| Chapter 1 : Battle of Paoli Historical Background | 1 |
|---------------------------------------------------|----|
| Chapter 2 : Battlefield Preservation Timeline | 3 |
| Chapter 3 : ABPP Grant Project | 3 |
| Chapter 4 : Data Collection Methodology | 5 |
| Chapter 5 : Products | 7 |
| Chapter 6 : Public Involvement | 9 |
| Chapter 7 : Recommendations | 10 |
| Chapter 8 : Bibliography and Credits | 13 |
| Appendix | 14 |

Chapter 1: Battle of Paoli Historical Background

The Battle of Paoli, commonly known as the Paoli Massacre, was a night time conflict initiated by British Major General Charles Grey during the American Revolutionary War against the unsuspecting Brigadier General Anthony Wayne in his camp located in modern day Malvern Borough, Pennsylvania. Grey's five-mile march from the British camp in Tredyffrin Township began late in the evening of September 20th, 1777 and hostilities didn't conclude until the predawn hours of September 21st.

About a week after the Battle of Brandywine, the bulk of Major General George Washington's army were positioned to cover the upper fords of the Schuylkill River in the vicinity of today's Valley Forge National Historical Park - about five miles northeast of Wayne.¹ In between Washington and Wayne was Major General William Howe's entire army of 15,000 men camped in the Great Valley of Tredyffrin Township. See Appendix A for an overview map of troop positions.

Wayne's plan had been to wait for Brigadier General William Smallwood to join him with a Division of Maryland Militia, and together with Brigadier General William Maxwell's Light Infantry they could harass the rear of Howe's camp, and possibly force the British army against the swollen Schuylkill River.²

Wayne thought his camp of about 2,000 troops³ and four guns⁴ was undetected by the British, but the British had become aware of Wayne's position through some intercepted correspondence with General Washington.⁵ In order to put an end to the Continental threat, General Grey was ordered to make a night time attack on Wayne's camp. Determined to maintain silence and surprise, Grey ordered his men to remove their musket flints and use only bayonets.

At about 10pm Grey's force numbering between 1,200 and 1,500 men, consisting mostly of light infantry and about a dozen dragoons⁶, started marching west toward Wayne's camp. Grey had ordered his men to remove their musket flints, and strictly use bayonets in order to maintain silence. This approach earned Grey the nickname "No-Flint Grey". He also took civilian prisoners on the way in order preserve the element of surprise. At the Warren Tavern, located at base of the ridge, Grey found a local blacksmith to guide them to Wayne's camp. See Appendix B for a detail map of these troop movements.

Ideally, Grey would have liked to approach Wayne's camp from the west, which would have potentially driven Wayne toward Lieutenant Colonial Thomas Musgrave's force of about 500 men who were positioned near the Paoli Tavern two miles to the east. ¹⁰ Instead the guide

¹ McGuire 2000, page 80

²Ibid, pages 41-43

³ Ibid, page 215

⁴ Ibid, page 103

⁵ Ibid, page 82

⁶ Ibid, pages 92-93

⁷ Ibid, page 93

⁸ Ibid, page 94

⁹ Ibid, page 188

¹⁰ Ibid, page 92

Battle of Paoli – Final Technical Report

brought them to the east side of Wayne's camp, eliminating the chance to completely encircle and trap Wayne in a pincer movement.¹¹

From the Warren Tavern, Grey's men quickly and quietly disposed of some Continental Pickets and descended on Wayne's camp at about midnight. By this time Wayne had been made aware of the British plan and was working to evacuate his camp, but a number of factors including an obstructive fence slowed Wayne's movements, leaving the rear of Wayne's division perilously exposed to British bayonets.

Three waves of British forces swept through Wayne's camp leaving at least 53 dead and over 200 injured or taken prisoner. British casualties were in the single digits, but did include one British officer. As Wayne was struggling to evacuate camp, General Smallwood arrived with over 2,000 Maryland Militia and three guns causing further confusion and an incident of friendly fire. In the midst of this chaos, many of Smallwood's men disappeared into the countryside. Eventually, Wayne and Smallwood managed to regroup at the Whitehorse Tavern, and by the morning the bulk of their troops had made it to the Uwchlan Meeting House which served as a temporary hospital. 15

The British at this point broke camp at Tredyffrin and headed due north toward the Schuylkill Fords where Washington was located. By making a feint toward the critical ironworks along French Creek, Howe managed to force Washington to move west in their defense, leaving the fords unprotected. On September 23, Howe crossed the Schuylkill, and with no opposition he managed to march into Philadelphia on September 26, leaving Washington to spend the winter at Valley Forge.

