Master Plan
SOUTHERN GAP

HILL
STUDIO

December 2021

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INTRODUCTION

Chapter 1

INTRODUCTION

EXECUTIVE SUMMARY

The 2021 Southern Gap Master Plan update offers to further the vision of a model community designed to reclaim a former strip-mine site into a planned, environmentally sensitive community. The 2021 update is based on remarkable progress by Buchanan County IDA building out the initial 2007 Master Plan. The Southern Gap property has made steady progress to the creation of a highland community, with built infrastructure, manufacturing sites under construction, a substantial residential neighborhood, and significant improvements in parks and recreation amenities. The new Visitor Center hosts daily and special-events visitors, further contributing to the success of this special place.

Key features of Southern Gap include a village-styled center with businesses and services surrounded by residential neighborhoods based on traditional development models. Future phases of development hold potential for continued progress in the research and industrial park areas. Expanded residential areas are delineated with access to a new lake, and connected to the Village, work and recreation areas and amenity areas by a series of trails.

The most significant single change in the new Master Plan is that it embraces the growing interest in and dedication to the great outdoors on the property. Whereas the former Master Plan called for more extensive and expensive additional village development, and energy development, the last decade has demonstrated that the great outdoors economy in Buchanan County is an asset to be embraced and cherished. Nowhere is this more apparent than the Southern Gap site. So in the 2021 update, nature and outdoor recreation rules! Former golf-course acreage is traded for Elk habitat and scenic wildlife conservation area. Trails abound connect through forests and greenspace encompassing all land uses. These multi-purpose greenways and trails will surround all development and connect different parts of Southern Gap as sustainable technologies allow for the use of natural resources to produce the energy needed to power the community.

Visitor Center Chairs overlooking ATV visitors with Elk Habitat beyond
Photo credit: Emily Rice, Bluefield Daily Telegraph

EXECUTIVE SUMMARY (continued)

The new plan also features possible locations for a future educational complex, and a destination amphitheater. These cultural institutions help to bring the quality of life that will contribute to a total sense of place. In addition, several off-site adjacencies provide additional opportunity at Southern Gap based on its location and developability. These assets include the expanding Grundy Municipal Airport and the future Coalfield Expressway currently under construction which will connect to the Breaks Interstate Park just to the west. While connection to Breaks is paramount in the effort to boost the regional outdoor recreation economy, the Southern Gap site itself has the potential to capitalize on its uniqueness in outdoor recreation via off-road trails and endless scenic viewing locations.

This Master Plan update begins by describing the history of Southern Gap, its regional context and how it has been shaped over time through earlier planning efforts. Chapter 2 describes the existing site conditions and the process used to develop illustrative concept plans for the site's reuse and overall development vision. The plan then outlines a number of sustainable, low-impact development principles to be used at the community-wide scale in the development of Southern Gap and at the level of individual properties. Chapter 3 outlines a description of the vision for the community, with details about development and phasing outlined. Chapter 5 provides a brief discussion of implementation tools and recommendations concludes the Master Plan document.

A companion document to this Master Plan is the Design Guidelines, which detail the recommendations for developers and property owners to achieve the vision desired for Southern Gap. With collaboration from local leaders and community members as well as attention to the principles highlighted across both the Master Plan and Design Guidelines, Southern Gap will continue as a strong economic driver for Central Appalachia and Southwest Virginia and a model community for other parts of the United States.

New campground and Cottages positioned to immerse visitors into the great outdoors

Elk Habitat featured and celebrated in the Master Plan
Photo credit: Emily Rice, Bluefield Daily Telegraph

INTRODUCTION

HISTORY OF SOUTHERN GAP

The rugged Appalachian terrain of Buchanan County is home to dramatic topography and scenic natural landforms. Steep mountains tower over narrow valleys that host communities molded to fit into any available accessible land along creeks and streams.

At Southern Gap, the coal industry has ultimately presented the Buchanan area with a new and unique opportunity for economic development. While extraction of coal has traditionally defined communities in the heart of Appalachia, by now, all mining operations at Southern Gap have been completed and the land has been fully reclaimed through the Virginia Department of Mines Minerals and Energy (DMME) Division of Mined Land Reclamation (DMLR) Reclamation Permits, P.N. 1101845, and P.N. 1101861. The property has undergone active mining for coal production since the mid-20th century. Initially, mining operations took place underground, with surface mining and mountain top removal taking place only over the last decade. Surface mining was chosen as the preferred method because it was the more economically viable option for coal extraction as the technological advancements required fewer miners to be needed as “open-pit” access for the coal was then achievable to remove coal in larger quantities. Mountaintop removal with valley fills is the result of the blasting and digging that leads to the removal of the vegetation, soil, minerals, and rocks to reach the underlying coal bed. Alpha Natural Resources, Inc. was typically responsible for the mining activities at Southern Gap and currently operates eight facilities, with two in Virginia. Terra Tech Engineering Services, P.C. has provided Mining Engineering, Civil Engineering, and Surveying services to Alpha and is also working with the Buchanan County Industrial Development Authority (IDA) on many levels.

Over the last century the buildable and flatter areas of the County have been developed, with most of these located along rivers and streams such as the Levisa Fork River and Slate Creek, which converge at the Town of Grundy. Following a series of devastating flooding events in these low-lying areas, the Army Corps of Engineers, the Virginia Department of Transportation (VDOT), and the Town of Grundy formed a partnership to prepare flooding mitigation plans. The partnership formulated the plan which was authorized by Congress in Water Resources Development Act of 1996. Implementation of the sizable flood mitigation measures and road re-alignments served to increase demand for developable land due to displacement of several businesses and homes in the project area.

Flooding in the Town of Grundy, VA 1984
Prior to the relocation of the Town Center
Photo credit: Army Corps of Engineers

Pedestrian bridge across the Levisa River connecting the new Grundy Town Center to the Courthouse
Photo credit: VirginiaPlaces.org

HISTORY OF SOUTHERN GAP (continued)

The Buchanan Industrial Development Authority saw the Southern Gap site as a potential opportunity to meet increased housing and development demand on flat and flood-safe terrain and together formulated an idea that would transform the surface mine areas at Southern Gap into buildable land and be a model for communities in Appalachia in the future. Southern Gap is ideally located in close proximity to the Town of Grundy, the Grundy Municipal Airport, and Poplar Gap Park, making it an excellent location for new development. Through a unique and creative approach, Terra Tech, Alpha, and the IDA worked with DMME and DMLR to prepare a visionary remediation permit that would allow for the mined areas to remain flat and prime for new development, supplying the County with desperately needed developable land.

