site should be uniform and attractive and also should include a CSL logo (Figs. 11-13). This CSL logo needs to be developed as soon as possible and then used on all visitor information about the site.

### **C. Install a Welcome Sign**

In lieu of a visitor orientation kiosk at the entrance to the site (which will take long-range planning to develop), a welcome sign could be placed at the turnoff road to the fort (Fig. 14). All other signs at that intersection should be removed, as they unnecessarily clutter the area and take away from the visitor experience. The existing vertical sign at the edge of the parking lot should also be removed (Fig. 15).

### **D. Install a Castle Orientation Sign**

Visitors need some interpretation now to know what they are looking at in the Castle. There are several ways this need could be addressed. The first option is to place individual signs identifying Castle features within the structure itself. This option is best addressed in the long-term master planning process, as it involves serious considerations including visual impacts (especially to photography) and mounting problems (attaching signs directly to walls would have to address structural damage; ground anchoring of signs need to address possible disturbance of sub-surface archaeological deposits).

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A second option is to place an orientation panel containing Castle feature at the edge of the parking lot. Here, it would have less negative impacts and visitors could begin their visit prepared for what they were going to see. An orientation sign should basically contain the same information as the map brochure (Fig. 16).

### **E. Create Collateral Products**

Many “collateral” products could be produced as a means to enhance revenues for site management (for signage, guide service, and etc.) and as a means to give the visitors a fuller experience. Visitors come to CSL to see the historic fort and the rainforest, but many of them would like to take home a souvenir and/or more detailed information about the site. Thus, there is a ready demand for many products that could be marketed to the visitors, both local and international. In other countries the most efficient means of producing and marketing these collateral products is through local NGOs that form partnerships with the protected area management institutions. Many successful examples of this type of partnership can be provided if desired.

It is recommended that a “product development strategy” be written. This could be a 2-3 page document that outlines 1) what products should be produced, why, for what audience, and etc., 2) what is the best method to market these products, and 3) estimated cost and time frames for product development. This strategy could be developed in a 1 or 2-day work session between the institutions involved with the management of CSL. Possible products could include such items as: CSL posters, brochures, postcards, and photo booklets. Collateral items for sale in conjunction with the cruise ship tour operators would provide visitors a take-home souvenir, bring more attention to the site, and be a source of revenue for site protection and signage costs.

### **F. Create a Portable Map Exhibit**

A portable map exhibit featuring many maps of the Spanish Colonial period can be used to emphasize and market San Lorenzo’s role and importance in Panamanian and world history. This exhibit should be designed so it can be mobile and easily transported and set up at different locations. As example, Figure 17 shows two ideas of an appropriate portable exhibit - this type of display would feature high quality productions of old maps, along with professional quality photographs; it would cost about \$15,000 dollars to design and produce.

### **G. Pilot Project for Volunteer Research**

Implement a pilot project using international volunteers, under the direction of professional archaeologists, to accomplish the most urgent inventory projects needed for management planning (see section V.a.6. on page 43 for more detail). A good pilot project would be the inventory and mapping of cultural features of Chagres town site.



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## **H. Use alternative Measures for Vegetation Maintenance**

As an alternative to mowing and the use of herbicide, use goats and sheep for maintenance of non-native vegetation and evasive plant treatment in area of Castle (Figs. 18-19).

## **I. Use Landscape Plantings**

Use native vegetation for buffers, screening and other strategic plantings. A planting plan should be prepared by a landscape architect, with knowledge of local native vegetation, before any vegetation is planted. This plan should be discussed to define objectives, purpose and desired effect. Consideration should be given to plants that were found in the area when the CSL was in use, and other “attractive” native plants. Thought must be given to the size of plants used in specific locations. For example, large trees should not be used in a locations where the roots could eventually damage historical structures or block a view of a site. Use grasses, shrubs and trees to help guide and lead tourist to desired locations and to enhance current views.

## **J. Remove Hazard Trees**

Remove hazard trees and tree limbs in areas of heavy visitor use. The partially down, burnt tree located as one enters the Castillo should be removed immediately.

## **K. Conduct a Customer Analysis Survey**

A systematic, well-designed survey should begin now to determine desired conditions for all planning efforts. This would supplement the work compiled by Ham and Weiler during the last 2 years (Ham and Weiler 2000a, 2000b).

## **L. Conduct a Transportation and Facility Inventory**

Conduct a road, trail and facility inventory for baseline planning purposes.

## **M. Eliminate Visual Intrusions**

Arriving at the site is one of the most exciting aspects of visiting CSL. The anticipation of what you are going to see adds greatly to the visitor experience. Visitors do not see the Castle until they climb the last segment of road, look under the big tree canopy and then turn west (Figs. 20-29). This first impression should be protected and maintained pristine and uncluttered. The removal of the IPAT awning canopy at the edge of the parking lot, to eliminate the contrast between a modern element and the historic Castle, is recommended.

Any temporary or permanent improvements should be designed to complement the site, using natural materials and colors. Sign locations should be non-obtrusive and kept to a minimum.

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The flat area adjacent to the existing dirt parking lot is of vital importance for several reasons (Figs. 24-25). It is believed that archeological digs here will reveal a wealth of information about the area's history. From this area, panoramic views of the Chagres River and surrounding areas can be appreciated. Also, because this flat is so visible to visitors, it is a segment of landscape that is inherently a part of this historic site. Whatever is eventually planned and constructed here will be visually linked to the Castle.

It is recommended that the existing caretaker house and all related domestic elements be removed and placed in a location that is strategically screened from the public, and that the new caretaker facility be built under the architectural standards and guidelines to be applied to the rest of CSL.

#### **N. Provide Barrier free access**

Barrier free access from the parking area to the Castle and surrounding areas is vitally important to the success of this project. A world-class historic treasure such as CSL will be held to the same international standards as other similar facilities. International visitors will rightfully expect to walk in and around the facility safely and without barriers that restrict those that are less than fully able bodied.

It is important to note that barrier free design, sometimes called "universal design", does not just benefit those in wheelchairs; it benefits children, the elderly, and people pushing baby strollers or carrying someone or something. Universal design also benefits the staff taking care of the facilities by also making access and getting to visitor use areas easier.

#### **O. Install a Moat Bridge**

A footbridge should be built across the moat so visitors are not required to walk up and down steep worn (slippery when wet) grades or unstable stairs (Fig. 26-30). The construction style of this bridge should be in harmony with that of the Castle, but also designed as to not be mistaken as original architecture. This footbridge should be replaced or reinforced before higher volumes of traffic are allowed to use it. In the long run it should be replaced with a period authentic connection.

