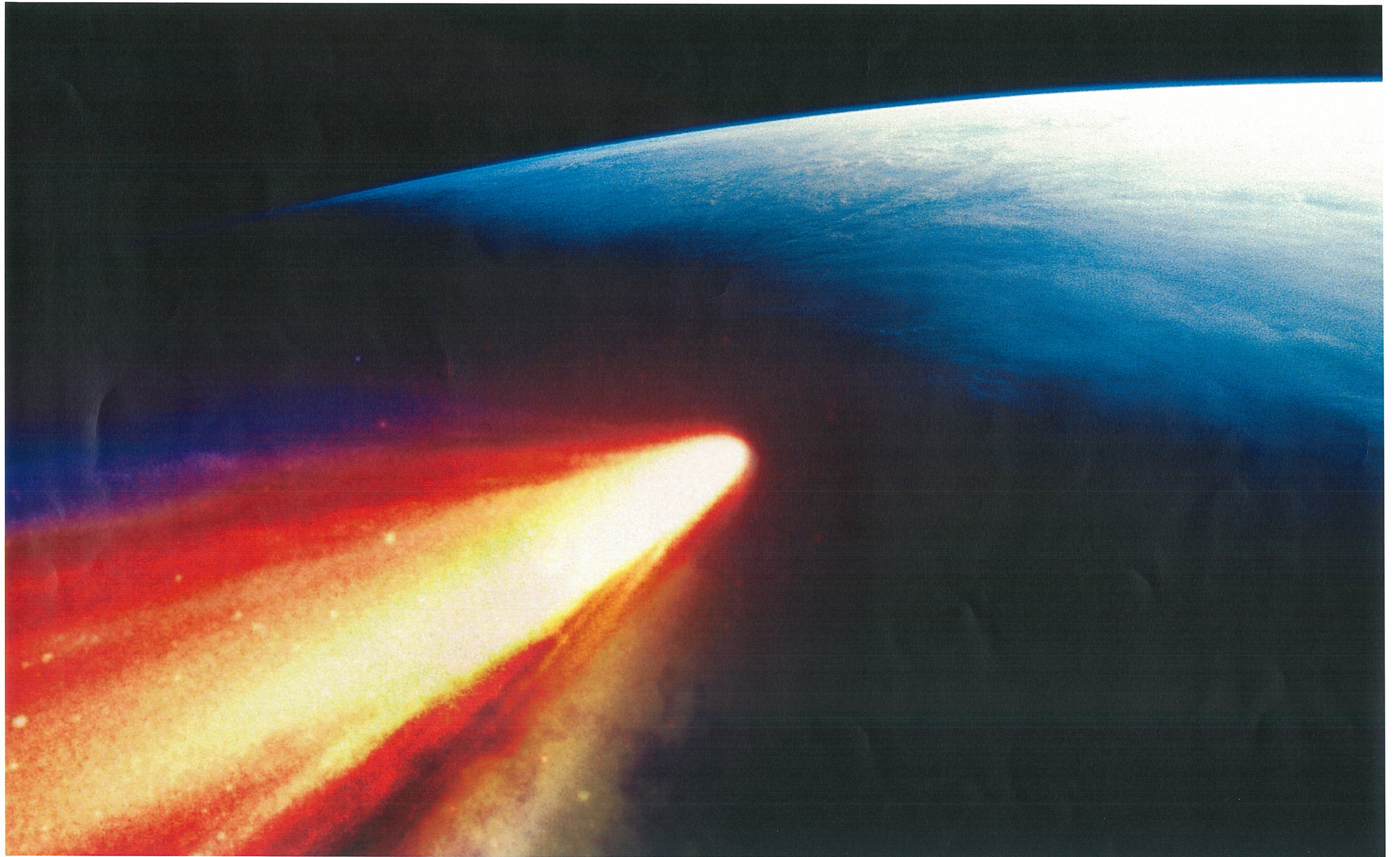


The Alabama Impact Crater & Science Center Masterplan Study



Wetumpka Crater Commission
Wetumpka, Alabama







The Alabama Impact Crater & Science Center

Wetumpka Crater Commission Masterplan

Wetumpka, Alabama | September of 2008

• Table of Contents •

Historical Narrative	Page 4
Project Statement	Page 6
Site Analysis	Page 8
Programming	Page 10
Conceptual Land Use Plan	Page 14
Masterplan Design Phase	Page 16
Site Wayfinding	Page 24
Projected Economic Impact	Page 26
Cost Estimate... ..	Page 28

Historical Narrative

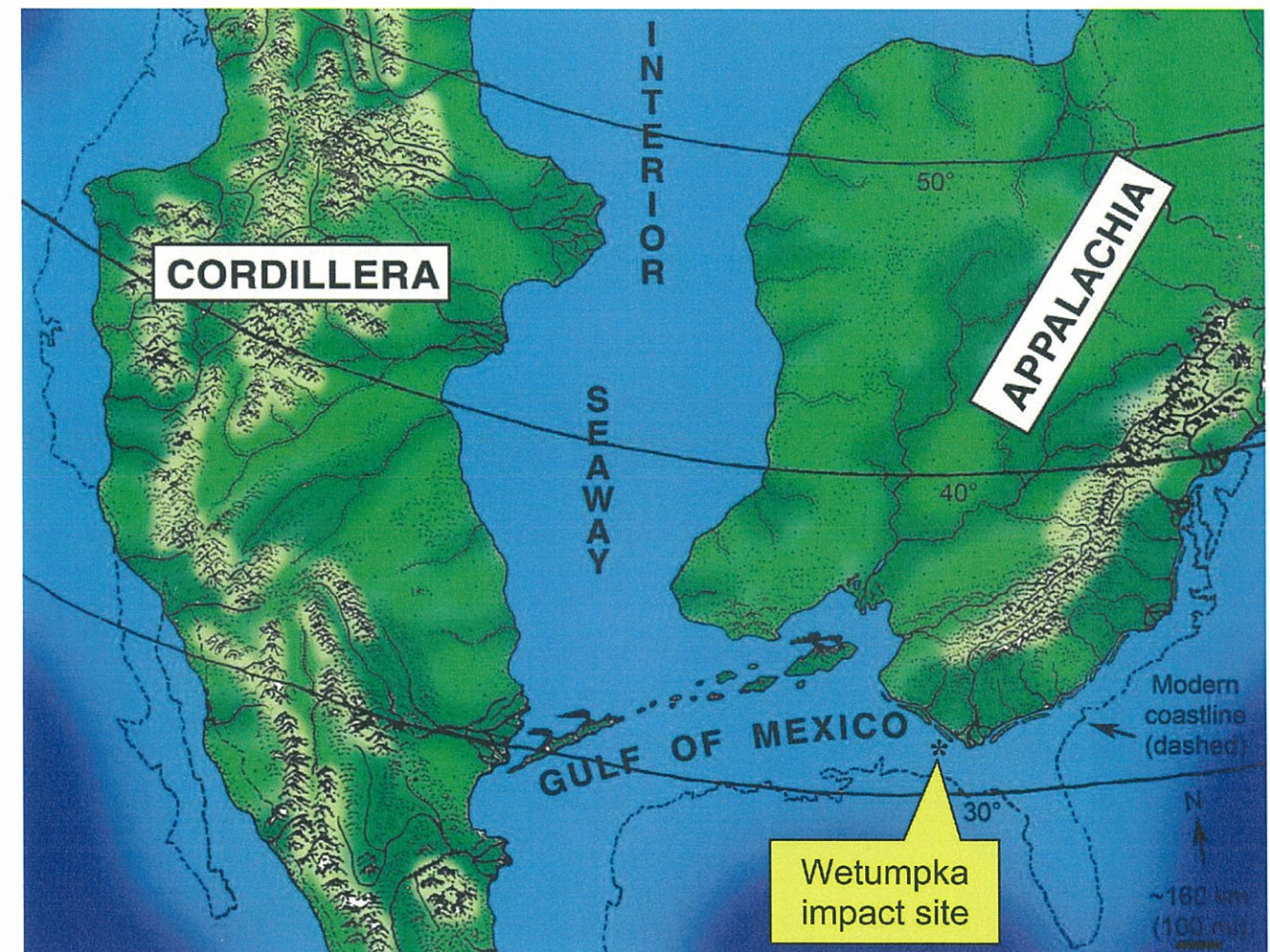
Meteor Impact:

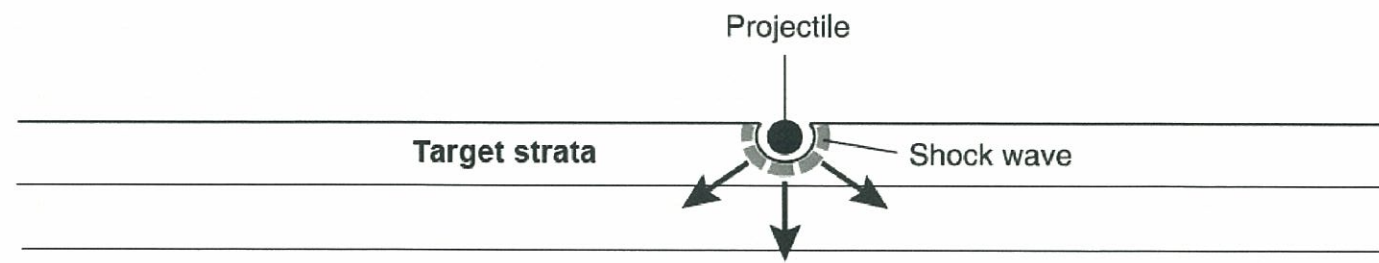
Approximately 85 million years ago, during the Late Cretaceous period, the area surrounding Wetumpka as well as most of southern Alabama was a shallow ocean approximately 150 feet deep. It was into this ocean that a chondritic (stony) meteor near 1,200 feet in diameter and traveling approximately 40,000 miles per hour impacted the earth. Upon impact, the energy released would have been the equivalent of 2.3 billion tons of TNT or 175,000 times the size of the nuclear bomb dropped on Hiroshima, Japan in 1945. Within seconds the meteor was driven a mile into the ocean floor vaporizing much of the rock at the impact area along with the meteor itself while pushing the crater rim hundreds of feet above the surface of the ocean and throwing rock out as far as the present day Gulf of Mexico. At some point, the southwest rim of the crater collapsed resulting in the flooding of the crater and the creation of the horseshoe shaped feature that is still visible today after millions of years of weathering, erosion and sedimentation.

Discovery of the Crater:

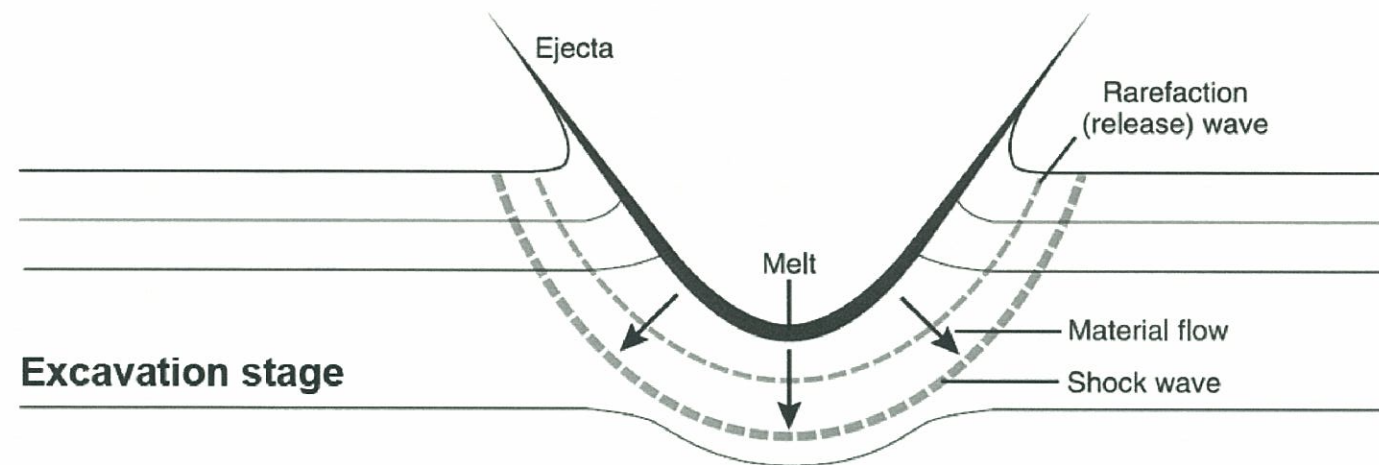
In the summer of 1891, Alabama State Geologist Eugene Allen Smith, visited Wetumpka and was the first to note the abnormal geology of the area. However, it was not until 1976 that Thornton L Neathery, a geologist with Auburn University, theorized that the abnormal feature near Wetumpka was an 'astrobleme' or star wound. At this time, though, definitive proof had not been discovered. It was not until 1999 after drilling performed under the direction of Dr. David T. King, Jr. of Auburn University with a grant from Vulcan Materials uncovered the definitive proof that confirmed the features surrounding Wetumpka are in fact the result of a meteor impact. This proof was the discovery of shock quartz in the core samples taken from the site. Shock quartz is a unique material that is created under extreme sudden pressures and found in impact craters and craters that result from nuclear detonations. The discovery of this material in the crater confirmed that the was in fact the location of a meteor impact and resulted

in the site being added to the Earth Impact Database. Wetumpka is one of only 59 recognized impacts in North America and 176 impacts in the world included in the database. The Wetumpka crater is also one of the only marine impact sites accessible on dry land making it a very important site for the research of marine craters.