Years of strip mining have left extraordinary rock outcroppings on the site

Surface Mining resulted in flat, developable plateaus ideal for the proposed Village Development

Subsequently, Terra Tech has worked hand in hand with the IDA and Alpha to prepare remediation plans that have paved way for development at Southern Gap. This includes grading and stabilization plans, transportation access plans, utilities and infrastructure plans, and ideas for development of Southern Gap. Terra Tech and the IDA worked with the Virginia Coalfields Economic Development Authority (VCEDA) to determine development opportunities and funding strategies for developing Southern Gap as a key location within both the County and the surrounding Appalachian region. VCEDA commissioned a design workshop to develop a conceptual plan and vision for what Southern Gap could become.

In 2007, Hill Studio, a Planning, Landscape Architecture and Architecture firm out of Roanoke, Virginia, was selected to coordinate and carry out the workshop in conjunction with VCEDA staff, Terra Tech engineers, IDA staff, additional community leaders, project partners, and other interested citizens. The final products were prepared and packaged as an application for a $5 million grant from VCEDA. This grant was heavily utilized for initial investments needed to make development at Southern Gap a reality and the funding did not stop there. Fast-forward a decade to 2019, and the IDA tasked Hill Studio with updating the Design Guidelines and Master Plan to adhere to the existing conditions which have developed since the initial plans and guidelines were originally created. While the vision and the proposed amenities have generally stayed constant over the last decades, this plan helps tell the story of the current situation at Southern Gap by highlighting the features which define its character.

INTRODUCTION

PLANNING PROCESS

This 2021 Master Plan document is a vital piece of the Southern Gap framework and establishes guidance for ensuring appropriate development at Southern Gap that carries out and focuses the vision developed during the original 2007 Master Plan.

During the workshop, the following was accomplished:

- Southern Gap project phasing determined
- Appropriate land use components identified
- Renewable energy opportunities formulated
- Market assessment and existing conditions analysis completed
- Development plans created, including Village Center & Residential layouts
- Economic assets and regional amenities packaged
- Branding and design themes and concepts developed

Hill Studio was retained by the IDA to prepare and develop the 2021 Southern Gap Master Plan, while working in conjunction with Terra Tech and the IDA. Additionally, Sanford Holshouser was added to the team for market analysis and, demographic projections for potential arena or similar multipurpose facility. The planning process commenced in the Fall of 2019 and began with an in-depth tour of the Southern Gap property. Unlike the very public 2007 Master Plan, the Covid Pandemic of 2019 required socially-distant planning and public engagement methods. The planning team worked with the Buchanan County IDA director, who gained feedback on concepts and forwarded the collective evaluation of ideas to the planning team.

In conjunction with the formulation of this new Master Plan, the Southern Gap Design Guidelines were updated. Like the Master Plan, the guidelines were greatly simplified, with an emphasis on communicability. The Design Guidelines present recommendations for development that achieves a sustainable community for the 21st century, a sound and proven plan review process and procedures that aids developers.

The planning process for Southern Gap has been going on for many years through innovative and thoughtful decisions. Development will likely take place over the next 50 years and possibly beyond. The following pages provide in-depth project descriptions that explain why Southern Gap is a prime development opportunity for the Appalachian region and recommendations as to how this development may continue to evolve.

Buchanan County Tourism exhibit at local outdoor recreation festival

REGIONAL LOCATION

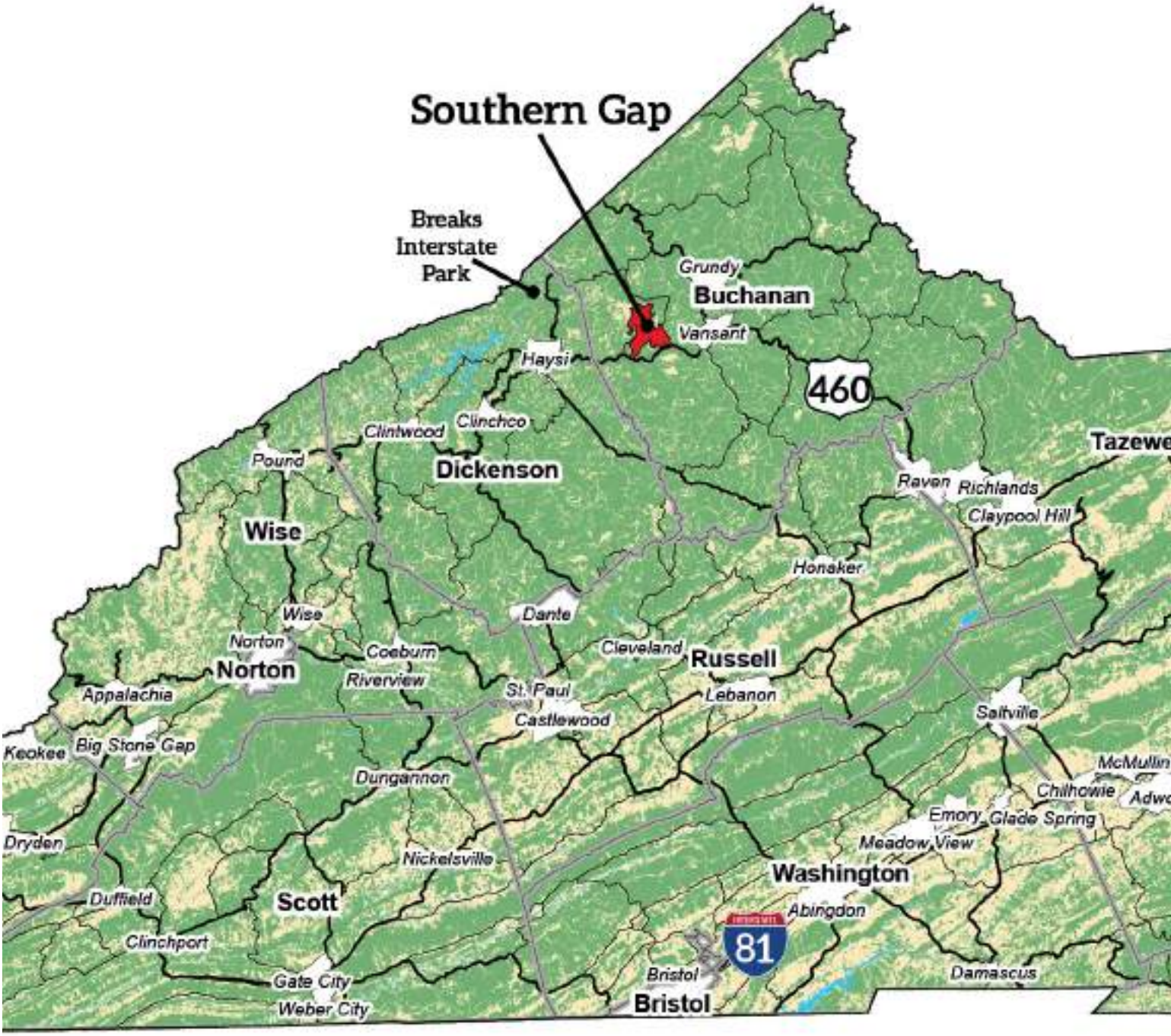
Southern Gap is located in the western portion of Buchanan County, Virginia, and approximately eight miles from the Kentucky State line and 16 miles from the West Virginia state line. Southern Gap is four miles south of the Town of Grundy, 12 miles north of the Town of Haysi, Virginia, 40 miles east of Pikeville, Kentucky, 50 miles west of Tazewell, Virginia, 70 miles west of Bluefield, West Virginia, and 80 miles north of Abingdon, Virginia. Within the Town of Grundy there are two important graduate schools; the Appalachian School of Law (ASL) and the Appalachian College of Pharmacy (ACP). When combined, ASL students and employees contribute more than $12 million to the local economy annually. Due to the success of ASL, ACP was commissioned by the Buchanan County Board of Supervisors in 2003. ACP began enrollment in 2005 and graduated its first class in May 2008. It is estimated that ACP will contribute more to the local economy than the ASL once fully realized. Both of these institutions have significantly impacted the housing demand within Buchanan County and Grundy over recent years while boosting the local economy.