Although Paoli, and the Philadelphia Campaign, demonstrated a tactical victory for the British, Howe's lack of support for General Burgoyne's Northern Campaign in 1777 greatly contributed to a much more significant victory for the Continental Army in Saratoga, New York - seen by many as the turning point of the Revolution.

In the Spring of 1778, the British, now under General Clinton, left Philadelphia and returned to New York City in part to protect that city from America's new ally – the French.

¹¹ Ibid, page 99

¹² Ibid, page 215

¹³ Ibid, page 120

¹⁴ Ibid, pages 122-124

¹⁵ Ibid, pages 142-143

¹⁶ Ibid, pages 159-161

Chapter 2: Battlefield Preservation Timeline

Immediately after the battle local farmers buried the dead from Paoli in a single grave. In 1817 a marble monument was dedicated at the grave site and remains today as the second oldest war memorial in the United States. On the centennial of the battle, in 1877, a taller granite monument was dedicated.

In 1896 The Paoli Memorial Association received a charter to assume care for the 22-acre site where the battle and grave site are located. In 1947 the Malvern Park Civic Association was organized to create a recreational area upon the Paoli Memorial Grounds.

In 1998 the Paoli Battlefield Preservation Fund (PBPF) was incorporated with a mission to protect, preserve, and promote the historical significance of the Paoli Battlefield. In 1999 the PBPF raised \$2.6 million to purchase an additional 40 acres of adjacent land which includes much of the area of Wayne's encampment.

In 2007, the National Park Service's Report to Congress on the Historic Preservation of Revolutionary War and War of 1812 Sites in the United States, categorized the Paoli Battlefield as a threatened site and the American Battlefield Protection Program (ABPP) established a Study Area, Core Area, and PotNR for the Paoli Battlefield. See Appendix C.

In 2010, the County of Chester was awarded an ABPP grant to assist with battlefield preservation efforts at the Paoli site and the surrounding area including the British encampment at Tredyffrin.

Chapter 3 : ABPP Grant Project

The ABPP project served to identify and inventory threatened parcels of land within the Paoli Battlefield Project Area and incorporate them into the county's atlas of historic properties.

An animated map was created which graphically shows the movement of troops through the evening's battle. The animated map serves as both an educational tool and a planning tool.

The 2007 ABPP Study Area represents the, "historic extent of the battle as it unfolded across the landscape". The Project Area for Chester County's 2010-11 study is based on this study area, with six zones of expansion described below and shown in *Appendix C*. The justification for this expansion is based on troop movements that our research has shown occurred in these five areas.

a) British Encampment in Tredyffrin

The original study area only went as far east as General Grey's Quarters. Our research has included the entire British encampment which extends an additional mile and a half.¹⁷

¹⁷ McGuire 2000, page 52

b) Waynesborough

During the battle, a squad was sent to search Wayne's home located in Easttown Township between the two camps. 18

c) St. Peters (Anglican) Church in the Great Valley

This church is believed to be the location where the three dead from the British side were buried in the pre-dawn hours immediately after the battle. 19 The British would have been reluctant to bury an officer in the nearby Presbyterian or Baptist churches, which were considered "dissenter" churches that supported the revolution. 20 Instead they made a special effort to seek the Anglican burial ground at St. Peters before breaking camp at Tredyffrin and continuing their movements toward Philadelphia.

d) Whitehorse Tavern

This tavern was located at a critical crossroads in Chester County and served as the initial regrouping site for Wayne's men after the battle.²¹ Other notable troop movements at this site include: Howe's march to Tredyffrin on the 18th, 22 Wayne's march to the Paoli Tayern on the 19th, ²³ Washington's march to Goshen (Battle of the Clouds) on the 15th, ²⁴ and Washington's retreat from Goshen on the 16th. ²⁵

e) Northwestern Willistown and Northeastern East Goshen Townships Our research shows that this area covers the extent of British pursuit of Wayne's retreating men. McGuire's book describes, "some of the British light infantry pursued the retreating rebels "for a mile or two from camp," across Sugartown Road and into the fields and woods to the west.²⁶

In terms of KOCOA (see section 5.c) the Whitehorse Tavern and Northwestern Willistown (3.d and 3.e above) both qualify as "avenues of retreat", while the road to the Whitehorse Tayern also served as an "avenue of approach".