#### **P. Improve Guard Rails**

It is also important that all guardrails around the moat be either temporarily repaired or replaced with rails of an appropriate design and materials, compatible with the site character (Fig. 31). Also of great concern are ledges and top of walls where at present there are no controls to restrict visitors from getting to close to the edge (Fig. 32). Children are of particular concern because of their natural tendency to explore.

It is recommended that, as a minimum, temporary ropes with simple signs be placed to warn visitors of the hazards. In the long run, a guardrail system needs to be installed at

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these critical locations. Like all elements that will be placed at CSL, the guardrails need to be appropriately designed with concern for keeping them as unobtrusive as possible.

A temporary simple solution would be the use of rope-defined pathways, with clear instructions to visitors to stay between the ropes. This method can also serve to keep visitors away from dangerous ledges and stairways, as well as protect resources.

#### **Q. Define Pathways**

At present, paths are being worn down to bare soil, exposing them to erosion. Visitors sometimes explore in unsafe or resource sensitive areas. It is recommended that pathways be defined and a desired walking direction be established and marked to help visitors tour CSL.

As groups of visitors get larger, it will be even more important that an order of how to best experience the Castle, its beauty and history be defined. Most visitors will appreciate being helped along with directions on where it is safe to walk and explore (Fig. 33).

Stairways must be looked at critically. Worn, loose or sloping stairs can easily cause slipping (Fig. 32). Also to be considered, is the fact that when wet, stone stairs covered with moss or other vegetation are a serious slipping hazard. Another safety concern that is inherent to the way these types of stairs were built, is the longer vertical distance between each step. This could especially be a problem for children and the elderly. The use of these stairs should be kept to a minimum, and should be used only where handrails are installed.

#### **R. Cease Use of Hazardous Chemicals**

The use of hazardous chemicals used for vegetation management especially those used on the Castle walls to kill moss should cease immediately (Fig. 33). This practice can be very hazardous to visitors and to native wildlife. As an alternative to the use of hazardous chemicals, manual labor should be used to control unwanted vegetation.

#### **S. Provide Sanitation Facilities**

At least one portable toilet should be placed near existing parking lot. It and the pathway leading to it should be accessible to elderly and others, and placed strategically so as to not make a major visible impact. Permanent facilities will be sited in the Master Plan.

#### **T. Provide Trash Collection**

Trash receptacles should be placed strategically in the area of the existing parking lot. Trash should be emptied and collected on a regular schedule, especially coordinated with weekends, holidays and other times of heavy site visitation.

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## **U. Conduct a Boundary Survey and Map Site**

A survey should be conducted to determine the actual boundaries of 28-hectare monument area. A base map of the unit should be created incorporating these boundaries.



Figure 11. A possible Castillo San Lorenzo logo.



#### Specifications

Dimensions: 46" x 26"

Font: Helvetica Bold

Font Size: 400 pt (4") & 356 pt (3 1/2")

A – 4 inches

B – 3 1/2 inches

C – 7 inches

Colors: White letters on U.S.D.O.T. Blue (match Pantone 300u)

Park Logo: White on U.S.D.O.T. Blue (7 1/2" high)

Sign Mount: Post

Figure 12. Approach signs specifications.

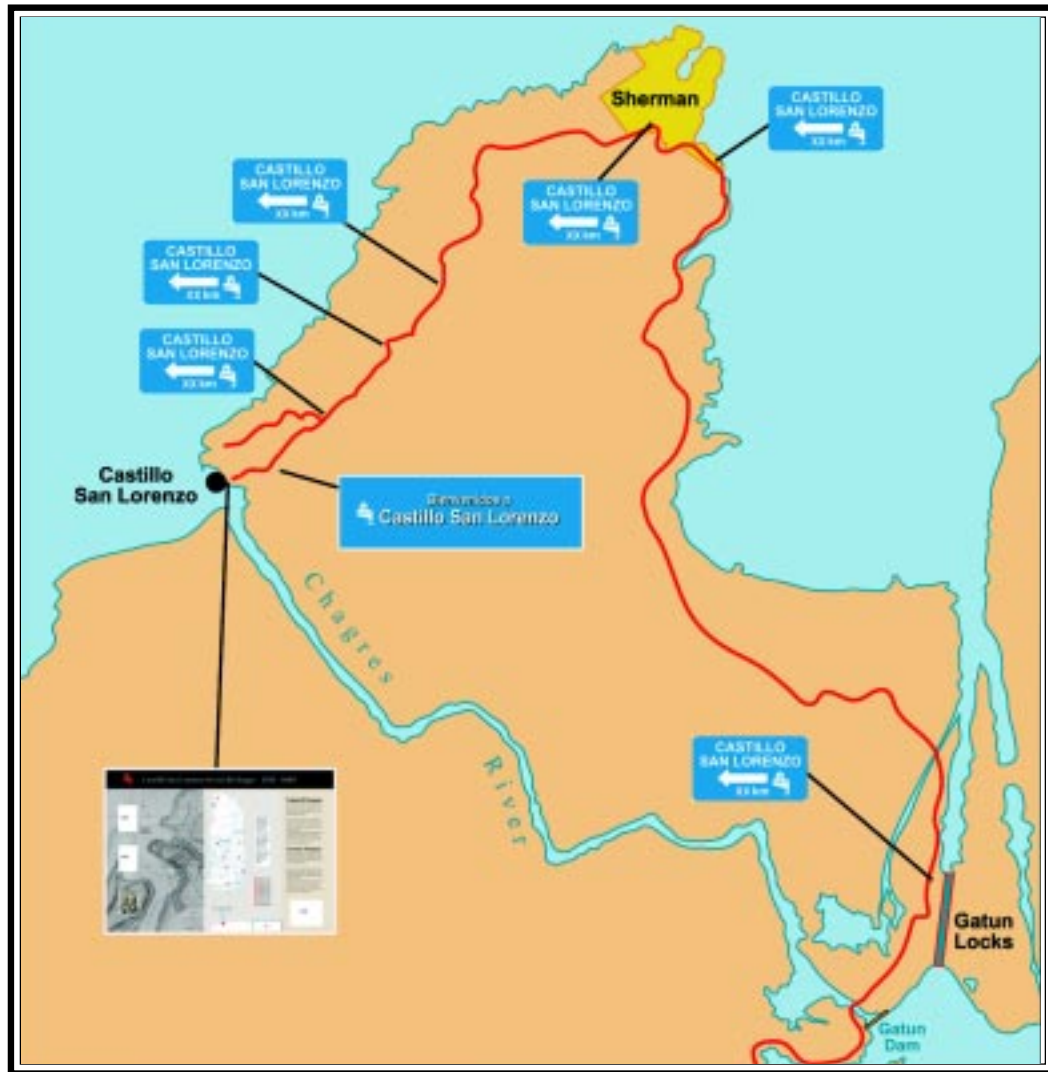


Figure13. Recommended sign placement.