Breaks Interstate Park, coined the name “Grand Canyon of the South”, spans across more than approximately 5,000 acres of woodlands and features the deepest gorge east of the Mississippi River divide. The park attracts more than 300,000 visitors a year and offers numerous activities and is located within 15 miles of Southern Gap, therefore it is an ideal economic resource and outdoor recreation asset. Due to the tremendous outdoor recreation potential at Southern Gap, these amenities should be directly linked to each other. The ability to connect these existing regional amenities will have a direct influence on development at Southern Gap as well, the proposed Coalfields Expressway (US Route 121) will have a tremendous regional economic impact and will better connect Southern Gap to the Central Appalachian region. The proposed Coalfields Expressway will provide an efficient and safe highway through West Virginia and Virginia, with a northern terminus at the intersection Interstate 64 and Interstate 77 in West Virginia. The highway will travel southwest for 60 miles through West Virginia and connect through Buchanan County along the northern edge of Southern Gap. From Southern Gap, the Coalfields Expressway will connect to the south, through Dickenson County and Wise County, with a southern terminus near the City of Norton and US Route 23. It is envisioned that the Coalfields Expressway will strengthen economic activity in commerce and tourism throughout the region. The highway has construction through Southern Gap is nearing completion, while the connection to Breaks may be more likely to be accomplished in the 2030 time frame.

While car traffic is expected to increase over the coming decades due to new infrastructure, it is also expected that the expansion of the Grundy Municipal Airport will increase access to the region as well. It is the only airport in Buchanan County and is located along Route 718, just east of Southern Gap. The airport is publicly owned by the Town of Grundy and features a 2,400-foot runway with several hangars for small aircraft. The airport is currently in the planning stages for expansion to include a realigned and longer runway that will allow for corporate jets and larger payload aircraft. The airport expansion plans also include new hangars and a small-scale terminal facility. The expansion of the airport presents another amenity that will benefit development at Southern Gap.

REGIONAL LOCATION

This map shows the regional location in proximity to surrounding counties, cities, towns, and other census-designated places people may be familiar with. The map also shows some major roads and highways connecting to the site.




Glen Lyn
Narrows
Pearisburg
Pembroke
Giles
Montgomery
Blacksburg
Elliston
Prices Fork
Bluefield
Springville
Parrott
Belview
Merrimac
Shawsville
Fairlawn
Christiansburg
Radford
Plum Creek
Gratton
Tazewell
Bland
Bland
Dublin
Riner
Pulaski
Pulaski
Snowville
77
81
Draper
Max Meadows
Hiwassee
Wytheville
Fort Chiswell
Allisonia
Floyd
Floyd
Wythe
Rural Retreat
Marion
Atkins
Ivanhoe
Smyth
Sugar Grove
Woodlawn
Hillsville
Carroll
Fries
Troutdale
Galax
Galax
Fancy Gap
Stuart
Grayson
Independence
Patrick
0 4 8 16 24 32 40 48
Miles

SITE ANALYSIS

Chapter 2

SITE INTRODUCTION

Upside-Down Mountain View from the Visitor Center. Forested valleys are prime areas to host trails, and wildlife habitat

At Southern Gap, site is contoured leaving steep man-made slopes

Southern Gap Outdoor Adventures Visitor Center overlooking the wildlife conservation areas and recreational trails below