The ABPP may choose to expand the official Study Area based on our Project Area.

The Core Area, or the area where fire was delivered or received, may also be considered for expansion. The first bayonet and second bayonet attacks on Wayne's pickets occurred outside of the current Core Area. These can be seen on our detail map next to the "Clashes with Pickets" label, and are referenced in McGuire's Battle of Paoli book.²⁷

¹⁸ Ibid, page 135

December, 2011 4

¹⁹ Ibid, page 134

²⁰ Ibid, page 234

²¹ Ibid, page 142

²² Ibid, page 50

²³ Ibid, page 65

²⁴ Ibid, page 28

²⁵ Ibid, page 35

²⁶ Ibid, pages 127-128

²⁷ Ibid, page 117

Chapter 4 : Data Collection Methodology

Data was collected from a variety of sources. In all cases the digital data was entered into ESRI's ArcGIS formats.

a. Municipal Borders

Paper copies of the Municipal boundaries of 1777 were available from the Chester County archives. These were scanned in, and geo-referenced to create a 1777 municipal borders layer in GIS.

b. Road Network

Since no reliable road network map from 1777 was available, we devised a method using information available to us, which included the detailed 1873 Witmer municipal maps, the general county-wide Painter-Bowen 1847 map, and a number of 19th century landowner maps. These were all scanned in and geo-referenced in ESRI ArcMap. We also have in our archives road dockets going back to the 17th century which meticulously describe, in prose format, road alignments in terms of perches, metes and bounds.

We started by making a copy of the 2010 road centerline network, laying it on top of the Witmer maps, and deleting the road segments that did not correspond to roads on the Witmer maps. This gave us an accurately geo-referenced set of roads that existed in 1873 and still exist in 2010.

Roads that no longer exist in our current road network, but were on the Witmer maps, were plotted by hand – giving us a complete digital 1873 road network.

For each municipality in the project area, we then searched the Chester County road dockets prior to 1873 and plotted out every road, including abandoned "parts of roads". In many cases it was necessary to refer to the landowner maps which displayed names mentioned in the road dockets, and the 1847 Painter-Bowen map was used to double-check.

Since the docket descriptions were often vague, and obviously not geo-referenced, we did not want to use this newly created digital road docket network as our final product.

Instead, a copy of the 1873 digital road network was used as the starting point, which we then compared, using overlays, to the road docket network. Any "matching" road found in the road docket network with a court date between 1777 and 1873 was deleted from the 1873 road network, thus creating the 1777 road network.

Roads from the road docket network with a pre-1777 date were kept on the 1777 road network, but the alignments were altered, where appropriate, to match the docket description.

With this approach we have created a 1777 road network which maintains geo-referential digital accuracy as well as historical integrity.

c. Historic Resources

In order to inventory the historic resources within the project area, we used our national award winning methodology for data collection and creation of municipal historic atlases.

First, the municipal Historical Commission is contacted by Chester County's Heritage Preservation Coordinator and asked to provide a list of historic resources by address and tax parcel number. The Commission is provided with a black and white parcel atlas to assist them with this task, which is usually accomplished by using local volunteers to fill out Architectural Inventory Forms (AIF).

The AIF information is then entered into a comprehensive spreadsheet. The resources are categorized as described in section 5.b. by the Heritage Preservation Coordinator working in conjunction with the municipal Historic Commission.

A draft wall map is then generated for review by the municipality. Once approved, a final municipal atlas and wall map are generated in printed and digital forms.

A consolidation of the six municipal atlases and wall maps within the project area has been created to demonstrate the historic resources of the Paoli project area.

d. Troop Movements

Three period maps exist depicting the battle: one by William Faden entitled "British Camp at Truduffrin", another by Captain John Andre labeled "Surprize of a Rebel Corps in Great Valley", and another manuscript map drawn by Anthony Wayne for his court martial proceedings.

Additional troop positions were found in Tom McGuire's *Battle of Paoli* book which relies heavily on firsthand accounts of the battle.