### Specifications

Dimensions: 60" x 18" x 1"

Font: Helvetica Bold

Font Size:

400 pt (4") & 300 pt (3")

A – 3 inches

B – 4 inches

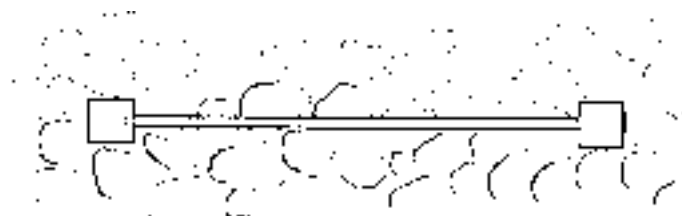
Colors: White letters with  
black drop shadow on  
U.S.D.O.T. Blue  
(match Pantone 300u)

Park Logo: White on  
U.S.D.O.T. Blue (6" high)

Sign Material:  
Plastic Laminate

Sign Mount:  
6" x 6" wood post with 5°  
angle cut at top end

Sign Base:  
Surface level  
stone cobble paving



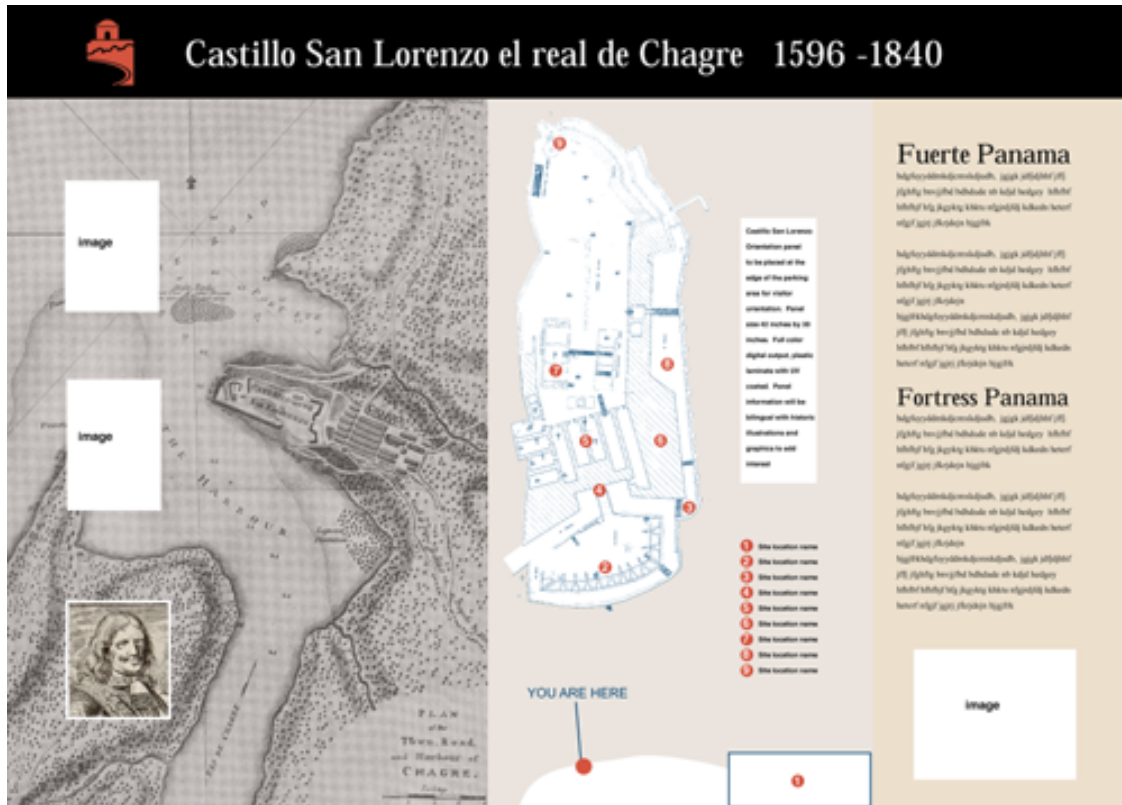
Top Elevation

Figure 14. Welcome sign example.





Figure 15. Existing Castillo San Lorenzo signs.



### Specifications

Dimensions: 42" x 30" x 1/2"

Font: Main Title; 96 pt Apple Chancery  
 Subtitle; 72pt Apple Chancery or Times Roman Regular  
 Main Text; 24 pt Times Roman Regular  
 Secondary Text; 18 pt or 24 pt Helvetica Regular, Italic or Bold  
 Captions; 18 pt Helvetica Regular

Colors: Background;  
 Warm Gray 1u – Center Panel  
 PMS 434u – Right Panel  
 Header; Black  
 Principle; Red, PMS 1665u and Blue, PMS 3015u

Sign Material:  
 Plastic Laminate

### Internal Specifications

#### Header:

Size; 42" x 3 3/4"  
 Color; Black with white Main Title lettering and red Park Logo

#### Left Panel:

Size; 18" wide  
 Contents; Historic CSL map with engravings and related illustrations

#### Middle Panel:

Size; 14 1/2" wide  
 Background Color; Warm Gray 1u  
 Contents; Site schematic, 'You Are Here' info and Secondary Text

#### Right Panel:

Size; 9 1/2" wide  
 Background Color; PMS 434u  
 Contents: Main Text and related illustrations

Figure 16. Orientation sign contents.