Existing Roads and Sidewalks overlooking the deep valleys below

SITE ANALYSIS INTRODUCTION

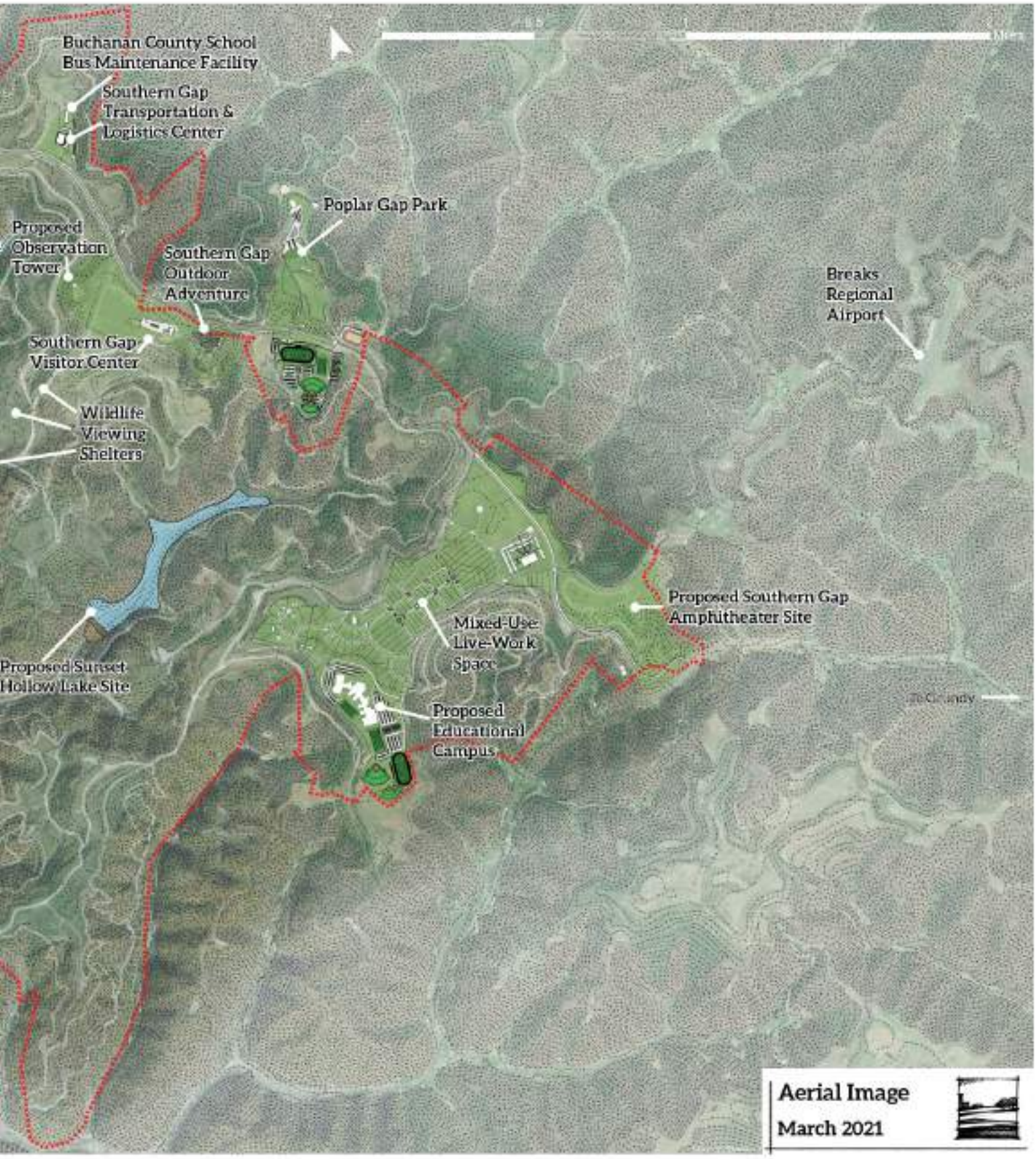
Made popular by designers in the 1960s, an "upside-down mountain" is a concept frequently found at mountain ski resorts. It focuses on the interaction between the person and the landscape where the action and amenities are located at the top of the mountain and send the participants down the mountain to the outdoor recreation filled slopes below. The first thing they experience is the exhilarating experience of the great outdoors – the views, the fresh air, the excitement. Upside-down mountains are very popular when planning for communities focused on the great outdoors.

Southern Gap is organized like an "upside-down mountain." All residents and visitors climb to the top of Lovers Gap on Route 83, to and then climb higher onto the 3,000-acre site through the entrance road. Ascending to the Village at approximately 2,200' above sea level, the panoramic views are both refreshing and exhilarating, extending as far as the eye can see. A truly unique experience in Virginia, the upside-down mountain Village results from the careful planning of this vision over decades.

The uniqueness of the site is emphasized in a series of maps in this chapter. Unique to Southern Gap are man-made plateaus from the former strip mining and fill. They overlook man-made curved terraces, and more natural valleys. Slopes are quite dramatic, in their steepness and in their contrast; large flat plains yield to 2:1 managed terraced grades that drop hundreds of feet. The resulting terrain is full of development opportunity, all with astounding views to the settled valleys below and the distant wooded ridges.

The maps of Chapter 2 provide insights into the best areas for development of roads and buildings, and best for natural remediation and habitat development.

This map to the right shows the existing landscape and highlights the existing and proposed development while also providing regional context.