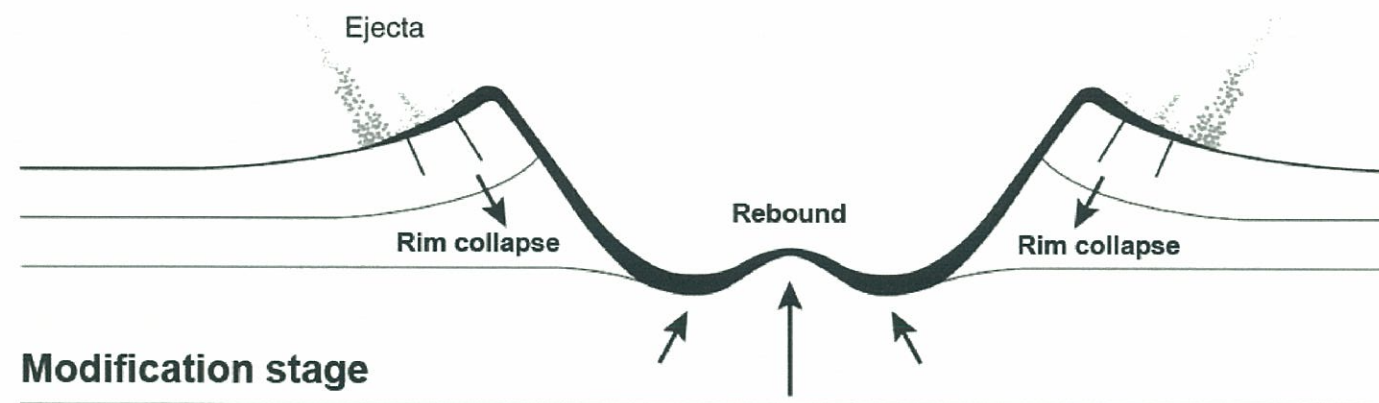




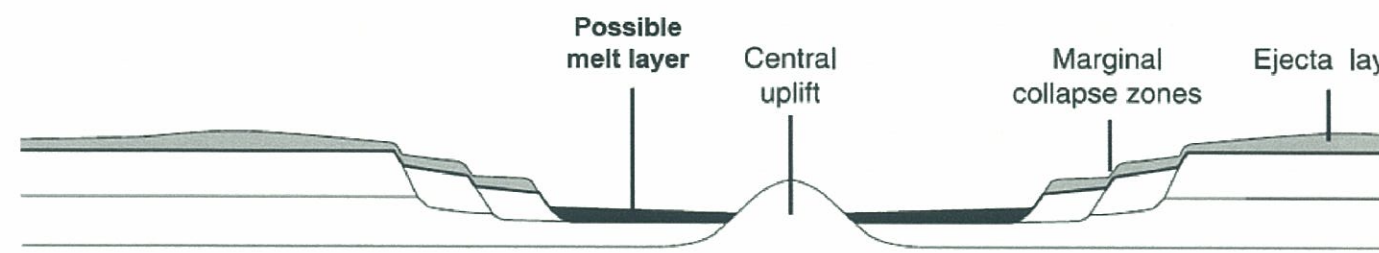
Contact/compression stage



Excavation stage



Modification stage



“Final” structure



Project Statement

Project Statement:

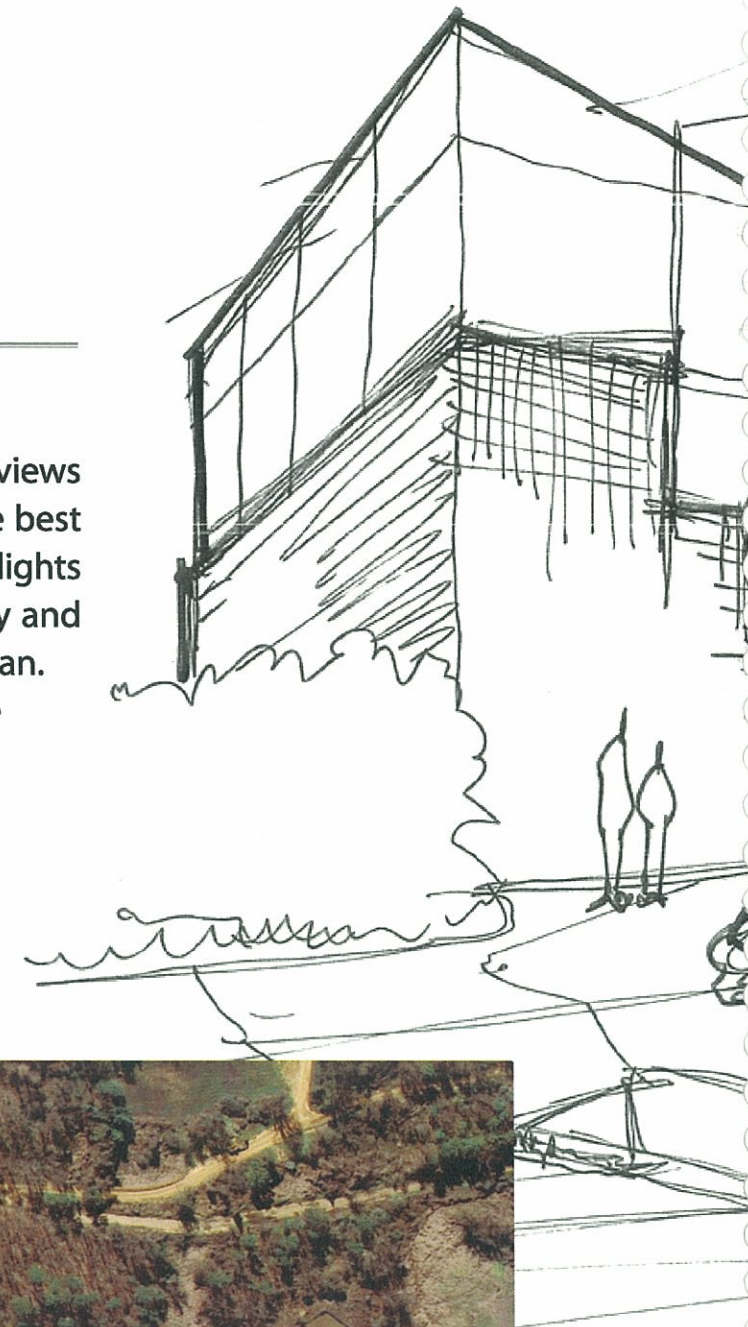
The Wetumpka Impact Crater is a unique feature and geologic commodity for the state of Alabama. The proposed museum and science center provides a central facility to tell the story of the site and educate the public about the extraordinary geologic event that occurred here in Alabama. The size of the crater (4 miles in diameter) does not allow visitors to experience the site in an efficient and organized manner across the entire crater. Because of this, the creation of the museum will provide a space for exhibits that bring all of the dispersed elements of the crater into a central facility enhancing the educational experience of visitors. Exhibits and features located in the museum and throughout the site can be created in an interactive, education and fun manner so that the museum will not only be a destination for geologist and school field trips but a must see tourist attraction for visitors from throughout the southeast and the world.

A 25-acre site has been donated by the Alabama Department of Transportation to the City of Wetumpka that is suitable for use for the Alabama Impact Crater and Science Center. The acquisition of this property completes the first step in creation of the facility and sets the process of building the center in motion. As part of this process, The Wetumpka Impact Crater Commission hired Gresham, Smith and Partners to create a master plan for the site. This document is the result of that process and another step in the Alabama Impact Crater and Science Center becoming a reality.

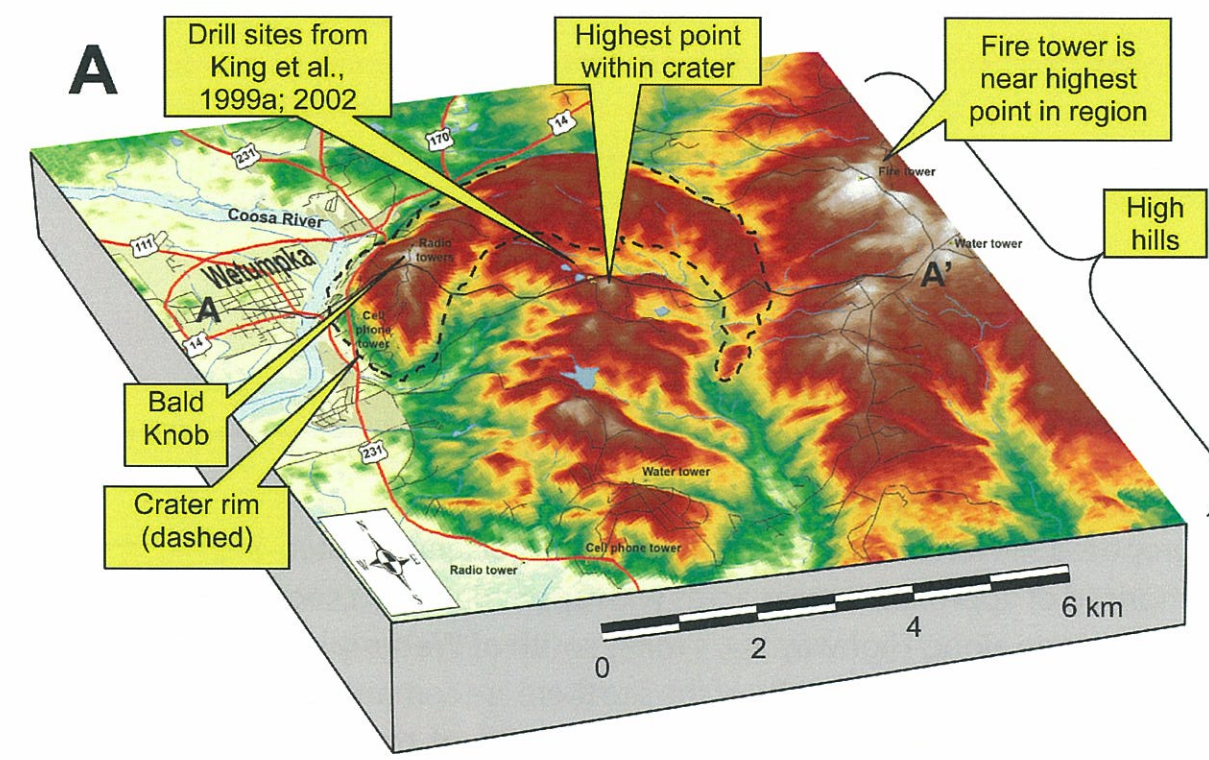
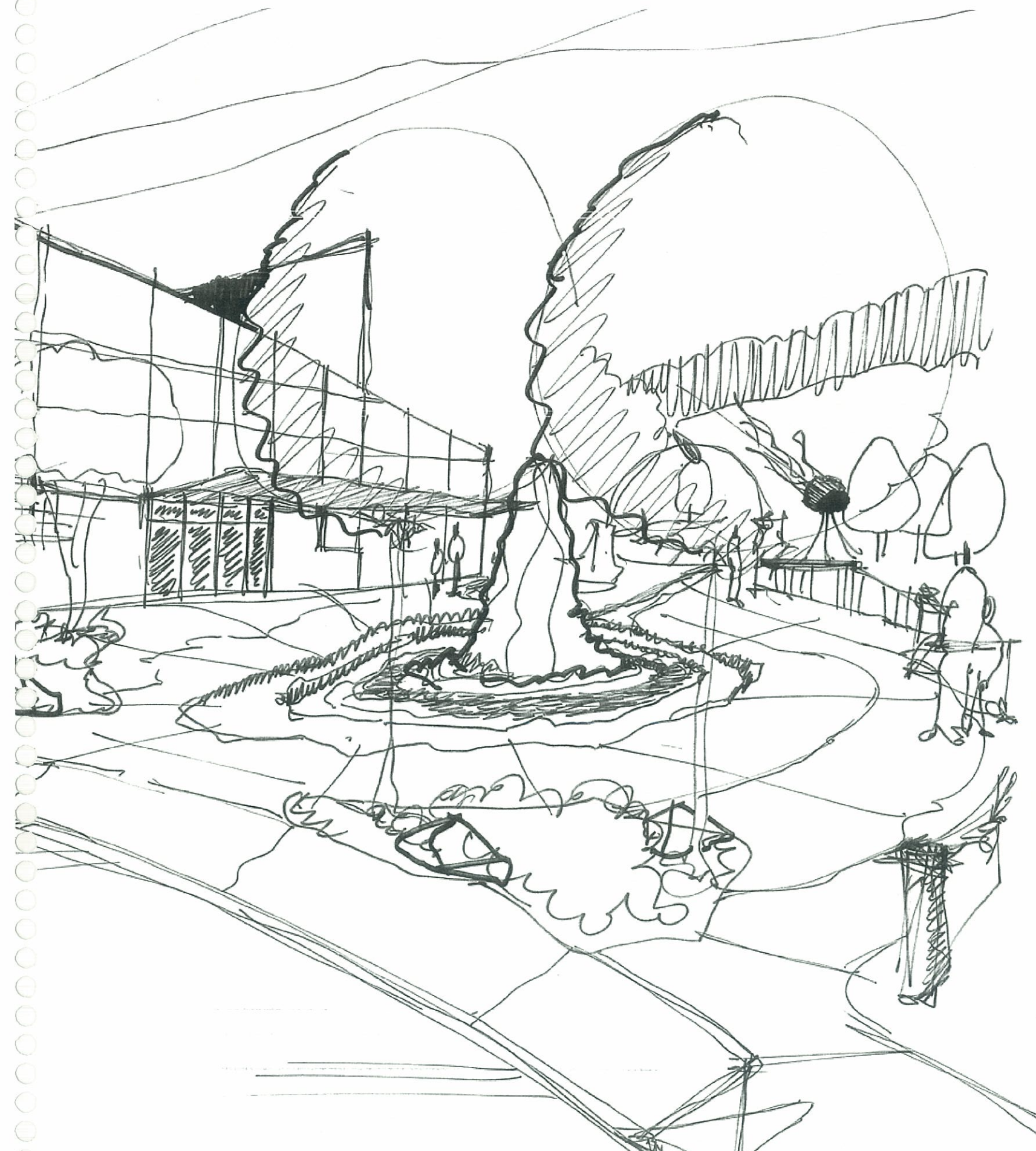
Master Planning Process:

The goal of the master planning process for the Alabama Impact Crater and Science Center is to set the groundwork for a world class educational and research center in a manner that is cost efficient and economically successful. The steps in the master planning process began with discussions with the Wetumpka Impact Crater Commission (WICC) and others involved with the crater to determine scope, background and expectations for the master plan. Then, a site inventory and analysis of the site was performed looking

at items such as topography, hydrology, vegetation, views and access to determine what areas of the site were best used for different purposes and what the major highlights and drawbacks to the site were. After the inventory and analysis was complete, programming for the site began. This was derived from the earlier discussions with the Wetumpka Impact Crater Commission to formulate a list of required and desirable uses that may be incorporated into the center. Once a general program was developed the conceptual design was started. The conceptual design consists of a series of site relationship diagrams that illustrate how



Aerial View of Proposed Site



the different uses for the site, such as the museum building, parking, storm water management, access points, educational features and the like, relate to each other on the site and how the location of each affects the location and functionality of the other items. Three of these diagrams were presented to the Wetumpka Impact Crater Commission for comment and discussion to arrive a final concept that would become the master plan. Then, the final concept was further developed to show the individual programming elements to scale and in a designed manner to show how the center may actually look upon completion. This plan was then presented to the Wetumpka Impact Crater Commission for comment and discussion. After incorporating feedback into the plan the final master plan was created. That was followed with the creation of an estimated opinion of cost was developed to provide budgeting/ fundraising information to the Wetumpka Impact Crater Commission. The above information has been included into this document to create The Alabama Impact Crater and Science Center Master Plan Study.

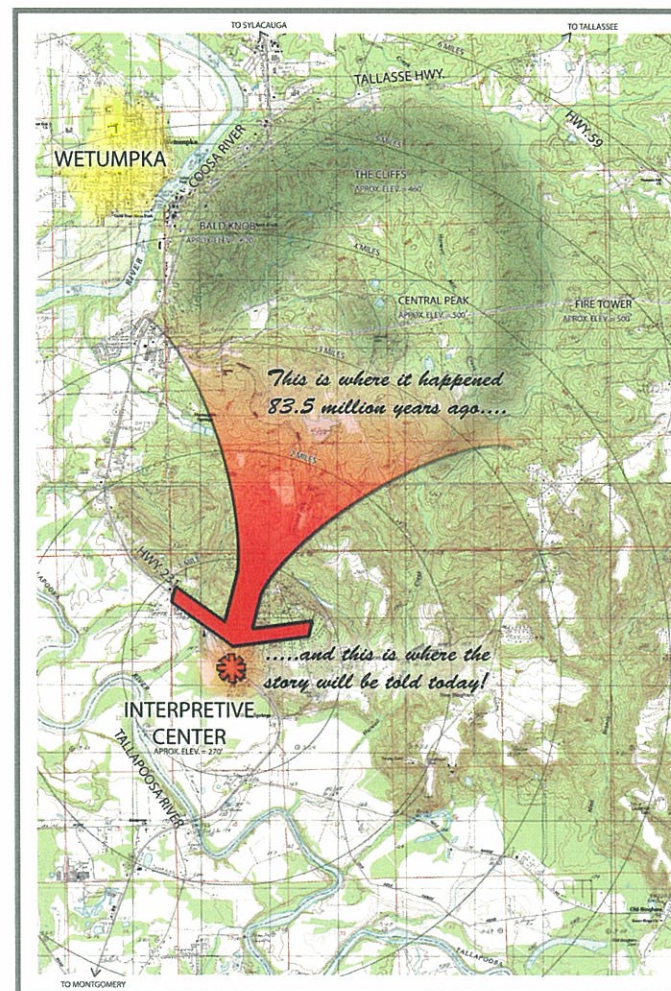
Site Analysis

Site Inventory and Analysis:

The proposed site for the Alabama Impact Crater & Science Center is comprised of approximately 25 acres with approximately 1,500 feet of frontage along Highway 231, 5 miles south of Wetumpka, Alabama. In the immediate vicinity of the site there are commercial properties immediately to the north and south of the site, residential properties to the east across highway 231 and wetlands and floodplain to the Coosa River to the west.

The residential developments to the north and south are aesthetically incompatible with a world class museum. As such, the visual impacts of these structures must be mitigated through the use of buffering so as not to detract from the visual quality that is desired at the center. Behind the commercial properties, to the north is a communications tower that is of such a height as to make it unable to be buffered. However, through careful site planning the visual intrusion of the tower can be minimized.

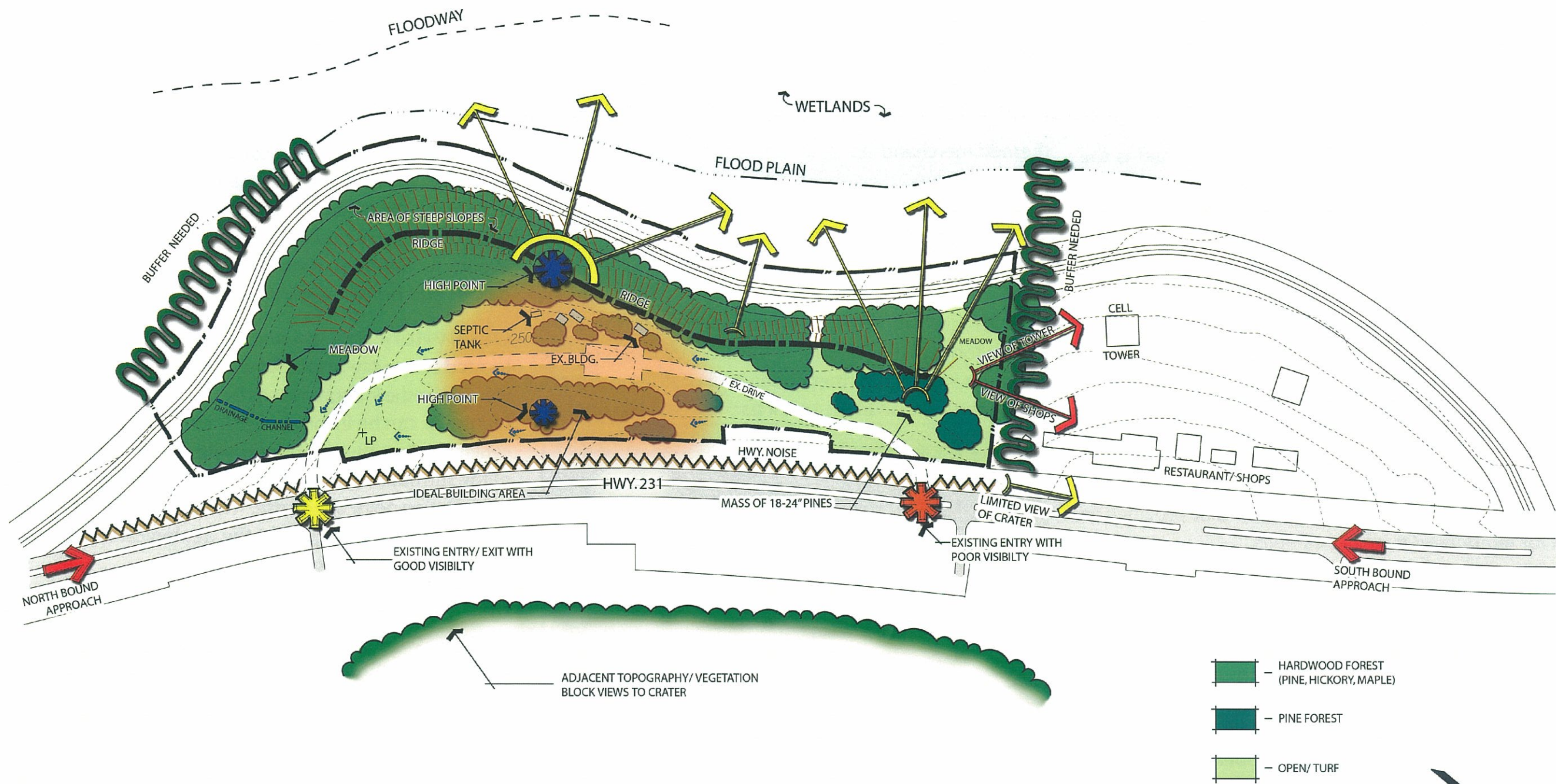
The site is currently the location of a rest stop that was built in the late 1970's and is comprised of two access points on Highway 231, 24 asphalt parking spaces, a restroom building, custodian's office, storage building and several picnic structures and picnic tables. The site sits above the highway by up to 60' in areas. The site is bound to the rear by the former right-of-way of Old Highway 231 which is over 100' lower than the rest stop areas of the site. This difference in elevation provides stunning views to the west of the site including views of the Coosa River along the ridge the divides the upper and lower portions of the site. There are significant portions of the site that are covered with medium to large sized stands of hardwoods along with



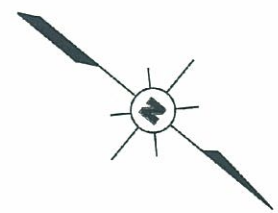
scattered areas of pines. An existing berm around 200' in length adjacent to Highway 231 and is about 30' higher in elevation than the road and has an existing stand of mixed hardwood and evergreen vegetation.

Access to the site is presently accommodated through a entrance only connection to Highway 231 near the north end of the property, a entrance/exit along the south end of the property and through the remnants of Old Highway 231 that connects to Highway 231 along the existing commercial properties to the south of the site. Due to the topography of Highway 231, the existing northern entrance has limited site distance for exiting vehicles and traffic turning left from 231 into the rest stop. As such, this entrance should not be used for any future development. The existing southern entrance on 231 does not have the sight distance issues of the northern access point and would be appropriate to use as an entrance for future development. The access from the portion of the site that is Old Highway 231 and Highway 231 is flanked by unattractive metal buildings and storage yards. Because of this, any access utilizing this entry would have to take measures to mitigate the views along the road.