A series of troop positions were created in ArcGIS using time-stamps, which gave us reasonably accurate snapshots of the battle to the half hour. These snapshots were reviewed, altered, and ultimately approved by Professor McGuire during a number of face-to-face meetings.

Since no ESRI tool allows for the creation of graphically smooth video, the snapshots were exported from ArcMap and imported into Adobe Flash CS4. We were then able to create moveable boxes in Flash based on the half hour snapshots, and interpolate the movements along existing roads and/or known fields.

Chapter 5: Products

The primary deliverables from the project are the Animated Map, the Paoli Battlefield Historic Resource Atlas and wall map, the KOCOA maps, and an Archeological Assessment map.

a. Animated Map

The interactive animated map was developed using Adobe Flash CS4 and runs as an html. It functions as both an educational / interpretive tool and a planning tool.

The animated map shows troop movements from 6pm to 10:30am September 20-21, 1777. The map has various possible backgrounds including a base map showing just roads and municipalities, a modern features map, an aerial view map, a property parcel map, and a map of the features of 1777.

Other layers are also available in the map, regardless of background, including fords, historic structures, municipal labels, and division labels. Individual units can be identified with a mouse-over.

The animated map has a clock which shows the approximate time of the troop positions, and a slidebar which can be used to move through time in either direction. A zoom capability is also included.

The animated map is available to the public upon request in CD form.

b. Historic Resource Atlases

Various atlases were created for the individual municipalities with the project area. These atlases are intended to show historic resources at a property parcel level, which are color coded to show classifications:

Class I – On or eligible for the National Register of Historic Places

Class II – Locally significant historic resource

Class III - All remaining resources over 50 years old

The information from the individual atlases was consolidated to create an overall Battle of Paoli Historic Resource Atlas and Wall Map shown in *Appendix D*. Historic resources that were built prior to 1780 and are still recorded as historic resources on the municipal atlases will be incorporated into the battlefield atlas.

c. Military Terrain Analysis Maps

Military Terrain Analysis was conducted within the project area using the KOCOA approach. KOCOA stands for Key Terrain, Observation and Fields of Fire, Cover and Concealment, Obstacles, Avenues of Approach. Studying the KOCOA elements of a given battlefield is helpful for understanding how the unique landscape configuration can affect the outcome of a battlefield.

KOCOA maps were created based on terrain and troop positions. An overall KOCOA map shows the general movement of troops (avenues of approach and retreat), cover and concealment, obstacles, and significant fields of fire within the terrain of the area as it was in 1777. This map, shown in *Appendix E*, builds upon three other maps detailing the physical topography, *Appendix F*, cultural topography, *Appendix G*, and Fields of Fire, *Appendix H* within the project area.

d. Archeological Assessment Map

The Archeological Assessment map in *Appendix I* shows areas of Archeological Potential (based on degree of development) and areas of Anticipated Deposits (where action occurred during the battle).

The map is symbolized as follows:

Archeological Potential

Green = High / Undeveloped or lightly developed land Orange = Medium / Moderately developed land Red = Low / Heavily developed land

Anticipated Deposits

Cross-hatch Overlay = Major / Areas of battle engagement, encampment or prolonged activity Slash Overlay = Some / Areas of brief activity

Dotted Overlay = Little / Areas of very brief activity or avenues of approach or egress

By juxtaposing the two metrics on one map we have found six distinct areas to have high Archeological potential and major anticipated deposits (green cross-hatched areas) that could help planners and archaeologists determine the areas most likely to contain artifacts.

The six areas are:

- 1) The Paoli Memorial Grounds
- 2) Northwestern Willistown area of undeveloped farmland
- 3) The British encampment area in Tredyffrin, especially along the powerlines
- 4) Whitehorse Tavern
- 5) Wavnesborough
- 6) Picket 4 Location (Old Lincoln Hwy and Longford Rd)

Due to the sensitive nature of archeological excavations, especially in residential areas, this map is not meant for public distribution. Anyone interested in this map should contact Chester County Planning or the PHMC.

Chapter 6 : Public Involvement

Throughout this project, Chester County has being making presentations to the public highlighting the Philadelphia Campaign and how it impacted our region. During the previous grant cycle where we studied the Battle of Brandywine, over 500 people attended our presentations, including state and local officials, as well as stakeholders, the general public, school faculty and students.