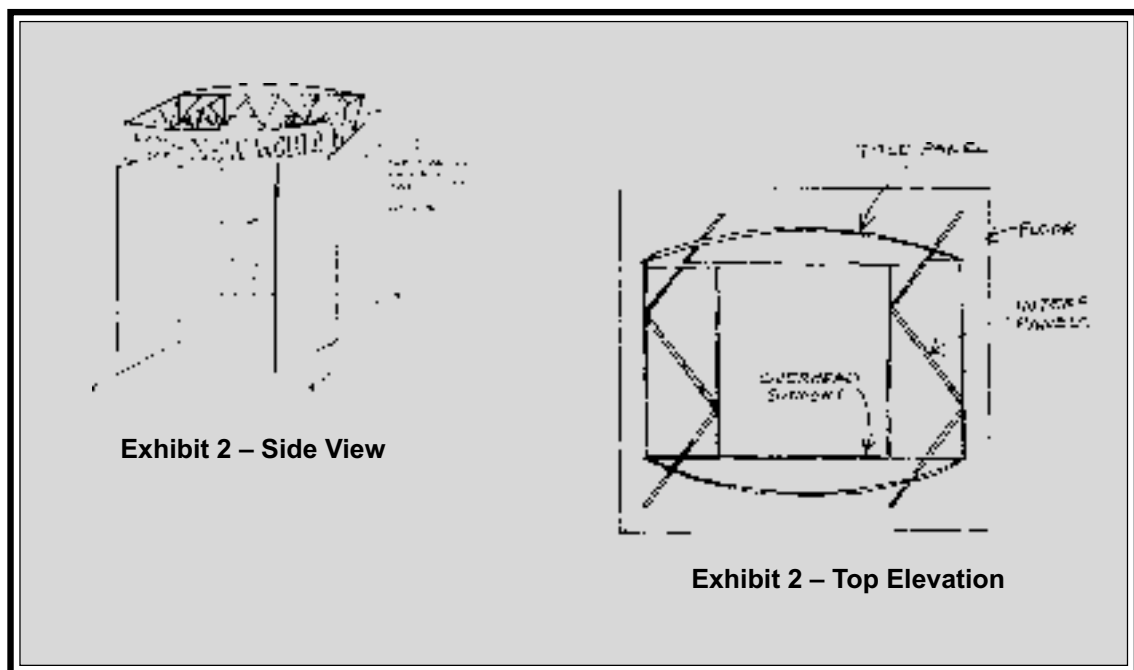
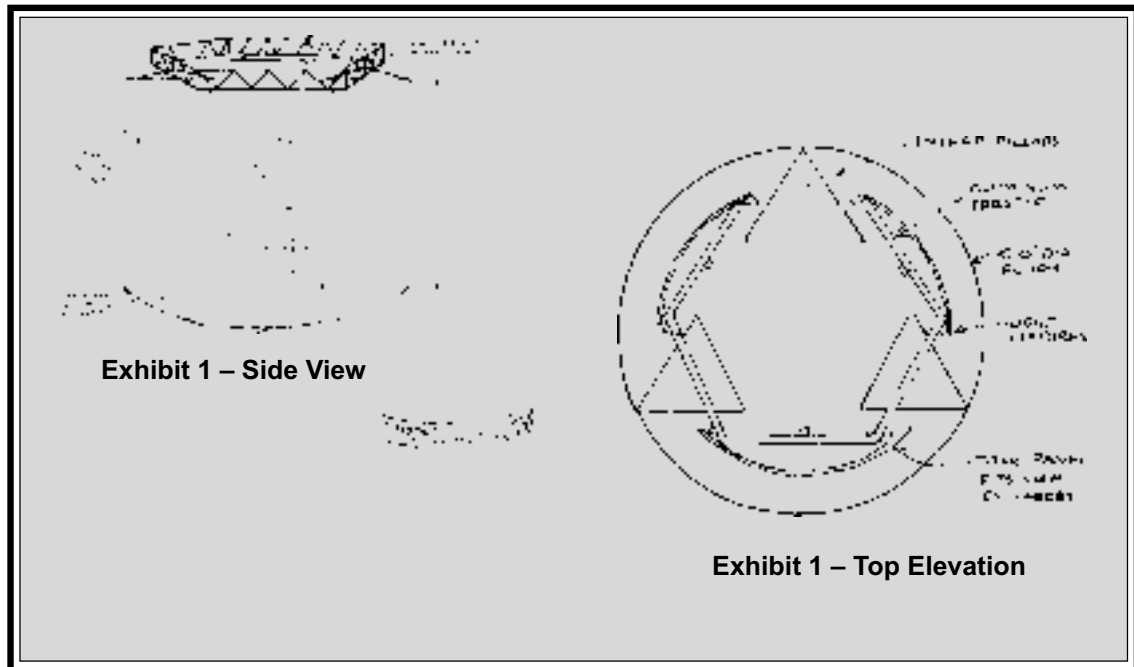


Figure 17. Possible concepts for a portable exhibit.



Figure18. Parking area and castle.



Figure19. Another view of Chagres River from CSL (note mowed grass).





Figure 20. Approach road to castle parking lot.



Figure 21. Approach road coming onto bluff.





Figure 22. Castillo San Lorenzo approach road as it tops the bluff.



Figure 23. Castillo San Lorenzo parking lot.



Figure 24. Vicinity of caretakers house.



Figure 25. Caretakers house.





Figure 26. Castillo San Lorenzo moat.



Figure 27. Main access stairs from moat to top of castle.





Figure 28. A good location for moat bridge.



Figure 29. Crooked guardrails around moat in disrepair.





Figure 30. Unprotected edge of castle bluff.



Figure 31. Castillo San Lorenzo features.



Figure 32. Castle stairs could pose a threat to visitors.



Figure 33. Moss-covered walls of castle vaults.





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## V. Long-term Master Planning

Comprehensive master planning is needed for longer-range management of CSL. Master planning will provide clear direction for everything from daily operation and maintenance of the site, stabilization to research, tourism and marketing issues. The master planning process should address every aspect of site management and visitor use.

The team who undertake master planning should include experts in all fields of management as relates to CSL – including protected area management, operations and maintenance, archaeology and history, tourism and interpretation, and natural history. The resulting management plan can be envisioned as a series of smaller component documents addressing individual topics and issues; they are the ingredients in the CSL management recipe that will guide the future. A step toward master planning is provided here with a description of some of those plan components and their recommended contents.

### A. Interpretative Planning

An interpretive plan is needed for any serious effort at addressing visitor information for CSL. It should include addressing themes and storylines, interpretive strategy and installation locations, signs and collateral materials, design elements and guide education.

#### 1. Themes and Storyline

A storyline is a beginning point for a systematic approach to interpretation at the site. It should result in a narrative that tells the story of all that is significant at CSL, and address all resources and all aspects of the lives of those who lived here. History should be approached from within the natural setting. From this storyline site themes become evident, and where various parts of the story may be told identified. Text for individual sign panels or other media can be developed from parts of the overall story. Ideally, the word of those who were here should be included in telling their story. Themes developed for interpretation could include:

- Who lived here before the Spanish came?
- The sequence and eras of CSL construction eras and techniques. Why is it a castle and not a fort? What did it look like in different centuries?
- Life at CSL – its history, life of the inhabitants, battles, changing uses. Who were the people who were settled here? How did they survive - trade, living on the land?
- Rainforest growth over cleared town and agricultural areas (“this is a culturally modified landscape”).

- 
- CSL role in Spanish global political and economic history (looking out at the Caribbean and beyond).
  - Pirates and battles.
  - CSL role in the history of the Isthmus (Spanish gold trade and relation to other key colonial sites, Camino de Cruces, American gold rush).
  - A strong preservation theme – this is a delicate resource that needs your help in protecting.