The proposed site has access to existing water, sanitary sewer and electric along Highway 231. Per discussion with the Central Elmore Water Authority it is believed that water and sewer are located on the project side of 231. However, this has not been field verified.



Site Analysis Map



Programming

Description of Possible Features

Interpretive Center: The interpretive center is the principal feature to be located on the site. The interpretive center may contain any number of elements for use by visitors and staff at the site. The center could be as little as 6,000 square feet or as much as 10,000 square feet. Some of these elements listed below may be but included in the center but the possible elements are by no means limited to those listed:

Museum: Series of displays to educate visitors about the science of the Wetumpka Impact Crater in exciting and interactive ways. A core group of crater themed exhibits will be the main focus of the museum. Flexible exhibit space can also be part of the museum that provides an area for temporary/ traveling exhibits.

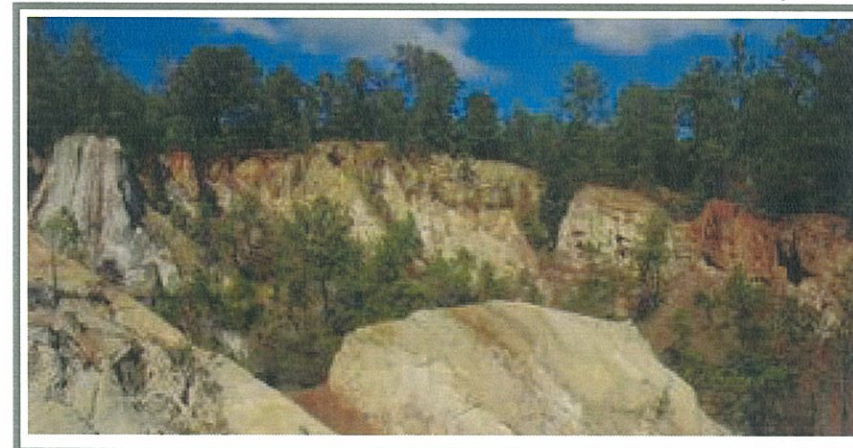
Research Facility: A facility that provides space for ongoing research at the crater. This space will provide lab space and storage space for a resident geologist or other scientists actively performing research that involves the crater. This type of facility will aid in bringing the science to life and make the center more interesting to those visiting. The resident scientist can also aid in speaking to groups that visit the center and help ensure that the science is correctly presented.

Gift Shop: The gift shop will help fund the center and associated research, as well as, assist in the notoriety and reputation of the center through the sale of a variety of

themed merchandise.

Snack Bar: A fairly small food service operation providing groups with basic food items such as drinks, hot dogs, sandwiches, ice cream and other similar items easily prepared on site.

Café: A more elaborate food service option with restaurant quality food and waited table service. Full meals can be served as well as gourmet coffee and pastries in a more formal setting than at the snack bar. The café can operate



Rock outcropping near Wetumpka showing unique formations resulting from impact

full time or only at peak times and for special events.

Theater: A single theater or multiple theaters to show educational films about the crater and surrounding areas. Theaters may also be used for the showing of other educational/ scientific films that may not directly pertain to the crater but be shown as part of temporary or traveling exhibits.

Ballroom: A ballroom provides a space for large events to be held at the center. These events could include lectures or conferences for groups directly involved with the crater or geology or the ballroom could be rented to groups for events such as high school proms, weddings or private parties and provide additional income for the center.

Observatory: The observatory would be a tall structure located on the site to take full advantage of the spectacular views from the interpretive center. This may be a stand alone feature or can be incorporated into the main interpretive center building. The observatory will provide panoramic views of the surrounding landscape while being an architectural exclamation point on the site. The observatory will contain exhibit signage to highlight the geological features that are visible from the tower.

Site Educational Features: Beyond the primary structures on site, the interpretive center and the observatory, the site will contain a variety of features. Some features are utilitarian, such as parking and roads, while the purpose of others is educational and/or entertainment. The goal of the master planning exercise will be to provide spaces for both the utilitarian and educational features in an aesthetically pleasing manner that provides an exceptional experience for all users of the center. All site features will be tied together through the use of exhibit signage that ties all the features together while explaining the science of the impact and crater. The features listed below are divided into categories



View from site looking toward the Tallapoosa River

as they appear on the conceptual plans.

Primary Features: These site features are the main feature that nearly every user that visits the site will experience. These are generally close to the interpretive center building and have the strongest connection the science and symbology of the crater.

Outdoor Classroom/ Amphitheater: The outdoor classroom which may also function as an amphitheater provides a space for groups to hear presentations about the crater in an outdoor setting where many of the ideas being presented may be observed. This space also provides a gathering area for groups before they proceed to the center or other areas of the site. When not being used as described above the space be used more as

Programming

an amphitheater for special lectures or events such as concerts. The amphitheater use could also be broken off into a separate space since the site's topography provides many locations that would lend itself to this use.

Rock Museum/ Fragment Garden: A space featuring native rocks from the crater and/or recreations of specimens that are not easily obtained. The rocks would be large and arranged in the space to create a dynamic space that would demonstrate the appearance, feel, color and scale of the geologic feature found within the crater. The feature would be interactive allowing visitors to touch, feel, and interact with the rocks.

Timeline: The timeline walk is a feature that will tell the history of the area through a series of vignettes found

along the walk. A sequence of plazas, courtyards and/or gardens that provide interesting and interactive ways to educate visitors about different points of time from the earliest known geologic events to the era of dinosaurs to the human history of the region.

Ocean Feature: Water feature that illustrates the prehistoric sea that covered the area at the time of the impact. Elements could be included in the feature that mimic the impact through the use of underwater air cannons or other such features to integrate elements of the crater and impact.

River Feature: An interactive water feature that is either directly or indirectly tied to the Ocean Feature that mimics the rock formations and vegetation found in and along the Coosa River near Wetumpka.

Light Show: Night time lighting effects to represent aspects of the impact such as the speed, angle, and direction of impact and the cataclysmic explosion that followed.

Interpretive Play Area: Play area that uses the geology of the crater as a theme for play elements instead of typical playground equipment. This would be a uniquely designed space that would provide an entertaining space for kids to expend energy while still learning about the area. The integration of crater themed elements will provide interest to adults as well as children.

Secondary Features: These are features that are less closely associated with the interpretive center than the primary features. This may be due to distance from the center or because they may not be as strongly connected to the scientific and/ or educational aspects of the site. However, these features will help to create a more dynamic space that will keep visitors coming back again and again.

(Description of Possible Features continued)

Outdoor Exhibit/ Festival Space: Large open outdoor space that could be used for temporary outdoor exhibits or special events that may be held at the center. These events could be anything from local astronomy clubs setting up viewings of astrological events to art & craft fairs. Events in this space will help draw the community to the center as well as provide opportunities for additional income through rental of the space.

Pavilions/ shelters: Structures that can be rented by groups for activities such as birthday parties, family reunions, or other similar activities. These could be small shelters that house one or two picnic tables to large pavilions that include restrooms, concession kitchens, fireplaces and seat large groups. Rental fees along with catering fees would provide an extra source of income for the center.

Ridge Features:

Running on a northwest to southeast axis along the site is a ridge that falls steeply to the southwest. This ridge, while providing challenges accessing areas of the site below, provides exceptional views to the southwest and the Tallapoosa River. Features that take advantage of this include the following:

Pavilions/ shelters: As mentioned above are ideally located along this ridge to provide a breathtaking backdrop to the events they hold.

Viewing Platforms: Structures built out over or on the ridge to provide panoramic views out from the site.

Walking Trails: Paths located along the ridge give glimpses of views as visitors move around the site then open to stunning views at viewing platforms as discussed above.

Natural Areas: The site contains areas of pine and hardwood forest. These areas are largely on the steep

undeveloped portions of the site. Due to the steep topography these areas are difficult to construct roads and buildings. However, the area is ideal for less intensive uses of the site such as walking trails as described below:

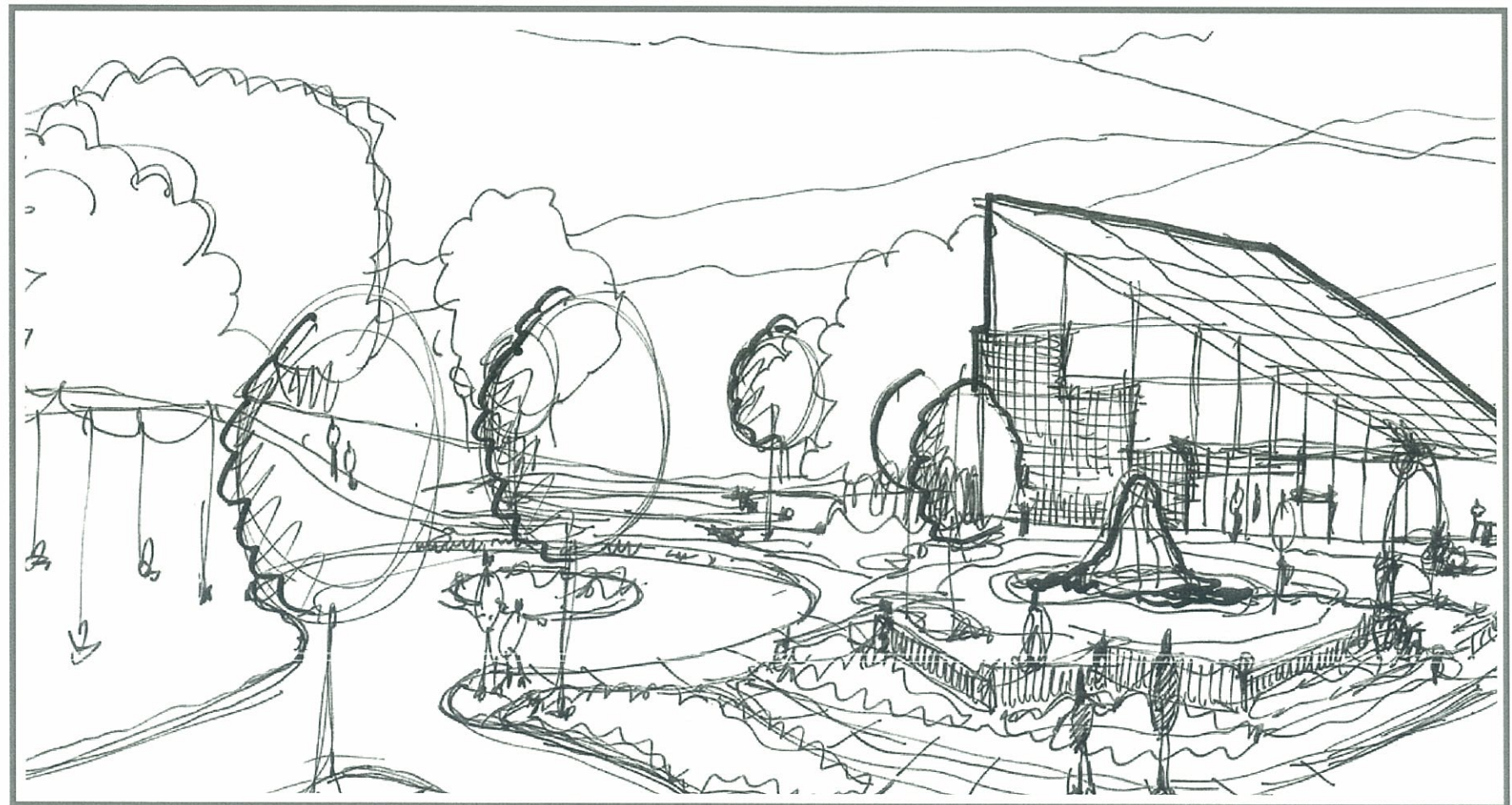
Walking Trails: Pedestrian trails that connect major elements of the site as well as providing controlled access to the natural areas. Signage identifying the plant life as well as the geological features along the trails would be integrated into the overall signage concept for the site.

Viewing Platforms: As described in the Ridge Features, viewing platforms elevated 15-20' provide enhanced areas at certain points along the trails with especially nice views.

Parking/Vehicle Circulation: Since nearly all visitors will be arriving by either car or bus, parking and vehicle circulation is a major aspect of the master planning exercise. Parking areas on the site are generally broken into the categories below:

Car parking: At the primary site, the proposed schemes contain between 50 and 100 car spaces for day to day use. These spaces are located in a paved area that is within a short distance to the center. This area will contain the site's handicap parking as well as a number of spaces for employees.