We met specifically with Paoli area officials and stakeholders in June of 2011 to review the project.

During the Paoli Battlefield grant cycle almost 1,000 more people have seen the presentation which has incorporated both the Paoli and Brandywine material.

The following table shows dates and places of our presentations:

| Date | Place | Sponsor / Audience | Attendees |
|----------|------------------------------------|-------------------------------------------|-----------|
| 1/3/11 | Sons of American Revolution | SAR Members, Philadelphia | 40 |
| 3/18/11 | Tower Hill School in Wilmington | Middle School 7th and 8th Graders | 120 |
| 3/29/11 | Chadds Ford Historical Society | HS Members | 80 |
| 3/30/11 | Malvern Borough Hall | Municipal Officials | 20 |
| 4/9/11 | Delaware Revolutionary Round Table | Delaware Residents | 80 |
| 5/11/11 | St. Luke Church in Devon | Nifty Fifty's Group | 35 |
| 6/19/11 | Chester County Library | General Public / Stakeholders | 50 |
| 7/20/11 | Tredyffrin Township | Patriots Path Task Force- Multi Municipal | 10 |
| 8/4/11 | Chadds Ford Historical Society | Unionville School District Admin Retreat | 20 |
| 8/15/11 | Chester County Government Services | Archives and Chesco Historical Society | 10 |
| 9/8/11 | East Goshen Township Building | East Goshen Historical Commission | 8 |
| 10/1/11 | National Constitution Center | Philadelphia Archeology Forum | 70 |
| 10/8/11 | Paoli Battlefield | Illumination Ceremony | 205 |
| 10/11/11 | General Warren Tavern | Paoli Battlefield Protection Program | 36 |
| 10/13/11 | Tredyffrin Township | Tredyffrin Historic Preservation Trust | 75 |
| 10/15/11 | Birmingham Township | 325th Anniversary Celebration | 25 |
| 10/31/11 | Unionville Elementary School | UES Staff and Faculty | 25 |
| 11/21/11 | Westminster Presbyterian Church | Congregation Members | 75 |
| 11/30/11 | Easttown Library | Public / Municipal officials | ?? |

Interest in our program continues to spread and we continue to receive requests for more presentations.

The final public presentation was made on November 30 at the Easttown public library with 75 attendees. At this meeting officials from each of the six surrounding municipalities were presented with a Historic Resource Atlas and Animated CD and we will made a full presentation of our findings. About 50 members of the public were in attendance.

Chapter 7 : Recommendations

a. National Historic Landmark Status

The Paoli Battlefield Preservation Fund should explore the possibility of establishing National Historic Landmark Status for the Paoli Memorial Grounds. The Paoli Battlefield Site and Parade Grounds is already on the National Register of Historic Places. This covers most the Core Area (See section 3 for more details) and most of Wayne's encampment.

Establishing a National Historic Landmark for the Paoli Battlefield, similar to the existing NHL at nearby Brandywine, would help to give the site the elevated status deserved of a nationally significant event. It's location between Valley Forge and Brandywine would help the general public tie together three of the important Philadelphia Campaign events.

As part of the Landmark Status research, the linking of the area of engagement in northwest Willistown, the Warren Tavern, and the nearby blacksmith shop should also be researched.

b. Regional Linkages

It is recommended that the *Revolutionary War Campaign of 1777 Loop* proposed by the Brandywine Battlefield Task Force in conjunction with municipal input be formally endorsed by both Chester and Delaware counties. This Loop concept is a regional planning effort that would provide regional linkages between significant Battlefield landscapes and historic sites. The Loop would provide pedestrian access along many of the roadways and other corridors that were used for troop movements. The Animated Maps and Atlases from both the Brandywine and Paoli projects can serve as the historical reference material to locate opportunities for historical interpretation along the proposed regional linkages. (*Note the 1777 Loop concept is presented in Appendix J*)

This Loop would connect the Paoli Battlefield Site and Memorial Grounds with the Brandywine Battlefield Historic Site (BBHS) and with Valley Forge National Historical Park. Each of these sites is key to the Revolutionary War Campaign of 1777.