Buchanan County School Bus Maintenance Facility
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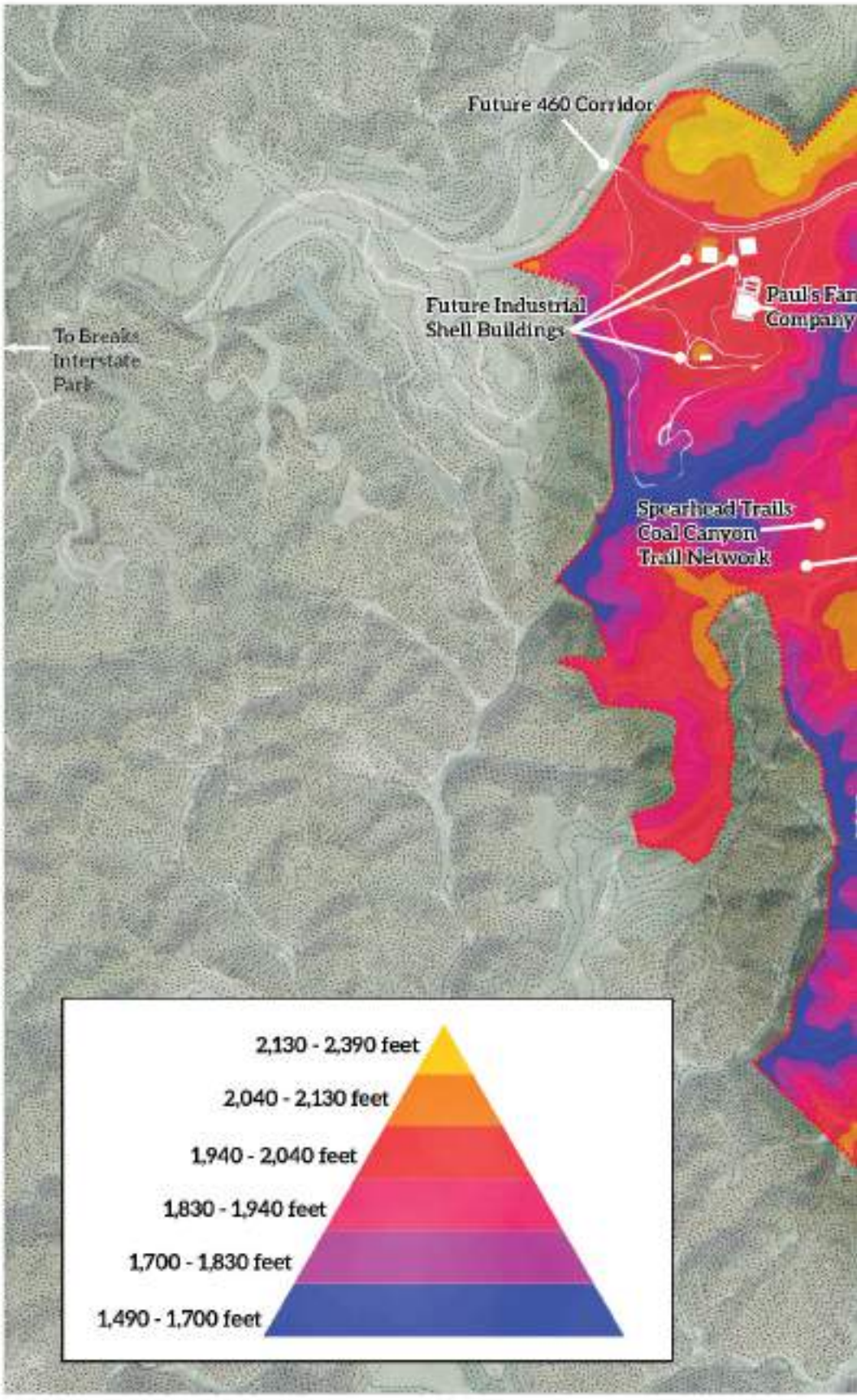
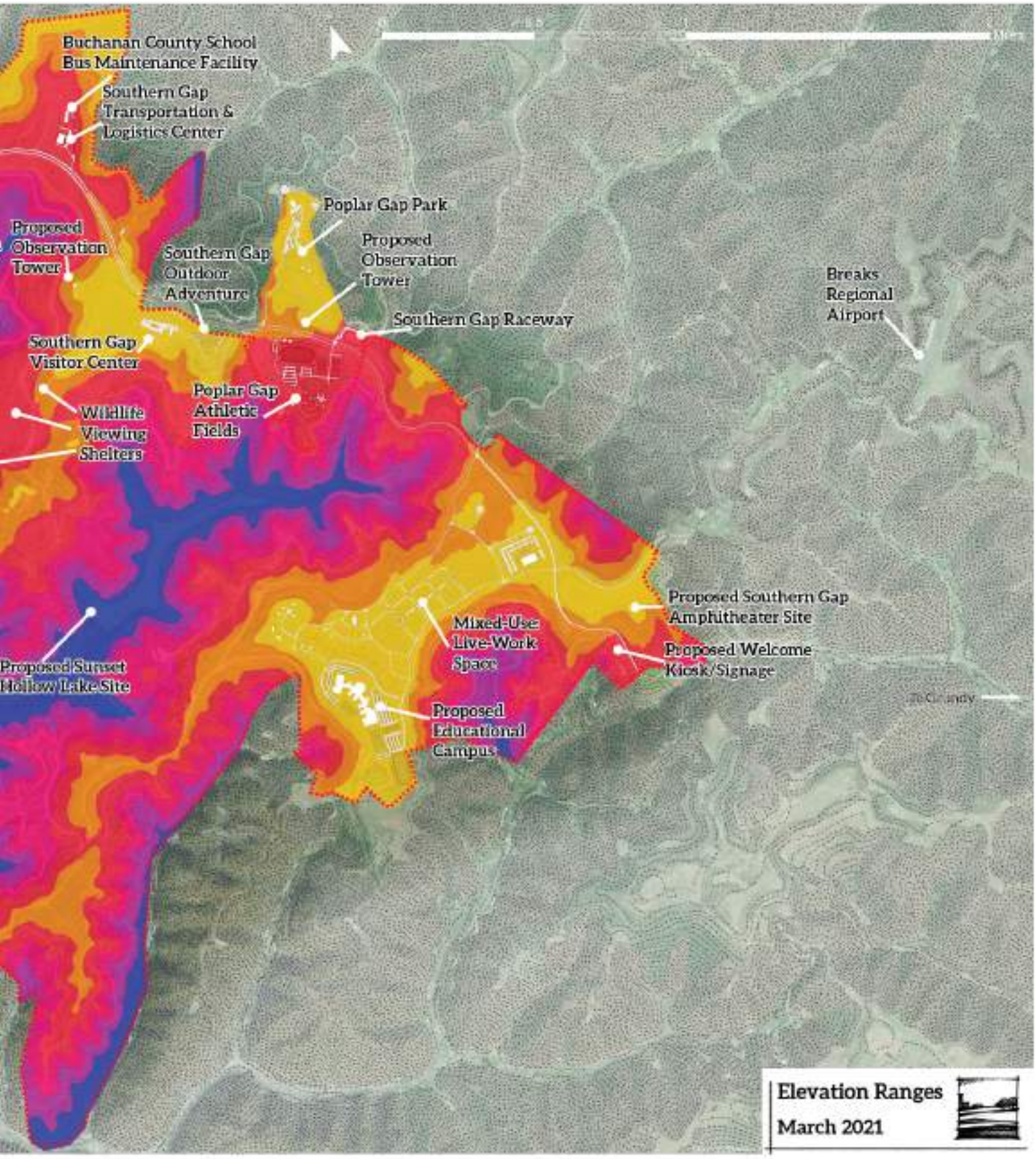
Proposed Observation Tower
Southern Gap Outdoor Adventure
Breaks Regional Airport
Southern Gap Visitor Center
Wildlife Viewing Shelters
Proposed Southern Gap Amphitheater Site
Mixed-Use Live-Work Space
Proposed Sunset Hollow Lake Site
Proposed Educational Campus
Aerial Image
March 2021

ELEVATION RANGES MAP

This map highlights the major upland plateaus (in yellow). Steep slopes are shown in red and the valley floor is purple. This helps to also show line-of-sight, for instance, almost all of the site can be seen from yellow areas, while darker purple areas are shadowed by the terrain above.