Bus parking: Due to their size, lack of maneuverability, and thickness/cost of required paving section, busses are proposed to be parked in a separate facility from cars.



Conceptual Study of Interpretive Center



Picture looking across crater with rim visible in distance

Typically this has been proposed along Old Hwy 231. Passengers, however, will be able to be dropped off at the front entrance of the center prior to the buses being parked. Bus drivers can then reach the facility by a foot path with stairs or possibly through a shuttle system operated by the center.

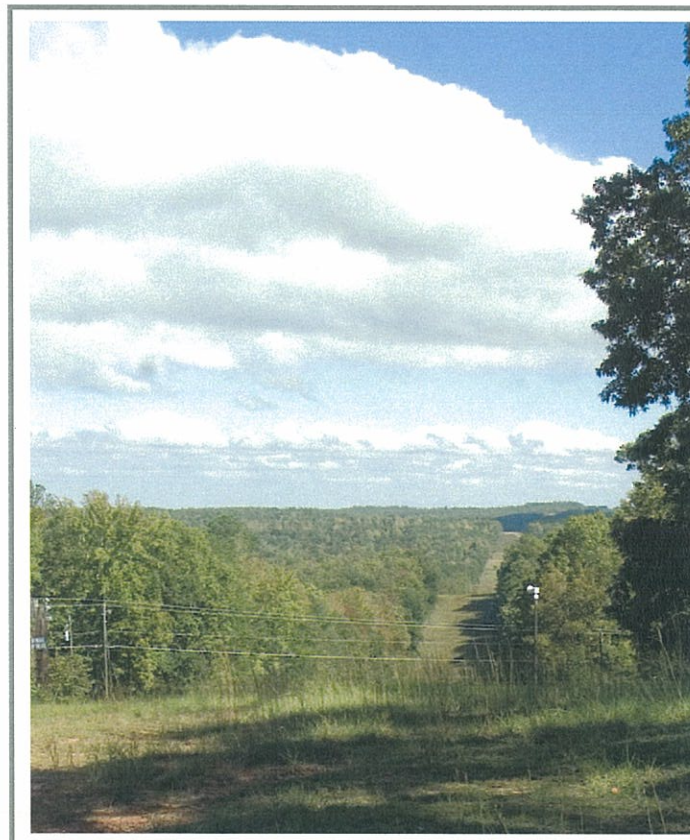
Overflow Parking: Overflow parking provides additional spaces for times of peak use and special events. This parking can happen either along Old Hwy. 231 or areas of the main site can utilize a reinforced turf parking system to allow overflow parking to be utilized for uses as described in the Outdoor Exhibit/ Festival Space section of this document. For overflow parking located along Old Hwy. 231, visitors can reach the site by means of a path with stairs or through a shuttle system that is operated by the center. All handicap parking is to occur in the primary parking areas and not in the overflow.

Storm Water Management: The development of the site will require a storm water management system. In order to have this system be integrated into the site as an aesthetically pleasing feature it is recommended that the use of bioswales along with a wet detention pond be used so that the storm water management facility is not an eyesore that has to be screened from the site of visitors.

Conceptual Land Use Plan

Conceptual Plan

The conceptual plan breaks the site into the basic proposed program elements as described in the programming section of this document. These include the center, entry and exit, parking, drop off, storm water management, primary features, secondary features, ridge features, overflow parking, natural areas and buffers. The concept plan that was developed in conjunction with input from the Wetumpka Impact Crater Commission and shown on the following page has the interpretive center located toward the rear of the property along the ridge between the high area along 231 and the steep drop off to Old Highway 231 in order to take full advantage of the exceptional views to the west. Access in the concept is utilizing the existing southern entry/exit. This will allow safe entry and exit to and from the center while utilizing the existing turn lanes on Highway 231 in order to minimize the cost of access improvements.



The parking is shown in a low area of the site in order to help minimize views of parking lot from the highway and maximize views of the center. This parking is shown to hold approximately 100 vehicles. Overflow parking is shown along Old Highway 231 and would be accessible through either a connection to the main driveway through the existing natural area and/or along Old Highway 231 by the existing commercial buildings to Highway 231. The number of vehicles that this overflow area could accommodate could vary depending on the final needs of the center and how far down Old Highway 231 that the improvements extended.

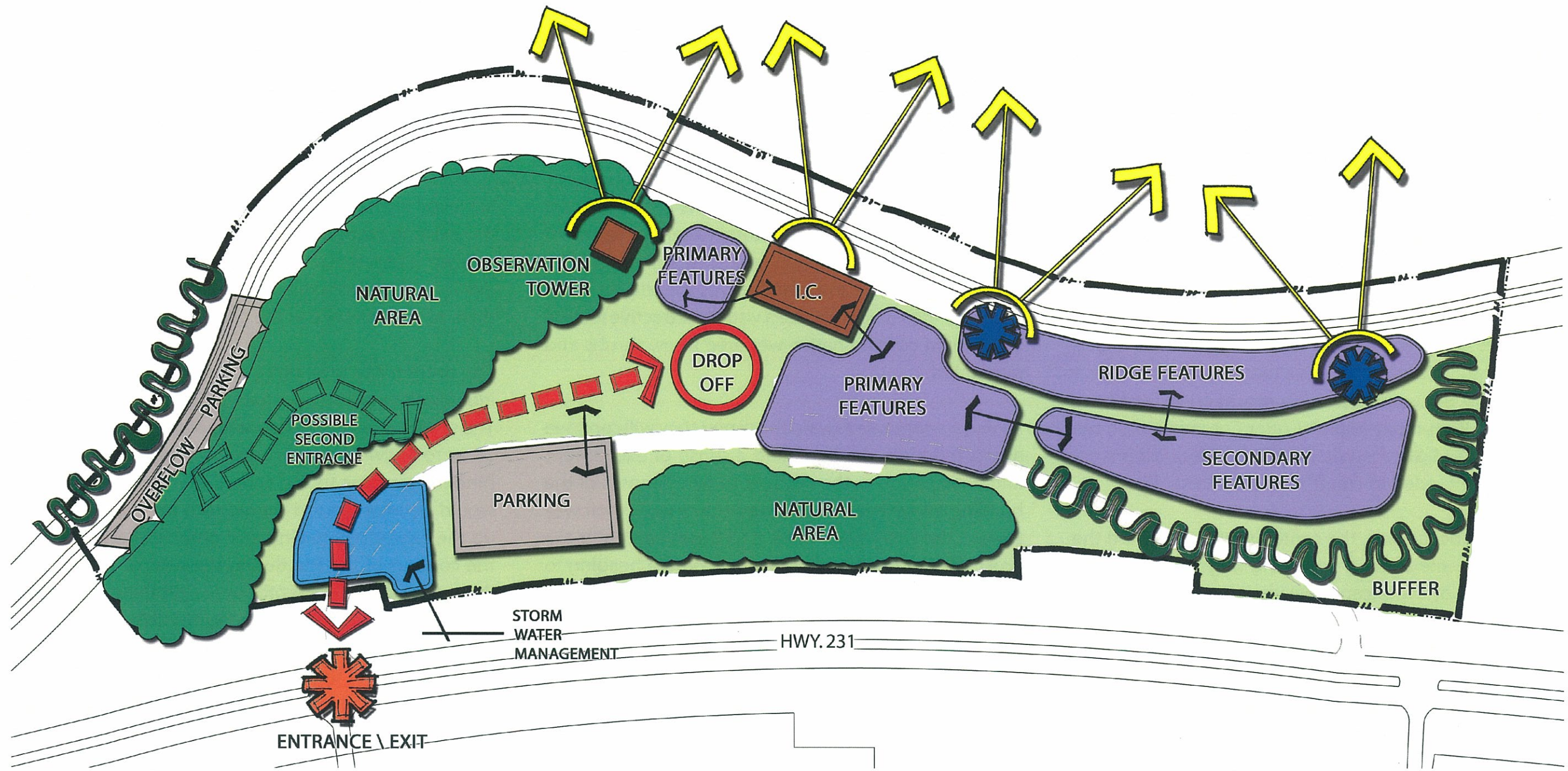
The observation tower has been proposed to the south of the interpretive center along the ridge. This location is the highest point on the site. As such, the tower will

have the best possible views of the surroundings with the lowest necessary height. The tower is connected to the interpretive center with an area of Primary Features which will provide a connection between the tower and the center. The remainder of the Primary Features area proposed to the north and east of the center. This will be the main thrust of the educational experience on the site and thus, needs to have a strong connection to the center both visually and physically. The Center, Observation Tower and Primary features benefit from being located to the rear of the site which minimizes the poor views of the adjacent commercial and communications tower while reducing the highway noise near the road.

To the North of the Primary Feature area is the Secondary Features. These elements will be located in the large flat area to the north of the site. These features are suited to this area since they easily accommodate buffering to minimize the poor views

of the adjacent highway, commercial buildings and communications tower along with buffering the noise from highway traffic. This set of elements would connect directly to the Ridge Features. In many cases the Secondary Features and Ridge Features may overlap in order for the Secondary Features to take advantage of the exceptional views to the west.

The location of all the elements on the is intended to put each item in its ideal position while having each element reinforce the other elements and the positive aspects of the site while mitigating the less desirable characteristics of the site.



Conceptual Land Use Plan

Master Plan Design Phase

After completion of the concept plan, a preliminary master plan is developed. The Preliminary Master Plan takes the ideas and relationships of the conceptual plan and turns them into accurately scaled elements and places them in their proper locations on the plan. This turns the plan into easily recognizable features and creates what is more readily recognizable as a master plan. Then, after a series of discussions and the reception of feed back from the Wetumpka Impact Crater Commission on the Preliminary Master Plan changes are made and items are refined as needed to create the Final Master Plan.

Per the concept plan, the center is located toward the rear of the site along the existing ridge. This location makes use of the exceptional views to the west while maintaining a strong visual presence from highway 231 from the north and south making the center a can't miss landmark for persons traveling along Highway 231. The observation tower has maintained its' position on the highpoint of the site and is connected to the center with a walking path. An amphitheater, outdoor courtyard, and lawn area connect the tower to the center on a north/south visual axis that continues to Highway 231. The primary entrance to the site is maintained at the existing southern entry/exit. The entrance would be flanked by large entry monuments that denote the entrance to those traveling on the highway. Then, proceeding along the entrance visitors would proceed over a bridge that crosses the storm water management area.

The storm water management area is proposed as a wet pond that would provide storm water management functions as well as aiding in removing pollutants from storm water before the runoff leaves the site. As a wet pond the area would also be a visually attractive feature that would contain native wet area trees, shrubs and perennials.

As visitors continue toward the center they will continue along the main drive gaining a sense of excitement and anticipation as they ascend to get glimpses of the building and other site features as they work their way toward the entry plaza. Cars and buses can enter the drop off area to unload passengers before heading to one of the parking areas.

The primary parking area is located between the entry drive and Old Highway 231 in a low area in order to minimize views of parking from the highway and center. The primary paved lot on the main site contains 100spaces. In addition to this, an additional 50 spaces are proposed utilizing a reinforced turf parking system that will minimize the negative aesthetic and environmental impacts of parking while allowing use of the area for parking at high use times. For peak use times and special events, an area of overflow and bus parking is proposed along Old Highway 231. This area would use a gravel paving system to minimize cost for an area that would receive limited use. Access to this overflow area could be

achieved through the use of a secondary drive through the existing wooded area. A shuttle system could be utilized when the parking area needs to be used to deliver visitors from the overflow parking up the steep drive to the entrance of the center.

The entry plaza provides a large area for groups and individuals to gather prior to touring the museum or site. The space would have large areas of paving with seating areas to allow several groups to congregate without hindering access to the center. Areas of landscaping would be interspersed throughout the plaza to break up the expanse of paving and provide shade to aid in the comfort of the site during the heat of summer. At the center of the plaza is proposed a prominent dynamic interactive water feature that symbolizes the meteor impact. This 'Impact Fountain' would feature paving that seems to be uplifted from an impact along with a water jet and fog emitters that also emulate a meteor impact.

Visitors could then proceed into the interpretive center and tour the exhibits and take advantage of the exciting and entertaining elements located in the center. Along with the educational exhibits, the center may also include a dining facility to serve meals to visitors and a rentable ballroom that can be used for lectures and conferences or rented for special events. This space would tie to an exterior courtyard where visitors can sit and eat while



The Preliminary Masterplan

they enjoy views over the ridge to the Coosa River or the exterior space could provide an additional gathering space for formal functions or fundraisers held at the center. On the opposite end of the center building, visitors could exit through the 'Fragment Garden'. This garden would display large pieces of crater rock collected from the area and/or created recreations of rocks that are unable to be located and moved to the site.