## 2. Layered Interpretation

The history of CSL should be presented in a layered system of interpretation, where visitors are given increasingly detailed level of information. A key purpose here is to provide visitors with the rich story of CSL, while keeping the actual site area free of sign clutter (Fig. 34).

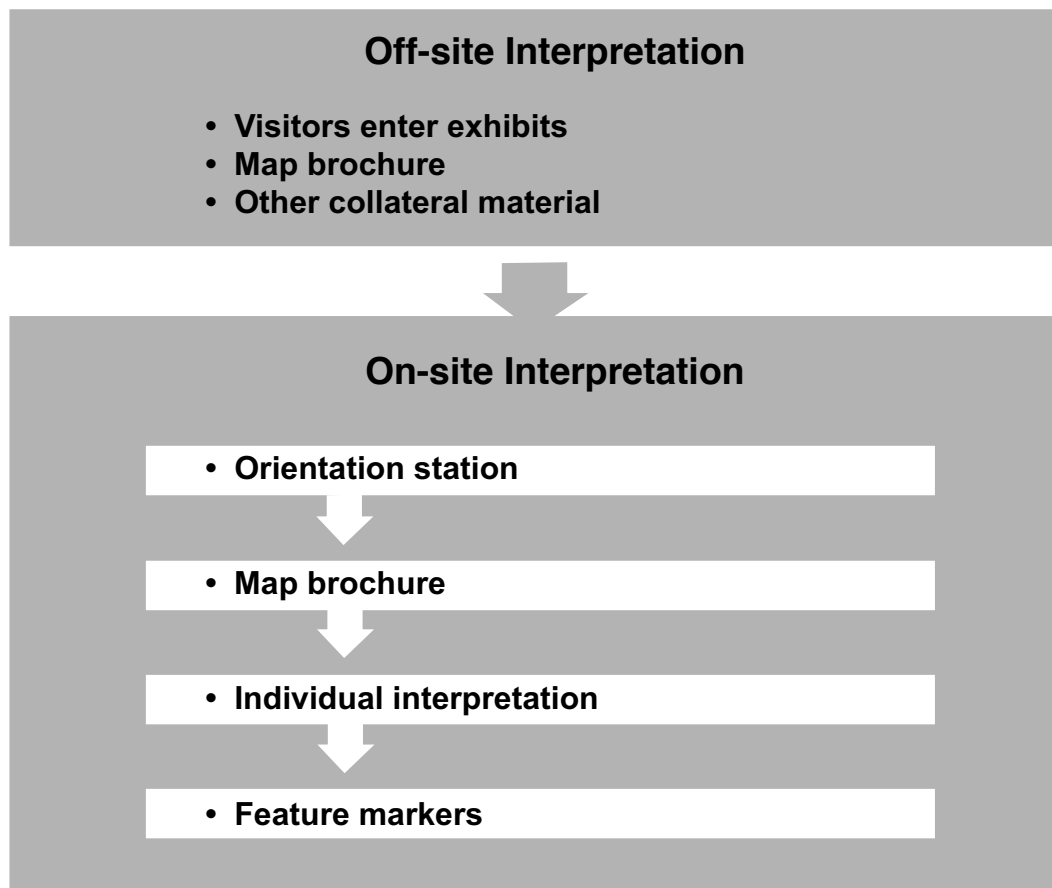


Figure 34. Layers of Interpretation for Castillo San Lorenzo.

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**Off-site Interpretation.** Everything cannot be said at the fort location. Much of the bigger picture story and natural history should be told offsite. A visitor center for SLPA at Sherman, possibly created from an existing administrative building, could be the start of a visit to CSL. Much of the contextual information for the fort and its surrounding area could be presented here, thereby easing the amount of detailed information needed on-site.

A high-quality map/brochure, free with admission at the SLPA entrance, could provide much of the story, along with other useful information needed by visitors. At the SLPA visitor center the educational and informational photo booklets, posters, historical accounts and natural history guides that would also help tell the story about CSL could be sold. The road to the fort should provide the next level of interpretation, with well-located signs that tie to the interpretive plan.

**On-site Orientation.** Historic interpretation and recreation information about the site should go hand in hand. A CSL orientation station at a parking lot below the Castle hill could be the main orientation and interpretation at the site. A kiosk here could contain a site orientation map, and possibly a map of the larger vicinity showing recreation opportunities such as trails and facilities. Interpretation should incorporate historic maps and journal quotes to tell the stories (letting people of the times describe the fort activities). A recreation information overlay on maps could indicate location of current trails and facilities.

**Interpretation of Individual Features.** A Castle interpretive/orientation station could be strategically placed on the hilltop. It could include a map depicting visible fort and other hilltop features (batteries, church site, etc.), plus depictions of older fort construction. A few low-key markers within the walls of the fort could identify architectural features.

### 3. Design Elements

Standard design elements should be applied to all signs, structures, and peripheral materials. This creates consistency and brand recognition (or market identity) for CSL. Some of these standard design elements are addressed below.

**Color sets the stage for your interpretive message.** Color can draw in the visitor and create mood for the story. This is one element of interpretive planning that is often undervalued. The use of background color is essential to highlight text and make it readable. Color can be used as a vehicle to indicate change of subject within a sign, or to highlight the importance of certain information.

**Fonts can be used to communicate a certain mood or idea.** A good rule of thumb is to use no more than two fonts on a sign. A serif font should be used for text body for ease of reading.

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**Titles** should be short and interesting. Titles allow signs to grab the viewer's attention. This is where a distinct font can be used. Titles should be in Spanish only.

**Text** should be short and to the point. For a sign to be read, "less is better". The point here is to spark an idea or create a strong mental image in a few well-chosen words. Text body should be bilingual (Spanish and English). Text can be layered, with the principal text no more than 50 words; secondary text can be set aside by color change or boxed to present a secondary point or to provide more details.

**Artwork** can be more effective than text in communicating an idea or to identify a concept at a single glance. Old maps, which the area is so rich in, should be used to create feel.

**Logos** should be used consistently. A CSL logo should be used on all materials. The use of other logos should be used sparingly, for example, only at an introduction or orientation panel. These logos may include INAC, CEASPA, IPAT and ANAM.

#### **4. A Family of Signs**

A family of signs and sign structures provides a visual system of information that creates a 'sense of place' or identity for the monument. By using common design elements, the family provides a standard unified approach and look to all directional, information and interpretive signage within the monument (Fig. 35). These signs should tie to the SLPA sign system, a plan still to be done.



Figure 35. A family of signs.

**Sign materials** used for CSL signs needs to be durable, weather resistant and provide a degree of resistance to vandalism. Consistency is key. Appropriate materials include plastic resins that are fairly inexpensive to replace, that have UV resistant and that allow the use of much detail and color.