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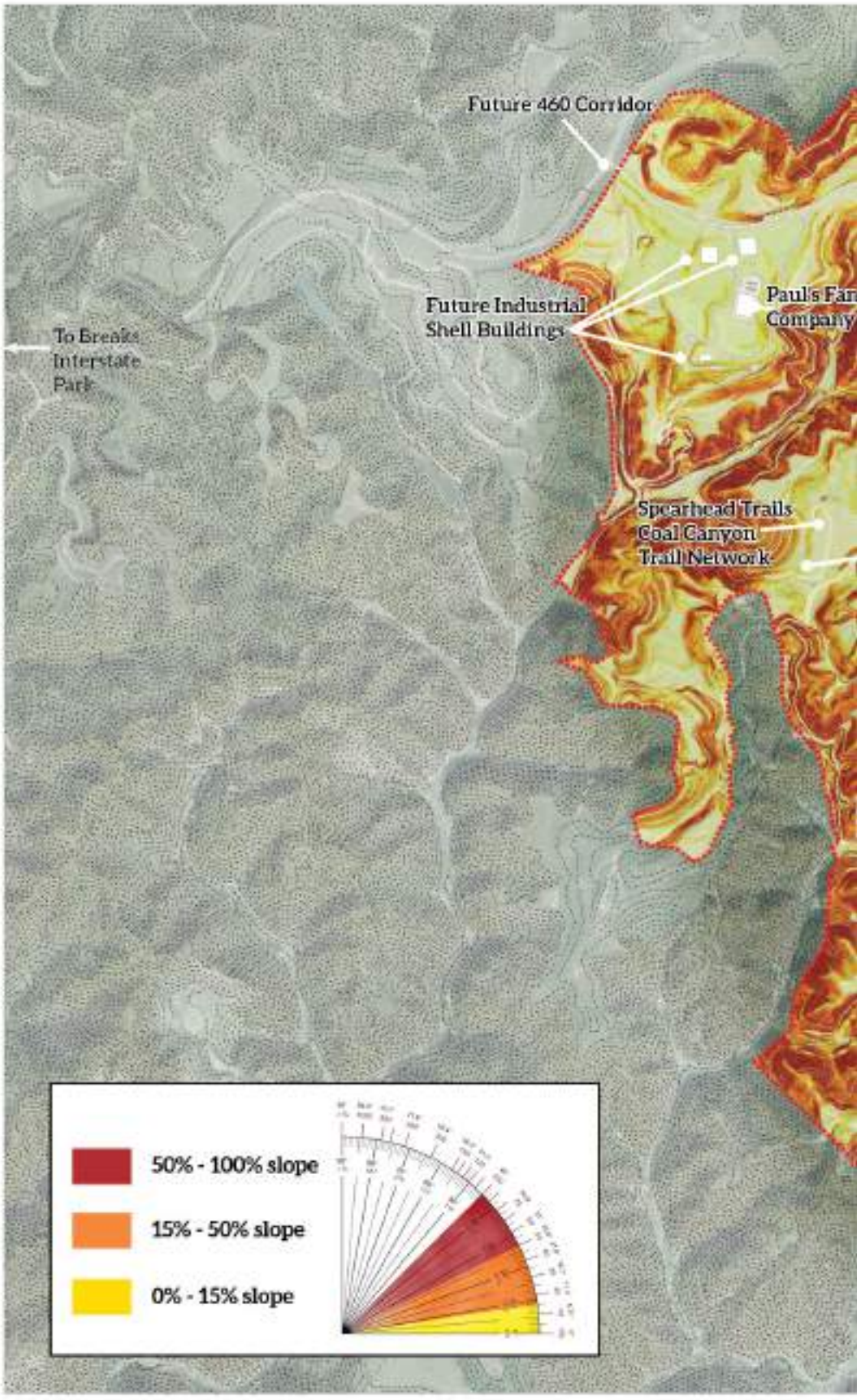
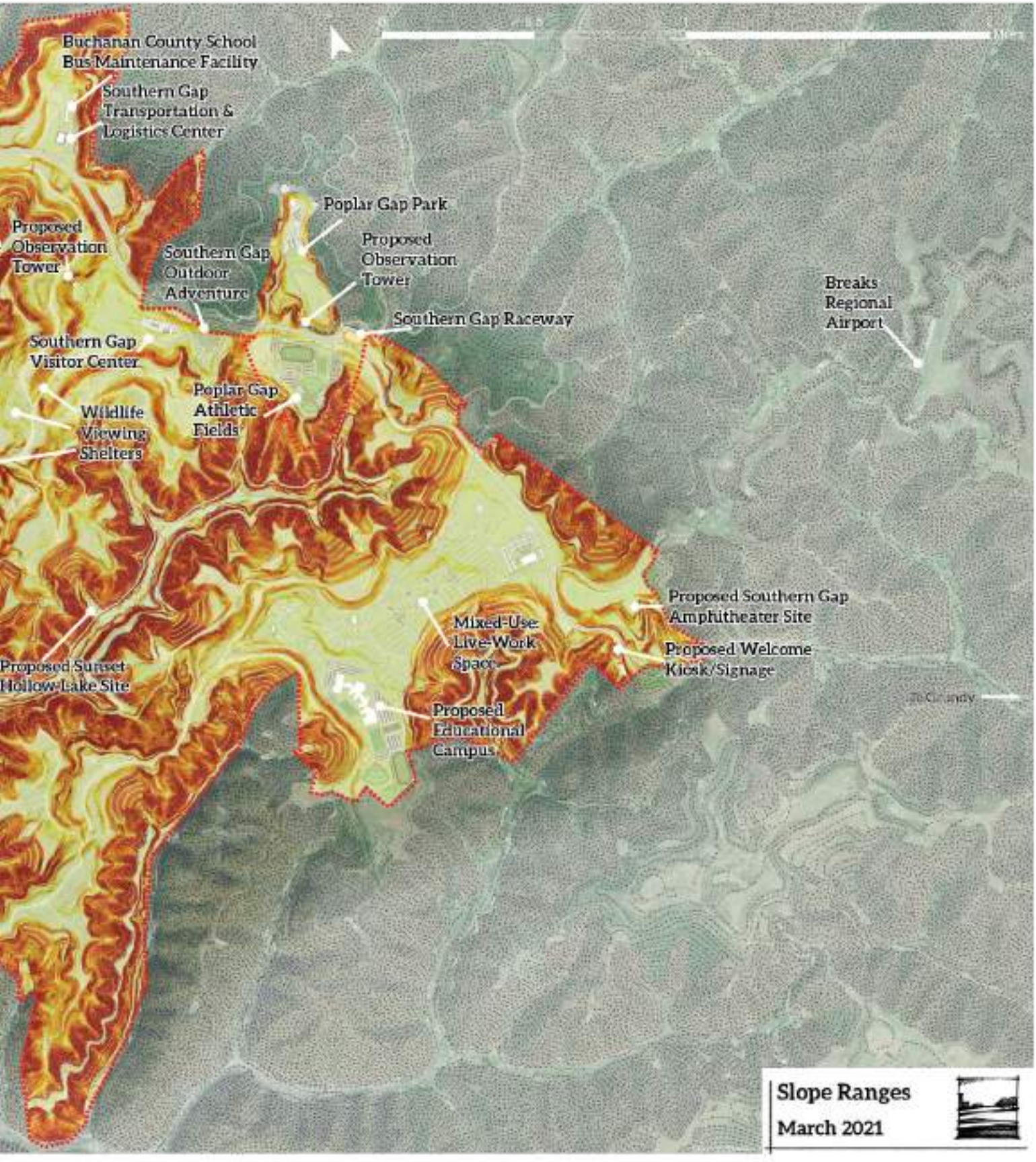
Proposed Welcome Kiosk/Signage
Proposed Sunset Hollow Lake Site
Proposed Educational Campus
Elevation Ranges
March 2021

SLOPE RANGES MAP

This map shows areas too steep for development (red) and areas with relatively flat grade (yellow).