From the 'Fragment Garden' visitors can proceed past

an outdoor classroom space that would provide an exterior area where groups can hear presentations by tour guides and facility staff, also, guests speakers can use the space to give presentations on special topics. Then, visitors would travel along the river feature. The river feature is a scaled recreation of the Tallapoosa River as it passes through Wetumpka with the unique angled rock formations and vegetation recreated in a flowing water feature. The river feature would lead to the 'Ocean Feature' and 'Meteor Sculpture'. These two

features combine to represent the meteor crashing into the ancient sea. Air jets, fog emitters and lighting would combine to recreate an 'Impact' at timed intervals. The sculpture would also provide a visual element along the same north-south axis as the Observation Tower and Center to guide views to the center from Highway 231. The last element found in the set of primary features is the 'Rock Cylinder Feature'. This element would contain a series of overscaled recreations of the rock boring cylinders that contained the shock quartz and confirmed

that this was the site of a meteor impact. These recreated cylinders would create a series of tall columns that would educate about the layers of rock found in the borings as well as provide another on axis visual exclamation point to direct views to the center from Highway 231.

This features leads into the set of secondary features that represent a geologic walk through time. This intends to educate visitors about the history of the Wetumpka region and The State of Alabama from the beginning of time to the current day. This walk would start with the 'Alabama Geology Plaza' this plaza would recreate the state geological map on the floor so that visitors could walk around the state and learn about the geology of different areas of the state and the prehistoric processes that created the present day geology. As visitors leave this purely geological feature, they enter into the era of early animals, dinosaurs. A recreation of a paleontological dig with cast concrete fossils buried in a thin layer of sand wait to be discovered by visitors as they walk through this area. Walls surrounding the dig would include signage to educate visitors about the animals that left the fossils that they uncover. Guests leave the dig area through an underground tunnel that is lined with additional recreations of fossils buried in the soil and rock around them before entering the a sculpture garden representative of the rise of modern animals. A series of paths would wind down a slope where sculptures of various animals indigenous to Alabama would be placed. Signage informing visitors about the animals would be located at each sculpture. The final stop in the walk through time would be the 'Alabama History Trail'. This would comprise of a walk with narrative signage, sculpture or other elements to tell the story of humans in Alabama from the earliest Native Americans to elements representing modern day Alabama. The end

of this walk will tie back into the center to complete the tour through the Primary and Secondary Features.

Scattered along the ridge north of the center would be locations for several rentable shelters that could be used for functions such as birthday parties or group picnics. These would provide a formal space for outdoor group dining as well as provide an additional source of income for the center. Also, along the ridge would be several observation platforms at points where views to the west are especially nice. Signage would be included at these platforms to locate significant landmarks visible from these points.

In the center of the Secondary and Ridge features is a large open space and a pavilion. This space could be used to host special events such as lectures by visiting scientists, concerts, festivals or other large gatherings. When not being used for these types of events the area would provide an informal outdoor picnic area for the use of those visiting the center.

Tucked into the wooded areas between the entry road and the Observation Tower is an interpretive impact crater themed play area. This area provides an opportunity for children to interact with elements representative of the educational themes of the center in a play atmosphere. A variety of structures such as climbable rocks, that recreate rocks found in the crater, will reinforce the educational themes of the center while allowing for the dissipation of energy by children in ways that are incompatible with the function of other elements of the center.

Also found in the wooded area to the southeast of the center is a building that will serve as housing for a resident/ visiting professor and/or graduate students

conducting research at the center. Having resident scientists performing active research at the facility will make the center a more dynamic and exciting place for visitors who will be able to feel as though they are observing something with ongoing relevance instead of merely looking at the remnants of events that happened ages ago. The housing building can also be a space where dignitaries, major donors and other VIP's can have small intimate receptions with the resident professor/ scientist.

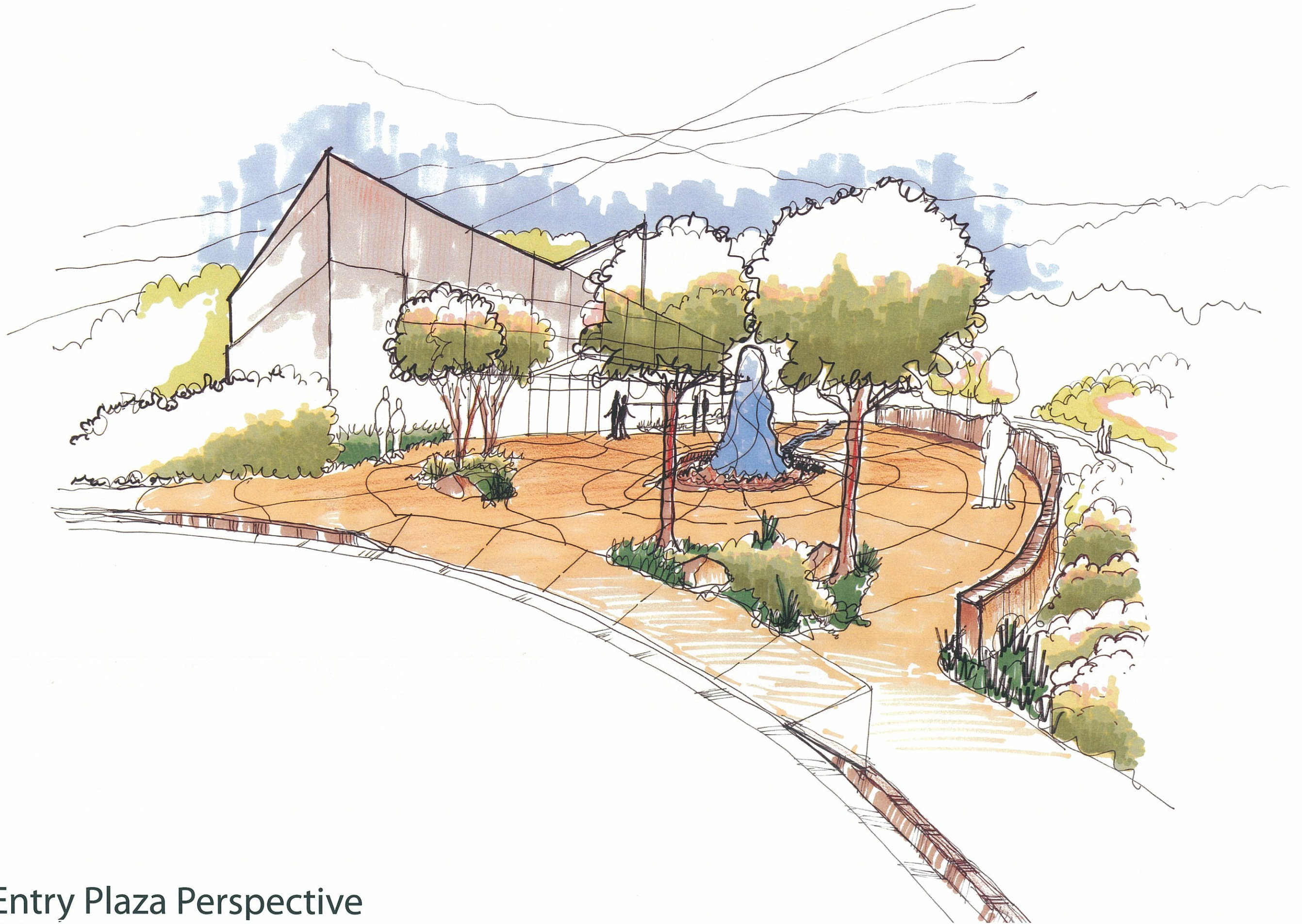
The arrangement of features on the Masterplan allows for community use of portions of the site even when the interpretive center is closed to the public. The areas to the south and west of the interpretive center including the parking area, interpretive play area and natural areas and trails could easily be accessible for casual use by the local community while the remainder of the site has controlled access and is only able to be accessed while the interpretive center is open.



Final Masterplan

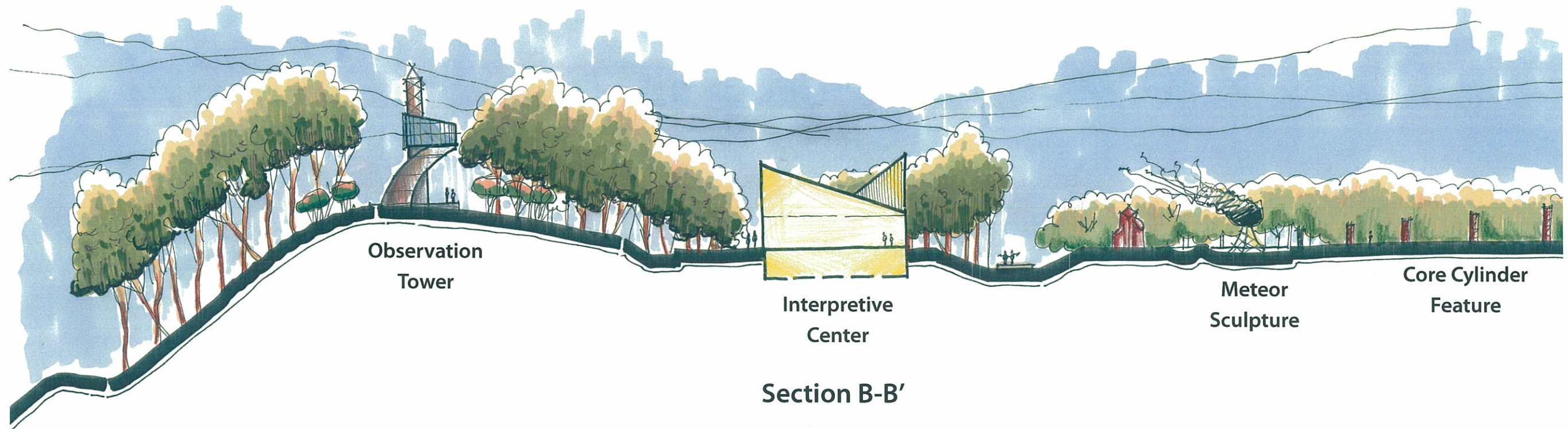
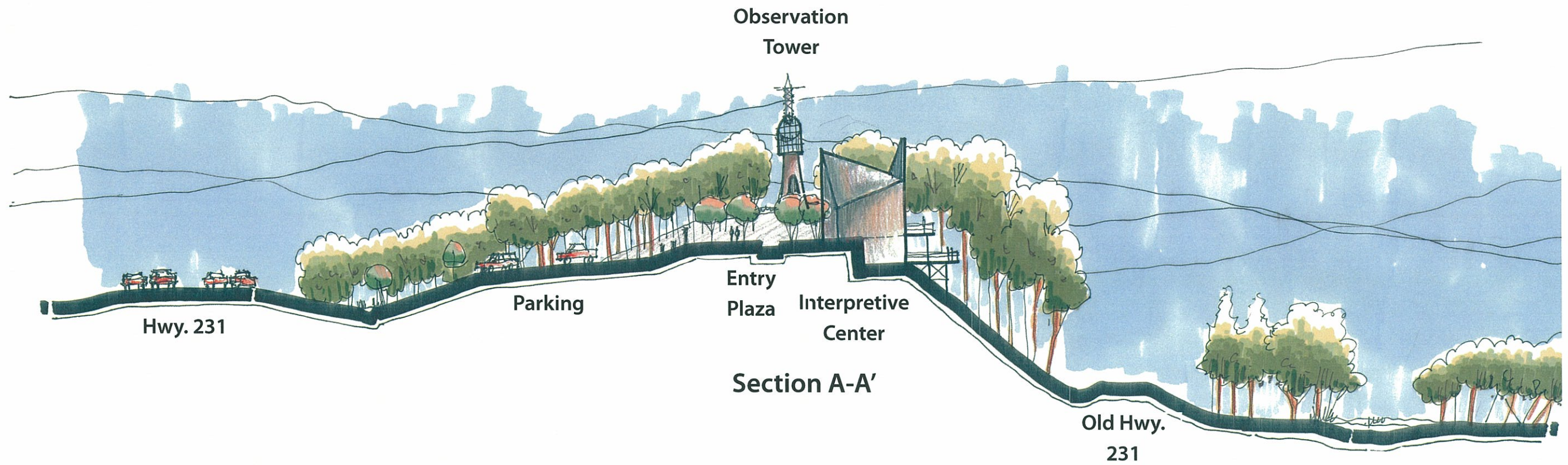