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**Sign bases and structures** should be non-obtrusive and harmonize with the landscape. Sign bases and kiosks can be as much of the interpretive message as the signs themselves, drawing the visitor in, creating mood, and setting the flavor for the story. The design of structures should include native materials that are present at or visible from the site. Large scale, rustic styles are timeless. Designs should suggest the architectural history and style of the Castle and associated features, but not mimic them. The use of stone, iron, and wood create durable, maintenance free structures. Structures can be enhanced with details that exhibit craftsmanship and artistic interest in keeping with the period or setting.

## **5. Guide Training**

It is important that visitors receive accurate information about the site that addresses all aspects in the interpretive goals. Guide training for local people and for tour operators is needed. This should include training in interpretation – how to entertain and hold peoples attention with the story, and not just presenting the dry facts. The formation of a CSL Guides Association may be beneficial.

## **6. Volunteer Research Tourism**

Tourism and research can go hand in hand. This model has been used successfully by many organizations. The Heritage Expeditions program of the USDA Forest Service uses volunteers, under the direction of professional archaeologists, to accomplish needed research. Volunteers pay for the experience of assisting with original and important research, which in turn covers the cost of program staff and expenses.

This model is ideal for CSL and possibly other INAC work. International volunteers would work under direct supervision of professional archaeologists (perhaps also volunteers) to conduct needed research projects. This can accomplish some of the INAC research goals at no cost to Panama, as well as generate support base and tourism interest, and economically support local businesses and communities. This would also provide training for Panamanian graduate students, as staff members in the program. It is a perfect example of the TCI model of combining research and tourism for conservation.

This approach could be used to accomplish the resource inventories needed for management planning. These include:

- survey of historic travelways, testing of roadbeds
- uncovering of rock and cobblestone road leading to fort entrance
- uncovering/clearing of pathways radiating from fort
- survey of old Chagres village
- inventory of cultural plants (former domestic plantings) and agricultural methods

- 
- survey and testing of battery on ridge to the east
  - underwater survey of area
  - archaeological surveying of all monument area

## **B. Scenery Management Planning**

The purpose for adopting Scenery Management Objectives is to assure that views to and from CSL are protected and even enhanced. One of the most attractive and breathtaking aspects of this site is how it appears from a distance, as if out of time. Views from CSL are just as beautiful. The visual quality objective for this zone, according to the new San Lorenzo Protected Area Scenery Management Guide (Wylie et al., 2001) is “Partial Retention”, which requires management activities to remain subordinate to the natural and cultural landscape.

Through the use of the Visual Resource Management process, the site’s inherent scenic qualities should be identified as “distinctive” and placed at a high level of protection. Since the CSL site has grand edifices and other human caused modifications, we cannot say that the site is pristine. We can say, however, that due to the weathering affects of time and vegetation growth, it has a natural appearance that seems to fit into the area’s landscape character. CSL seems to be part of the land. It greatly adds interest and uniqueness to the promontory point on which it sits (Fig. 36).

When preparing the Visual Resource Management Plan for the overall San Lorenzo Protected Area, the CSL area must be a critical piece that stands out as a jewel worth admiring and protecting. All additions and modifications to the site must remain subordinate to the existing landscape and historic elements.



Figure 36. View to sea from Castillo San Lorenzo.

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### **C. Visitor Activity Zoning**

The Limits of Acceptable Change (LAC) planning process was developed to determine the amount of change caused by visitation a site could endure before it starts showing signs of deterioration. This is done by establishing predetermined physical, biological and social indicators to measure change. The indicators provide a gauge that managers can watch to monitor how well a site is holding up to use. LAC is considered a scientific process that is much more objective than just establishing carrying capacity based on the size of a parking lot or the number of people that a gathering space can comfortably accommodate.

For the San Lorenzo Protected Area in general, and Fort San Lorenzo in particular, land use planning and information is just now beginning to be developed and it may be premature to launch into a formal LAC process. However, it may be useful to apply a simplified LAC approach now, to lay the foundation for a more comprehensive process in the future. Parts of the LAC framework can be modified and then tested to see if they fit the local situation. Thus, LAC could provide some important principles and an overall structure for planning without requiring implementation of the full process.

For example, monitoring site conditions and visitor use, as a first step, could provide important data to identify concerns and issues as the beginning steps for the LAC process. Although monitoring is the final step, the process is circular and monitoring can reveal new issues and concerns and initiate a new round of planning. By beginning with basic monitoring of site conditions and visitor use, baseline information can be developed and experience gained by defining and using LAC indicators.

### **D. Transportation and Trails System Planning**

One of the key challenges facing tourism and recreation in San Lorenzo is public access. After decades of being controlled by the U.S. government, local residents do not have a history of free access to the area's forests, beaches and historic sites. Even now, much of the area is restricted. Visitors to historic Fort San Lorenzo driving personal vehicles have to show identification and sign in with the guards at the entrance to Sherman, and parking along the road and hiking to the beaches is discouraged for security reasons. Visitation is permitted on a daily basis from 8:00 a.m. to 4:00 p.m.

The CSL area is zoned as Rural and near the cove semi-primitive motorized (Wylie et al., 2001). Recreation ranges from using bikes (possibly rented from Sherman) to ride out to the site, other ways to experience the site that are keeping with the setting and preservation goals of site management.

Several trails should be developed throughout the monument site, using old roadbeds and historic trail locations, to provide access and join various areas of the monument. These could start from the Castle or visitor orientation kiosk and be loop trails to provide more

visitor interest (Fig. 37). Ideally these would tie to a larger SLPA trail network. Good routes include:

- The town site of Chagres along the cove, and continuing to the boat launch.
- The coves and bluffs north of the Castle, the direction from which Morgan's forces came to lay siege to the Castle in 1671. This could connect to outlying battery sites (if they could be found). This could perhaps be developed in conjunction with a larger coastal trail connecting to Devil's Beach.
- The hill area east and inland of the site – an old road cut exists here that could be utilized as trailbed.

Approaching the monument by water is another way that visitors can reach the area. The boat landing is a popular spot. Tour operators currently bring groups in by small motorboat. Kayak tours down the Chagres River are growing in popularity.