It also clearly shows the deep valley where future lake is proposed in the central valley of the site.

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Proposed Sunset Hollow Lake Site
Proposed Educational Campus
Slope Ranges
March 2021

HILLSHADE MAP

This map shows the hillshade of the existing terrain showing clearly defined ridges, valleys, and plateaus.


Buchanan County School Bus Maintenance Facility
Southern Gap Transportation & Logistics Center
Poplar Gap Park
Proposed Observation Tower
Southern Gap Outdoor Adventure
Breaks Regional Airport
Southern Gap Visitor Center
Wildlife Viewing Shelters
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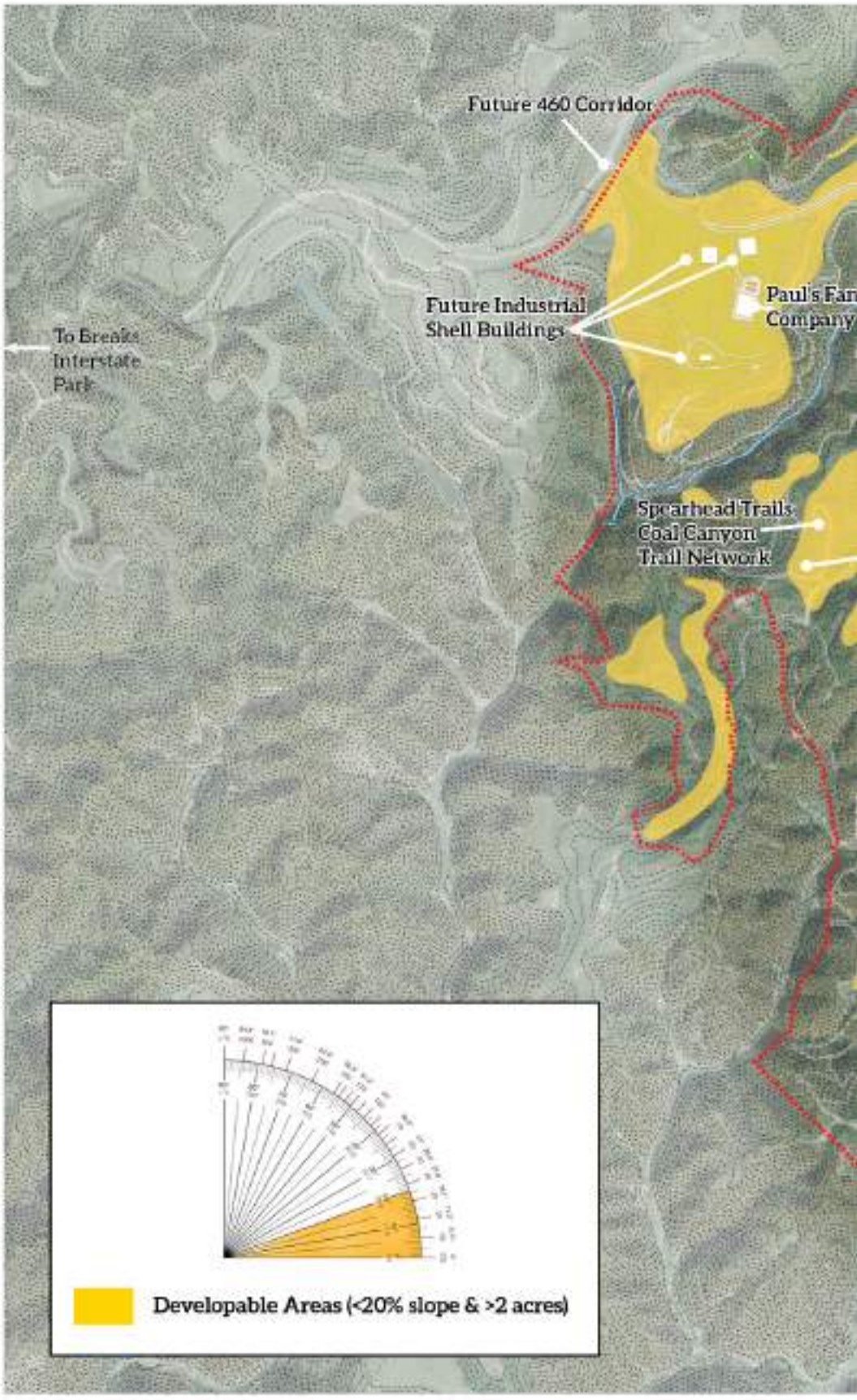
Proposed Sunset Hollow Lake Site
Proposed Educational Campus
Hillshade
March 2021