Entry Perspective



Entry Plaza Perspective

Masterplan





Perspective Across Amphitheater

Wayfinding

Narrative

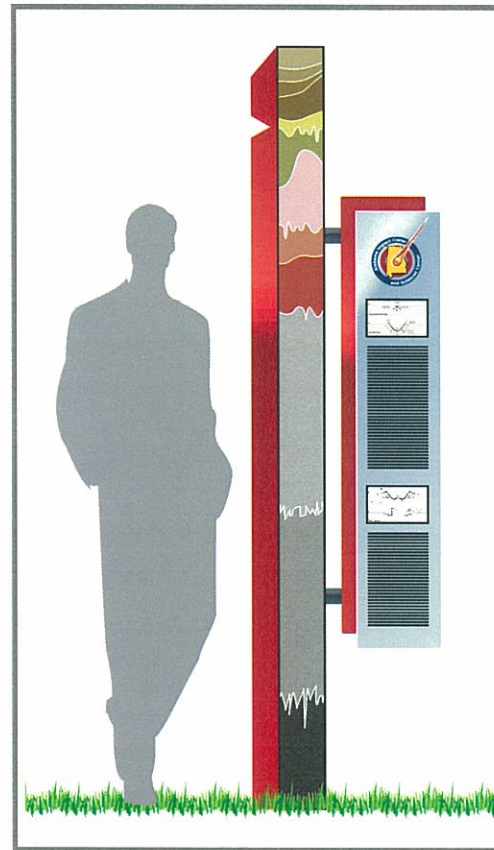
Different people respond differently to new places. Some may feel anticipation of what they might discover, while others may feel unsettled and insecure by unfamiliar sights and sounds. A wayfinding system, however, may instill in its audience a confidence and familiarity that they can find their way to, as well as, from without further assistance. Feeling lost is paralyzing and finding your own way is empowering. So, how do you want your visitors to feel throughout their stay? How would you like for them to remember their visit? Do you want them to return? At Gresham Smith & Partners, we develop each phase of the wayfinding process, from conceptual design to bidding to construction. We design with MUTCD guidelines and ADA compliance in mind. We want your guests to feel empowered. We want them to remember their visit and tell others about it. And we want your visitors to come back again and again for many years to come. Let us assist you in creating a wayfinding system that instills confidence and forms familiarity that will help them find their way.

Basic Concept

Wayfinding is a relatively new discipline used by designers to communicate information that guides visitors from one point to the next in a clear and efficient manner.

Goal

The primary goal of any well planned wayfinding system is to enhance the patient/visitor experience. Once your patients and visitors become lost, they become confused and frustrated. Ultimately they leave. They may even be angry; at you or at themselves for not being able to find their way. A well planned wayfinding system will allow your guests to enjoy their visit, focus on why they came there, and go home happy.



Basic Principles

The wayfinding experience can sometimes be a very complicated process but when you break it down there are five simple steps:

1. Know where you are.
2. Know where you are going.
3. Know the best way to get there.
4. Recognize your destination upon arrival, and
5. Find your way back.

Wayfinding Tools

If you are going to build a house you need more than one tool. The same goes for building a wayfinding system. The wayfinding tool box has two types of tools, direct and indirect. The direct tools are things like signage and maps. They communicate information in written form. Another direct tool is people, who communicate information verbally. It is critical that both the written and verbal communication are consistent.

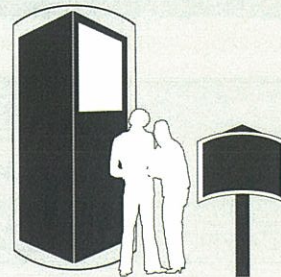
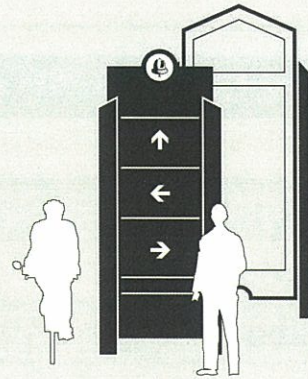
Indirect tools serve as visual cues and consist of things like landmark features, architecture, artwork, lighting and landscape design.

Approach

Our approach is to begin with the end in mind... focused on your goal - to enhance the visitor experience. We look, listen and learn. The deeper we dig into your needs; the more we understand; the better we design. Our team plays the role of your visitors. We ask questions they would ask so we can present the information in a consistent and understandable fashion. In the end the GS&P design team will work with you to deliver a positive visitor wayfinding experience.



WAYFINDING SYSTEM



Directional Signage (or Wayshowing)

Vehicular and pedestrian sorters enable visitors to use a site or facility more effectively. The standard of expectations are raised, points of reference are established and visual lingo may become familiar, thus, guiding and navigating the flow of traffic. Not only can it help people find their way to where they want to go, but it also continues the visual language implemented throughout the system which helps people identify with various locations within the community. By providing users with opportunities to become familiar with the overall system, an overall sense of safety and security can be instilled.

Kiosks (Advertising/Informational)

Maps of the site are invaluable aids to helping visitors get to their destinations, but kiosks can be used for far more. Whether you wish to convey rules, instructions and guidelines, display directories with names and numbers, post news bulletins, announce upcoming community events and/or display advertisements, kiosks are a great way to keep your audience well-informed.

Interpretive Signage (Educational)

Trail systems may offer many educational opportunities as an added benefit to helping people get from point "A" to point "B". Not only can these trail systems be used for outdoor recreation spaces, local commuting and travel, but they can also provide opportunities for learning and fun. There are many ways to enhance a project with education – nature exhibits, conservation displays and environmental activity centers bring educational value to your communities back door.

Pathway Marking (Affirmation/Pathway Indicators)

Keeping people on the right track is crucial to the success of a trail system. Proper use of color, texture, shape, pattern, size and kind help establish visual bread crumbs for people to follow, as well as indicate distance traveled to where they are at any given point. Site visitors will find the affirmation they need, as well, that will let them know they are still on the right path. Examples of marker elements could be reflectors, edge of path points of interest monoliths, timeline markers, lighting poles or banner and flag systems.

Projected Economic Impact

When the Alabama Impact Crater Center and Park is completed, it will have a positive impact on the local economy. Conservative estimates project that annual attendance could be up to 45,000 visitors. Visitors to the Center will consist of school field trips, Alabama residents, US and international travelers and visiting college students, professors and scientists.

We assume the Park and Center to be open seven days a week from 9:00 A.M. to 5:00 P.M. for general business hours with shortened hours on Sundays. In such cases that the Center hosts an evening dinner or gathering, it could comfortably handle 200 person events if held inside. Other special events might include birthday parties and/or weddings in the park or one of the lawns or in the amphitheater.

Based on the above assumptions, we suggest the following:

Center and Park open seven (7) days a week for 50 weeks/year, 9:00 to 5:00 each day with admission at \$12-\$15.

Item	Projected	Annual Revenue
A. Regular Attendance		
General Public	100/day	\$473,000
School Students (field trips)	280/week	\$125,000
College Students	240/yr	\$2,400
B. Special Uses		
Evening Events	12/yr	\$24,000
Shelter Rentals	96/yr	\$9,600
Gift Shop Purchases	\$10/guest	\$265,000
Weddings/Receptions	6/yr	\$12,000
C. Local Economy		
Overnight Hotel Guests	5/week	\$23,750
Restaurant Patrons (2)	40/week	\$ 30,000
Catering	18/yr	\$27,000
Fuel	450 gal/ week	\$90,000
Sales Tax	3%	\$30,000
Projected Annual Revenue		
		\$1,111,750
Contingency (10%)		\$111,175
Total		
		\$1,222,925



Cost Estimate

Construction:

The following Estimated Opinion of Cost provides the Wetumpka Impact Crater Commission a guide to the fund raising goals and objectives that need to be met in order to make the world class facility that this unique piece of Alabama history deserves a reality. Many of the different features and elements have been broken out separately in the estimate. This division of elements is provided in order to designate opportunities for phasing and sponsorship opportunities of individual portions of the center by individuals and corporations.

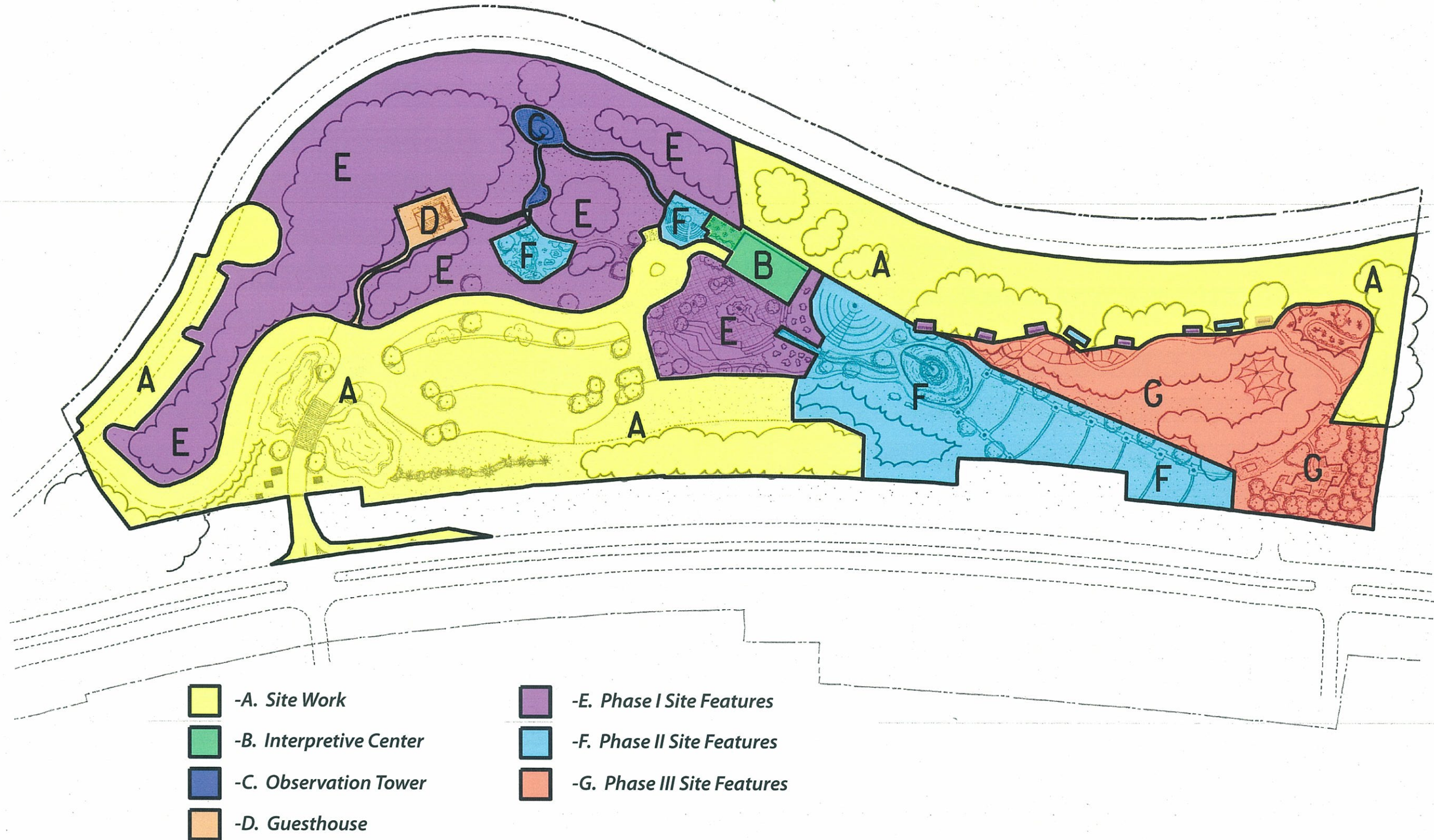
Item	Qty	Unit	\$/Unit	Item sub-total
A. SITE WORK				
Demolition	1	Ls	\$40,000.00	\$40,000.00
Removal of ex. Buildings, paving, utilities				
Site preparation	16	Ac.	\$5,000.00	\$80,000.00
Clearing, grubbing, tree removal				
Earthwork	1	Ls	\$395,000.00	\$395,000.00
Erosion control, grading. Cut & fill				
Stormwater management	1	Ls	\$250,000.00	\$250,000.00
Retention facility, bio-swales, pipes, structures				
Utilities	1	Ls	\$125,000.00	\$125,000.00
Water, sewer, electric, gas, communication				
Fencing	5,000	Lf	\$6.00	\$30,000.00
Ornamental & security fencing, vehicle gates, ped. Gates				
Entry road paving		Sf	\$3.50	\$103,250.00
Entry road 24" curb & gutter	1,800	Lf	\$23.00	\$41,400.00
Bridge	1	Ea	\$200,000.00	\$200,000.00
Signalization of intersection	1	Ls	\$75,000.00	\$75,000.00
Fixtures, loops, cabinets				
Entry road striping & signage	1	Ls	\$5,000.00	\$5,000.00
Asphalt parking area		Sf	\$2.50	\$87,500.00
Asphalt paving, 100 spaces				
Parking area 24" curb & gutter	1,750	Lf	\$23.00	\$40,250.00
Parking area striping & signage	1	Ls	\$5,000.00	\$5,000.00
Reinforced turf parking soil mix		Sf	\$3.00	\$52,500.00
Turf parking sod		Sf	\$0.40	\$7,000.00
Lane markings, signage	1	Ls	\$7,500.00	\$7,500.00
Parking area sidewalk	3,000	Sf	\$4.50	\$13,500.00
Entry monuments	1	Ls	\$40,000.00	\$40,000.00
Sculptural element, signs, lighting				
Secondary drive		Sf	\$3.50	\$43,750.00