The impacts of the proposed loop on archeological resources can not be determined until a feasibility study is undertaken to determine preliminary alignments. Once potential alignments are determined, a Phase 1 archeological study should be conducted to resolve which areas to avoid. Depending on funding availability for such a study, the timeframe would be a minimum of 2-5 years.

c. White Horse Crossroads Historic District

The White Horse Tavern village was located at critical five-point crossroad in Chester County. Here the east-west Lancaster-Philadelphia Road, met the Paxton Road to the northern iron forges and Harris's Ferry (Harrsiburg), the Morehall Road to the upper fords of the Schuylkill River, the road to the Boot Tavern, and the road to Chester, the County Seat.

In the 18th century, it was almost impossible to travel through northern Chester County without finding yourself at this crossroad. Apart from the blacksmith shops, the village featured the White Horse Tavern which was one of the first taverns to receive a license in 1721.²⁸

The White Horse Tavern exemplifies the significance of the proposed district. During the Revolutionary War the tavern was the location of many events as described in Chapter 3.d. After the war it was a regular meeting place for ex-soldiers in the Great Valley, and in 1790 it became a Masonic Lodge.²⁹ The tavern was also a frequent stop for Conestoga Indians who travelled along the Paxton Road to Philadelphia to trade skins and furs.³⁰ It remained a tavern until the early 19th century, ³¹ when it became a private residence as it remains today.

A number of potentially contributory Class 1 Historic Resources exist in the White Horse area today, as well as the Battle of The Clouds Township Park. It is also believed that Revolutionary War graves exist in the adjacent Philadelphia Memorial Park.³²

d. Educational Kiosks: Linking Headquarters, Battle Sites, Taverns and Churches to Tell a Cohesive Story

One of the significant findings of the study was that although there has been major development in the battle study area, a large number of the critical historic sites related to the battle have been recognized through national designation or local designation. This recognition has led to increased preservation efforts and measures in Chester County.

It is recommended that educational kiosks displaying the animated map, paper maps and the Historic Resource Map be developed and placed throughout the battle area at Chester County Public Library System sites, the Chester County Archives, the Chester Valley Regional Trail and the Exton County Park site (see section e), municipal buildings and possibly Valley Forge National Historical Park.

In conjunction with the kiosks, a website should be developed to provide the interactive map for the public and for teachers who wish to utilize the information in the classroom. It is further recommended that Chester County Parks & Recreation officially incorporate educational programming for the Philadelphia Campaign into their county-wide educational programming.

²⁸ Tredyffrin Easttown Historical Quarterly, October 1970, Volume 15 Number 4, Pages 77

²⁹ The wayside inns on the Lancaster roadside between Philadelphia and Lancaster, Julius Sachse, page 198

³⁰ Ibid, page 197

³¹ Ibid, page 201

³² Tredyffrin Easttown Historical Quarterly, October 1970, Volume 15 Number 4, Pages 77

e. Chester County Trail and Park Interpretive Sites

There are three County initiatives that are recommended to incorporate interpretation of the battle.

- 1. The Chester Valley Trail runs through the British encampment area. A key opportunity exists for interpretive signage and programs through Chester County Parks & Recreation along the trail, and at Tredyffrin Township's D'Ambrosia Park adjacent to the trail. This area can focus on the 3 standing British Headquarters and Grey's March on Swedesford Road. There are 5 extant properties still on Swedesford Road and a proposed trail that would pass Howe's Headquarters in the Tredyffrin Comprehensive Plan. It is estimated that close to 700,000 people will currently utilize the trail on an annual basis.
- 2. The Exton Park Site is adjacent to the White Horse Tavern and related key resources (see recommendation C.) Managed by Chester County Parks & Recreation with a trail head for the Chester Valley Trail this is an excellent site to interpret the battle for the public. Since the park is in its early planning stages, interpretation could be included in the planning.
- 3. The Patriots Path links the Paoli Battlefield site with the bayoneting that occurred between the Warren Tavern and the Battlfield.

f. Paoli Battlefield Preservation Plan

Chester County should continue to work with the six municipalities to develop a Paoli Battlefield Preservation Plan which could also take into account the nearby action of the Battle of the Clouds.

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Oral History

Thomas J. McGuire - 2011

Appendix

- A. Overview Battle Map
- B. Detail Battle Map
- C. Paoli Project Area
- D. Wall Map
- E. KOCOA Overall
- F. KOCOA Physical Topography
- G. KOCOA Cultural Topography
- H. KOCOA Fields of Fire
- I. Archeological Assessment
- J. 1777 Trail Loop