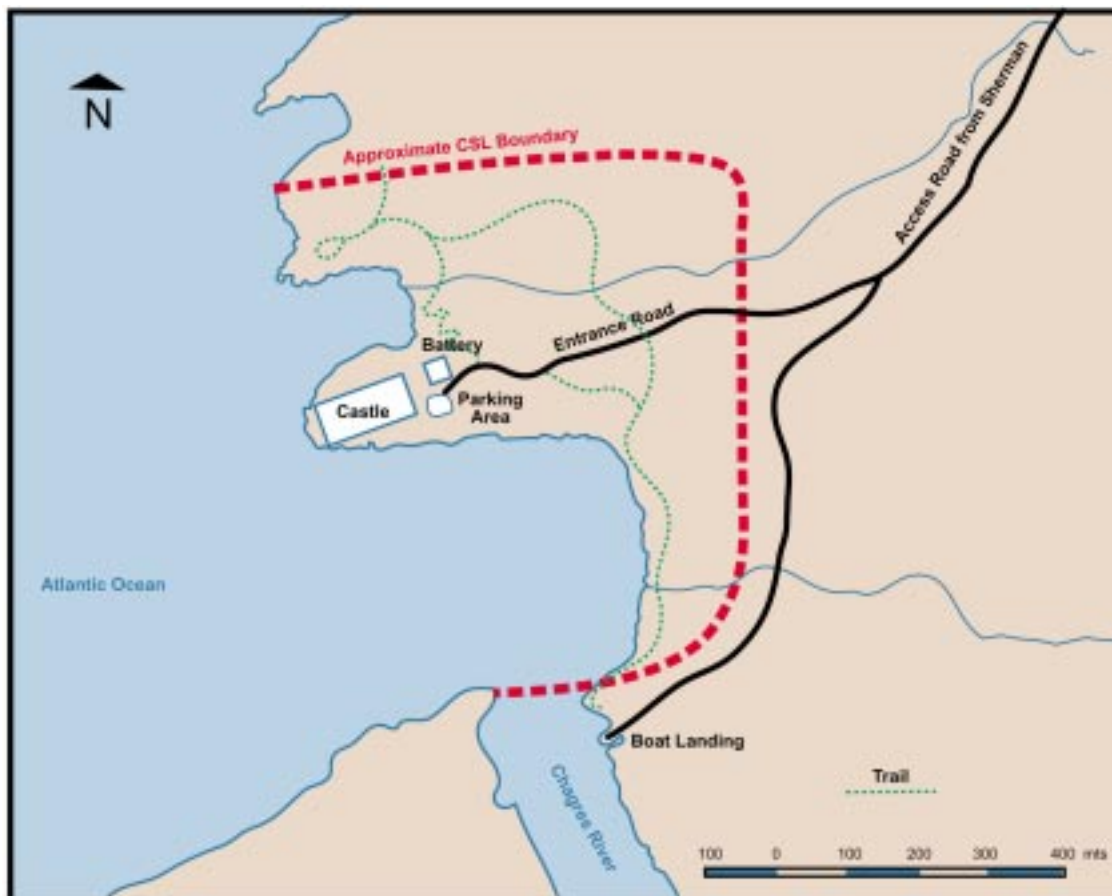


Figure 37. Possible locations of recreation trails at Castillo San Lorenzo, (after Urbio 2000).

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## **E. Site and Facility Planning**

Before any of these improvements can be made, the bigger picture of site planning needs to be addressed. Site development planning should address protection of archaeological features, protection of visual integrity at the site, and visitor experience (including health and safety issues). The area is extremely rich in prehistoric archaeological deposits. Four hundred years of historic construction and landscape modifications are here. Every colonial period map of CSL indicates the presence of numerous structures in the vicinity. Without knowing where and why development should take place, and the bigger plan on how individual plans fit together, any construction is irresponsible. Some of the issues that should be addressed in this effort are:

### **1. Site Inventory and Analysis**

This is the first step that essentially will identify what exists at the site. Physical, biological and archaeological resources must be inventoried to get an accurate picture of what there is present to work with. Through this process, opportunities and limitations the CSL site will be better understood. This analysis defines (among other things) where construction and site development should be limited, as well as how visitation should be managed (Fig. 38).

This process also provides key information that will be incorporated into other planning instruments being prepared for the management of the entire San Lorenzo Protected Area. These include the Scenery Management System and the Recreation Opportunity Spectrum analysis. This first step also starts to define the carrying capacity of the facility in physical terms. The Level of Acceptable Change process, which comes later, will help determine carrying capacities based on social and ecological indicators.

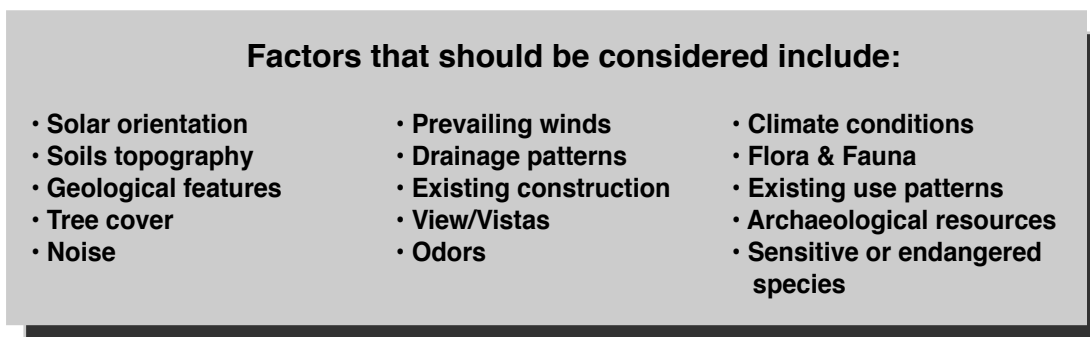


Figure 38. Factors to consider for site planning.

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## 2. Visitor Analyses and Marketing Study

Knowing who will be visiting the site, and understanding their expectations while at the site, is essential to appropriately plan for facilities at CSL. This information should be obtained from those planning to bring visitors (such as tour operators), the administration, field personnel, user studies/questionnaires, on site observation, related studies prepared by other agencies or organizations, and demographic studies. It is also essential that marketing studies be undertaken to accurately gauge the amount of visitation the CSL project will attract.

A study of visitors to national parks in the Panama Canal Watershed, conducted in 1999-2000, included a survey of visitors to Fort San Lorenzo (Ham and Weiler 2000a and 200b). It showed that 60% of visitors were Panamanian, 15% were from the USA, 10% from South America, and 15% from other countries. Of the Panamanians, most were from Panama City (75%), and surprisingly only 10% were residents of Colon; the remaining 15% were from other areas of Panama. This study was completed before the influx of cruise ship tours of this past winter. A similar study now would no doubt result in different demographics.

Understanding your “customer base” defines what they need and what they want. Managers should always strive to provide people with what they need (usually essential physical needs such as toilets, water and shelter), but they may not always be able to provide them with comforts or conveniences they want such as food services, “door to door” transportation, or souvenir shops. This may be because of site limitations that include lack of developable land, inappropriate access, or decisions aimed at keeping the site as natural as possible.