Item	Qty	Unit	\$/Unit	Item sub-total
Asphalt paving				
24" Curb & gutter	600	Lf	\$23.00	\$13,800.00
Overflow gravel parking		Sf	\$4.50	\$112,500.00
Landscaping	1	Ls	\$75,000.00	\$75,000.00
Plant material, soil, mulch, irrigation				
SUBTOTAL				\$1,842,950.00
B. THE INTERPRETIVE CENTER BUILDING				
Interpretive center (10,000 sf, 2 story)		Sf	\$375.00	\$3,750,000.00
Museum, ballroom, café, exterior seating area, gift shop,				
Laboratory				
Interior exhibits	1	Ls	\$2,000,000.00	\$2,000,000.00
Design fees, exhibit construction, specimen location, lighting, graphics, signage				
SUBTOTAL				\$5,750,000.00
C. THE OBSERVATION TOWER				
Tower element	1	Ls	\$1,500,000.00	\$1,500,000.00
Tower element, elevator, stairs, toilet, viewing platform, signage				
Observation tower plaza	1	Ls	\$20,000.00	\$20,000.00
Sidewalk, queue plaza paving, benches, trashcans				
Tower plaza landscaping	1	Ls	\$15,000.00	\$15,000.00
Plant material, soil, mulch, irrigation				
SUBTOTAL				\$1,535,000.00
D. GUEST HOUSE				
Visiting professor/ student housing building	1,500	Sf	\$100.00	\$150,000.00
1,500 Sf structure, ext. Deck				
Visiting professor/ student housing infrastructure	1	Ls	\$25,000.00	\$25,000.00
Utilities, driveway, parking area, landscaping				
SUBTOTAL				\$175,000.00
E. PHASE I SITE FEATURES				
Entry plaza paving		Sf	\$4.50	\$67,500.00
2'X2' conc. Pavers, concrete edge restraint, conc. Accents				
Entry plaza amenities	10	Ea	\$1,850.00	\$18,500.00
Bench/ trash receptacle combinations				
Donor wall	1	Ls	\$20,000.00	\$20,000.00
Graphic tile name plaques with donor names on 7' wall				
Area lighting	10	Ea	\$2,500.00	\$25,000.00
10-12' Poles and fixtures, 8 bollard lights, 15 accent lights				
Accent lighting	1	Ls	\$10,000.00	\$10,000.00
8 Bollard lights, 10 accent lights				
Landscaping	1	Ls	\$150,000.00	\$150,000.00

Item	Qty	Unit	\$/Unit	Item sub-total
Plant material, mulch, soil, irrigation				
Impact fountain	1	Ls	\$75,000.00	\$75,000.00
Pool, jets, fog emitters, lighting, air cannon, pumps				
Fragment garden	1	Ls	\$30,000.00	\$30,000.00
8-10 Relocated fragments, gravel setting bed, concrete pavers, lighting, benches, landscaping, irrigation				
Wayfinding/ interpretive information system	1	Ls	\$250,000.00	\$250,000.00
Directional signage, kiosks, interpretive signage, trailway marking				
Trail system	6,000	Lf	\$10.00	\$60,000.00
6' Wide asphalt trail				
Rentable shelters	8	Ea	\$15,000.00	\$120,000.00
Prefabricated structure, concrete pad, park grill, utilities				
SUBTOTAL				\$826,000.00
F. PHASE II SITE FEATURES				
Amphitheater site work	1	Ls	\$250,000.00	\$250,000.00
Grading, walls, placement of stone seats for 500 persons				
Amphitheater amenities	1	Ls	\$100,000.00	\$100,000.00
Lighting, benches, pa, screens, railings				
Interpretive play structures	5	Ea	\$8,000.00	\$40,000.00
Simulated stone structures				
Safety surface	2,500	Sf	\$15.00	\$37,500.00
Poured in place colored rubber				
Play area amenities	4	Ea	\$1,850.00	\$7,400.00
Bench/ trash receptacle combinations				
Water feature	1	Ls	\$25,000.00	\$25,000.00
Interactive river recreation				
Outdoor classroom	1	Ls	\$60,000.00	\$60,000.00
Concrete paving, benches, lighting, pa				
River feature	1	Ls	\$80,000.00	\$80,000.00
Channel, pump, pool, simulated rocks, concrete paving, bridge, signage				
Ocean feature	1	Ls	\$30,000.00	\$30,000.00
Pool, fog emitters, paving, benches, trashcans, signage				
Meteor sculpture	1	Ls	\$40,000.00	\$40,000.00
Artist fees, materials, display plinth, lighting, signage				
Core cylinder feature	1	Ls	\$65,000.00	\$65,000.00
Custom cast concrete cylinders, paving, lighting, signage benches, trashcans				
Observation platforms	3	Ea	\$8,000.00	\$24,000.00
Timber platforms, signage, conc. Path to center. sidewalk to center, picnic tables, trash cans				

Item	Qty	Unit	\$/Unit	Item sub-total
Landscaping	1	Ls	\$75,000.00	\$75,000.00
Plants, soil, mulch, irrigations				
SUBTOTAL				\$833,900.00
G. PHASE III SITE FEATURES				
Special event pavilion	1,500	Sf	\$100.00	\$150,000.00
Custom tensile fabric structure				
Pavilion amenities	1	Ls	\$25,000.00	\$25,000.00
Lighting, electrical, pa				
Timeline walk	1	Ls	\$45,000.00	\$45,000.00
Concrete walk, signage, lighting, benches, trashcans				
Geology plaza	1	Ls	\$145,000.00	\$145,000.00
Colored concert paving, walls, lighting, signage				
Paleontological dig	1	Ls	\$190,000.00	\$190,000.00
Concrete walls, colored custom concrete floor with fossils, sand filler, signage				
Fossil tunnel	1	Ls	\$75,000.00	\$75,000.00
Precast concrete tunnel, custom concrete rock and fossils, lighting, signage				
Zoological sculpture garden	1	Ls	\$165,000.00	\$165,000.00
Concrete animal statues, concrete sidewalk, simulated rock retaining walls, signage, lighting, landscaping, irrigation				
Alabama history walk	1	Ls	\$70,000.00	\$70,000.00
Concrete sidewalk, custom cast concrete walls, sculpture, signage, lighting, benches				
Landscaping	1	Ls	\$85,000.00	\$85,000.00
Plant material, soil, mulch, irrigation				
SUBTOTAL				\$950,000.00
Total				\$11,912,850.00
10% Contingency				\$1,191,285.00
Total + Contingency				\$13,104,135.00
Soft costs	10% of Construction Cost			\$1,310,413.50
Survey, engineering, architectural, landscape architecture and Environmental graphics fees	Ls			\$250,000
*Five percent should be added to total cost each year to adjust for inflation.				
**Probable Costs compiled September 2008.				

Phasing Plan



Maintenance Program

Our goal is to develop a comprehensive budget and management plan that includes all the costs of maintaining the 25 (m/l) acre site. We based our estimate on what will be 6 acres of turf with the overall 9 acre developed portion of the site.

When considering maintenance costs, keep in mind the following direct relationship: If you build it, you must maintain it. Turf mowing and trimming will be your main maintenance activity throughout each year.

The lesson is that maintenance costs are best addressed through prevention – by spending money during the design phase to avoid management problems later.

Maintenance Checklist and Cost: The next step in developing a budget and plan is to create a checklist of all possible maintenance activities. Begin by listing every aspect of the center’s design. Once again, the general rule is that you will have to maintain whatever you build. Next to each maintenance activity, list its frequency, its cost per application and its annual cost. Calculating the annual cost may seem like a lot of work, but you can do it if you understand the bookkeeping system and how charges will be assigned.

Frequency of Maintenance Activities

Daily (260) trash; watering/irrigating

Weekly (33) lawns/turf

Monthly (9) weeds, trimming

Quarterly (4) shrubs; fertilization; leaf blowing

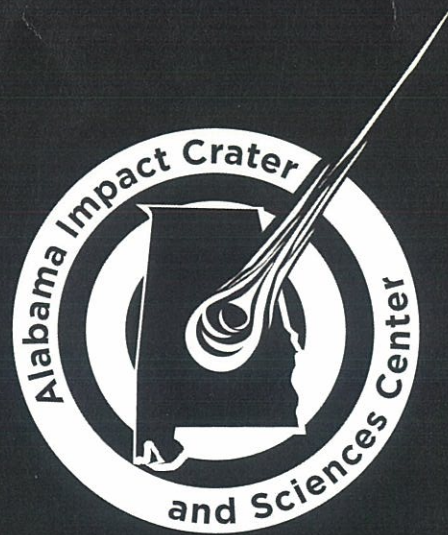
Annually (2) vegetation control/eradication

Site Breakdown

As shown in the Master Plan, the site will contain the following areas:

Buildings, Roads and Hardscapes:	6.25 Acres
Lawn and Turf:	6.75 Acres
Shrub and Tree Areas:	4.75 Acres
Natural Woodland:	7.25 Acres

Item	Qty		\$/Unit	Item sub-total
Trim (16 times/ year)***	1	Ls	\$8,000.00	\$8,000.00
Turf fertilizing (3 times/ year)***	6.75	Ac	\$450.00	\$3,037.50
Weed control (3 times/ year)***	6.75	Ac	\$225.00	\$1,518.75
Aerate turf (1 times/ year)***	6.75	Ac	\$500.00	\$3,375.00
Leaf removal (2 times/ year)	1	Ls	\$3,000.00	\$3,000.00
Watering (est.)	8	Mo	\$1,000.00	\$8,000.00
Irrigation system repair (annual)	1	Ls	\$1,500.00	\$1,500.00
Trees				
Trimming (projected)***	1	Ls	\$3,000.00	\$3,000.00
Removal (projected)***	1	Ls	\$2,000.00	\$2,000.00
Shrubs				
Hand weeding	1	Ls	\$1,200.00	\$1,200.00
Pruning (2 times/ year)	1	Ls	\$4,000.00	\$4,000.00
Spraying (3 times/ year)	1	Ls	\$800.00	\$800.00
Fertilizing (2 times/ year)	1	Ls	\$700.00	\$700.00
Mulching labor (2 times/ year)	1	Ls	\$900.00	\$900.00
Mulching material (2 times/ year)	1	Ls	\$30,000.00	\$30,000.00
Seasonal color beds				
General maintenance per year	3,000	Sf	\$5.00	\$15,000.00
Fertilizing (3 times/ year)				
Pruning (3 times/ year)				
Weeding (weekly)				
Watering (hand)				
Fountains (3)				
Monthly cost (incl. Supplies)	12	Mo	\$500.00	\$6,000.00
Miscellaneous				
Grounds employees				
Duties would consist of daily trash pickups, trail cleaning/raking, wee-eating, materials delivery.				
Occasional duties would include bush-hogging, grading, storm clean-up and chemical applications.				
1 Supervisor @ \$16/hr			\$21.611	\$36,000.00
1 Crew member @ \$11/hr			\$14.851	\$25,000.00
Staff subttotal				\$61,000.00
Estimate includes health insurance, matching fica (7.65%), And vacation				
Total projected annual cost				\$160,118.75
*Five percent should be added to total cost each year to adjust for inflation				
**Probable cost compiled September 2008				
***Outsourced maintenance activities				



Alabama Impact Crater and Science Center Masterplan

Wetumpka Crater Commission
in conjunction with:



GRESHAM
SMITH AND
PARTNERS