A key point to visitor analysis and marketing studies is anticipating as much as possible what the public needs, so that those elements are planned for and included in the development of the CSL facilities.

## 3. Synthesis of Information

With a clear understanding of the physical/biological factors, visitor needs and managerial considerations that apply to the CSL project, decisions can be made about how to best proceed with the project.

It would be ill conceived to plan for facilities that cannot be funded or properly maintained. Care should be taken not to proceed with a project that will not be fully funded or supported, resulting in an unfinished product or a facility, that once constructed, cannot taken care of or administered. It can be easy to fall into the “build it and they will come” trap. It may be appropriate to decide to phase the project.

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Decisions about CSLs program emphasis, level of development, facilities, administration, and maintenance, must be based on accurately prepared budgets and marketing studies. Managers must be ready to defend and support all decisions. The unique value and importance in retaining CSLs sense of place demands nothing less.

#### **4. Architectural Guide**

A team that includes a Historic Architect familiar with the CSL era, a cultural/heritage resource expert, and a Landscape Architect, should develop the Architectural Themes, Standards and Guidelines (or Built Environment Image Guide) for CSL. This team will assure that modifications and additions at the Castillo and its surrounding will be as true and representative as possible to what existed before. It is an excellent idea to include an Interpretive Specialist on the team so that the story behind the design and layout of the site can be told with accuracy.

It is important that these Standards and Guidelines be acknowledged and adhered to, just like the Master Concept Site Plan. Officials with the authority to implement the development at CSL should approve and sign this document.

#### **5. Design Narrative**

A Design Narrative is the “menu” that describes to designers what to plan and design into the site, and includes the architectural program for any buildings.

A Design Narrative cannot be accurately prepared without having first done the prior steps described above. The person(s) preparing the Design Narrative must know the site and have an understanding of the opportunities and limitations identified in the analysis process. They must also know what the site managers and administrators have decided concerning the project’s scale, development level, phasing, budgets, etc.

Typically, a Design Narrative will describe the elements that are to be incorporated into the site such as parking areas, pathways, signing, site furniture, toilet facilities, interpretive/information kiosks, and other structures. Once completed, the Design Narrative should be reviewed by the CSL project team to assure that there all parties are aware of what is being agreed to for the site. By having an approved Design Narrative for CSL, the designers can confidently proceed to design the facilities as outlined.

#### **6. Master ‘Concept Site Plan’ Drawing**

This is a plan view drawing that clearly identifies all the elements of a site before it is constructed, or in the case where elements already exist like at CSL, before any modifications or additions happen. It is a “master” concept site plan. It should be



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approved by key managers and administrators, meaning that they support the plan and are committed to implementing it as shown.

The drawing for the CSL will serve as a blueprint that assures that once completed, the result will be a well thought out use of space and design elements, even if the project is done in phases. If planned well, the movement of visitors from space to space will flow with ease, and if done with historic accuracy, the site should inspire visitors a feeling of being part of a different time. Only the careful planning and collaboration among designers, cultural/historic experts and the ultimate managers of the site, can achieve a completed project of this quality.

## **F. Other Components of Master Planning**

### **1. Curatorial Plan**

A plan is needed that addresses the processing, storage and use of all archaeological materials recovered from the site. This includes documents and maps resulting from field research efforts, as well as historical documents related to the history of CSL.

### **2. Mitigation Plan**

A major focus of planning should be impacts of weathering and tourism development at CSL. It should address efforts to mitigate these effects through stabilization and restoration of archaeological features at the site, along with forming policies on archaeological efforts prior to any proposed ground disturbance at the site.

### **3. Security**

Also needed is a plan that addresses safeguards against vandalism, looting and other illicit uses of the area, as well as the safety of visitors to the site.

### **4. Research**

Clear research goals and policies should be spelled out that will guide all field research at the site, and specify priorities, procedures and practices.

### **5. Monitoring**

A monitoring plan should be put in place that will measure the application and effectiveness of all CSL policies.



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## **6. Marketing**

A tourism marketing plan is needed to address overall approaches to market CSL, as well as individual vehicles for advertising (e.g. web page, print material, and partnerships).

## **7. Funding Strategy**

Strategies to provide funds for financing maintenance and improvements at CSL should be developed. Possible means include admission tickets, sales of collateral materials (e.g. books, posters and other souvenirs), partnerships and grants.

## **8. Legal Mandates**

All legal norms, laws, policies of INAC, ANAM, and other relevant agencies and organizations should be assembled and studied. This will form a foundation for management planning at CSL.

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## Bibliography

- Esquemling, John. 1967. The Buccaneers of America. Dover Publications, Inc. New York.
- Ham, Sam and Betty Weiler. 2000a. Ecotourism in the Panama Canal Watershed, Tour Operator Study. Academy for Educational Development, Environmental Education & Communication, GreeCom Project. US Agency for International Development No. 222429-30.
- Ham, Sam and Betty Weiler. 2000b. Ecotourism in the Panama Canal Watershed, Aprofile of Tourists in Protected Areas Study. Academy for Educational Development, Environmental Education & Communication, GreeCom Project. US Agency for International Development No. 222429-30.
- URBIO. 1999. Elaboration and Implementation of a Management Plan for the Effective Protection of the San Lorenzo Protected Area: The Antique Colonial, Historic and Contemporary Cultural Resources in the Area of San Lorenzo/Ft Sherman: "Its Integration and Significance within the Project" (by Fred Lange, PhD.). Panama.
- Wylie, Jerry, et al. 2001. Recreation and Scenery Management for the San Lorenzo Protected Area, Panama. Report prepared by the USDA Forest Service for the U.S. Agency for International Development.
- Wylie, Jerry. 2001a. Limits of Acceptable Change for the San Lorenzo Protected Area Panama. Report prepared by the USDA Forest Service for the U.S. Agency for International Development.
- Wylie, Jerry. 2001b. Kayaking Opportunities on the Lower Chagres River, Panama. Report prepared by the USDA Forest Service for the U.S. Agency for International Development.
- Wylie, Jerry. 2001c. Developing a Tourism Image for the San Lorenzo Protected Area, Panama. Report prepared by the USDA Forest Service for the U.S. Agency for International Development.
- Zapatero, Juan Manuel. 1985. Historia del Castillo San Lorenzo el Real de Chagre. Ministerio de Defensa, Servicio Historico Militar, y Ministerio de Obras Publicas y Urbanismo, CEHOPU (Comision de Estudio Hisotricos de Obras Publicas y Urbanismo. Madrid.

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*Sunset during November evening  
at Castillo San Lorenzo*