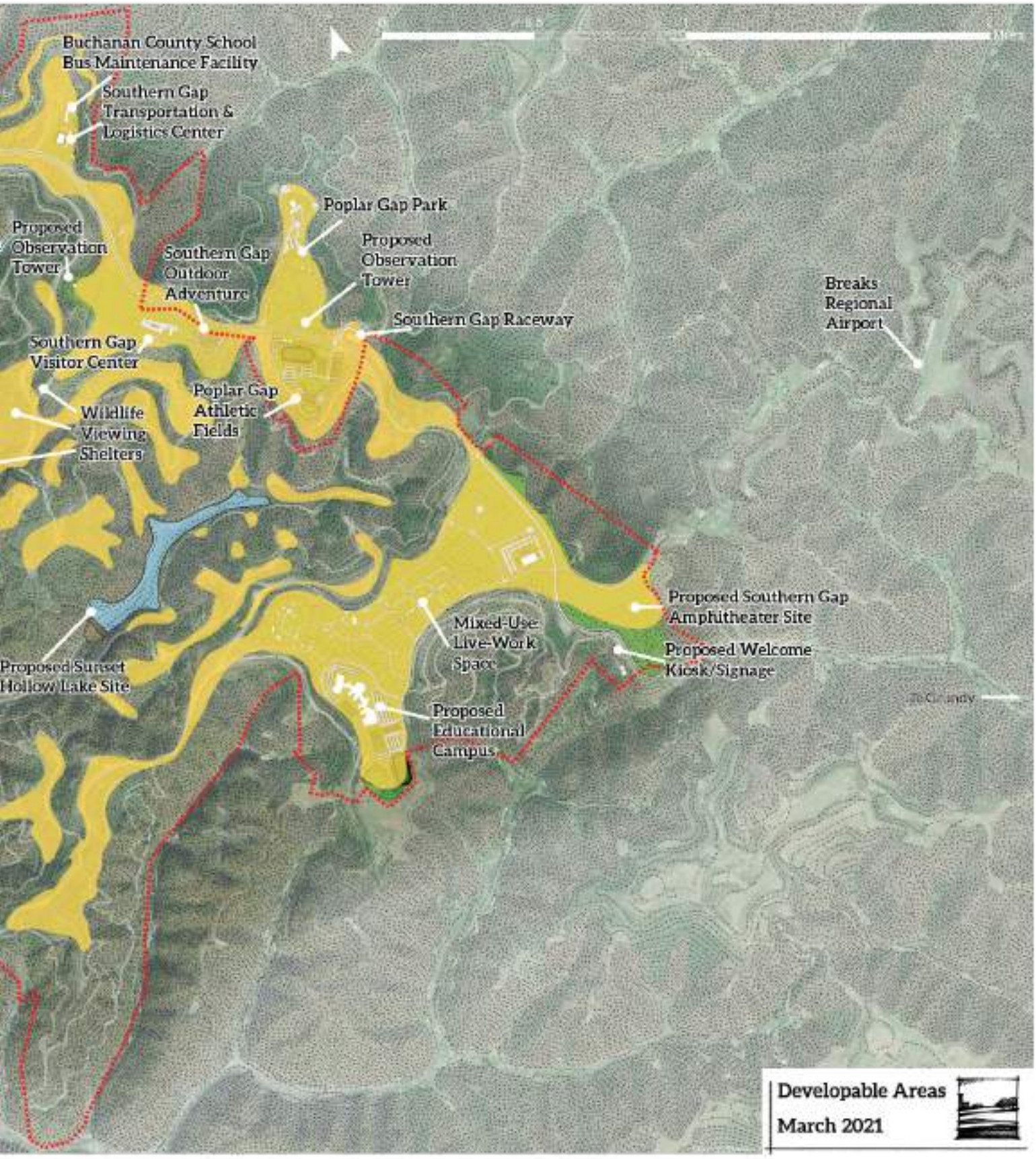
DEVELOPABLE LAND MAP

This map was derived using GIS analysis techniques which used the digital elevation model of the terrain in which areas that are relatively flat and large can be considered for future development.

It highlights areas from previous elevation and slope maps by showing most developable areas at Southern Gap. Areas shown have slope less than 20% and are larger than 2 acres.



Sketch from 2007 Master Plan showing flat mountaintop plateaus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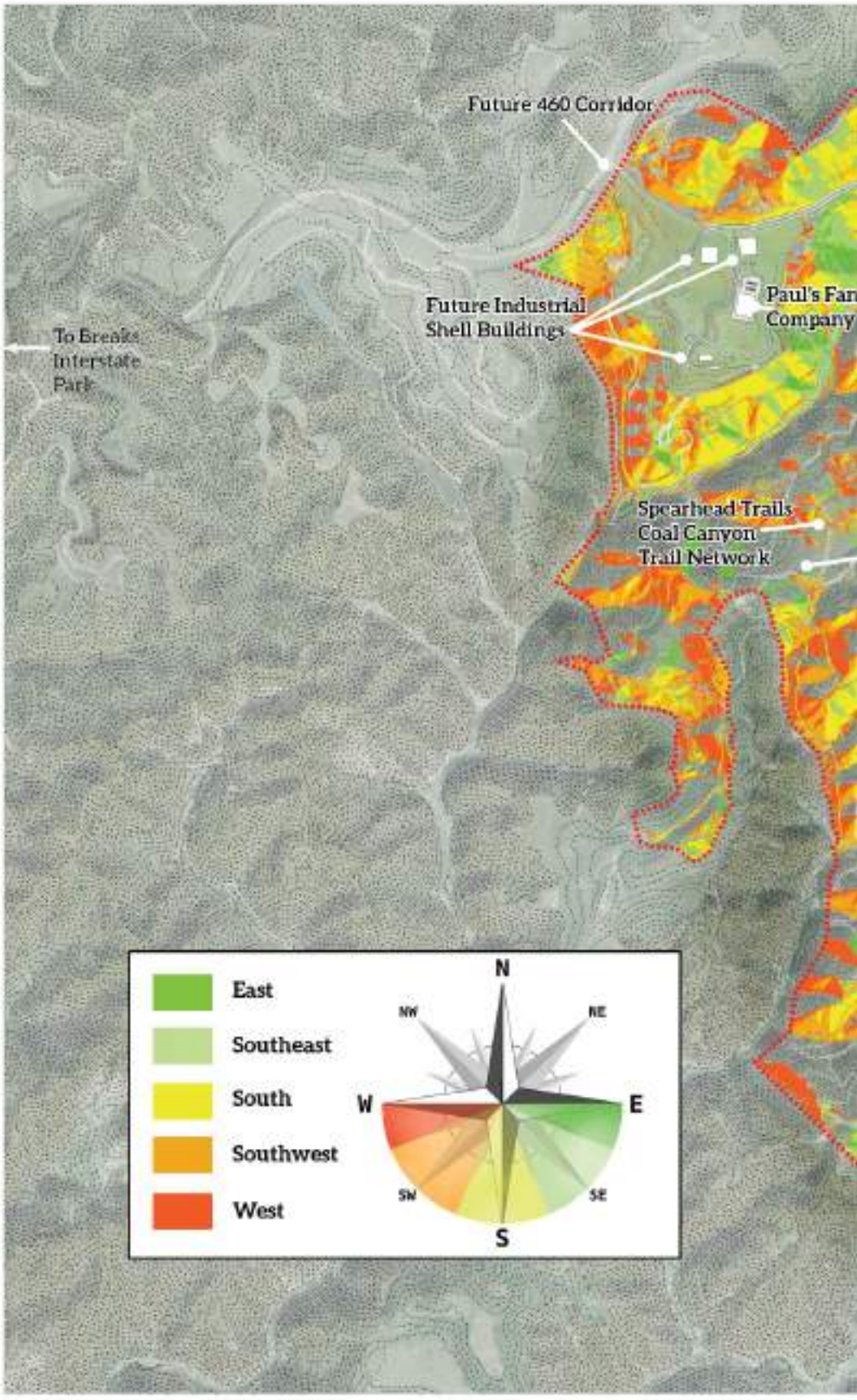
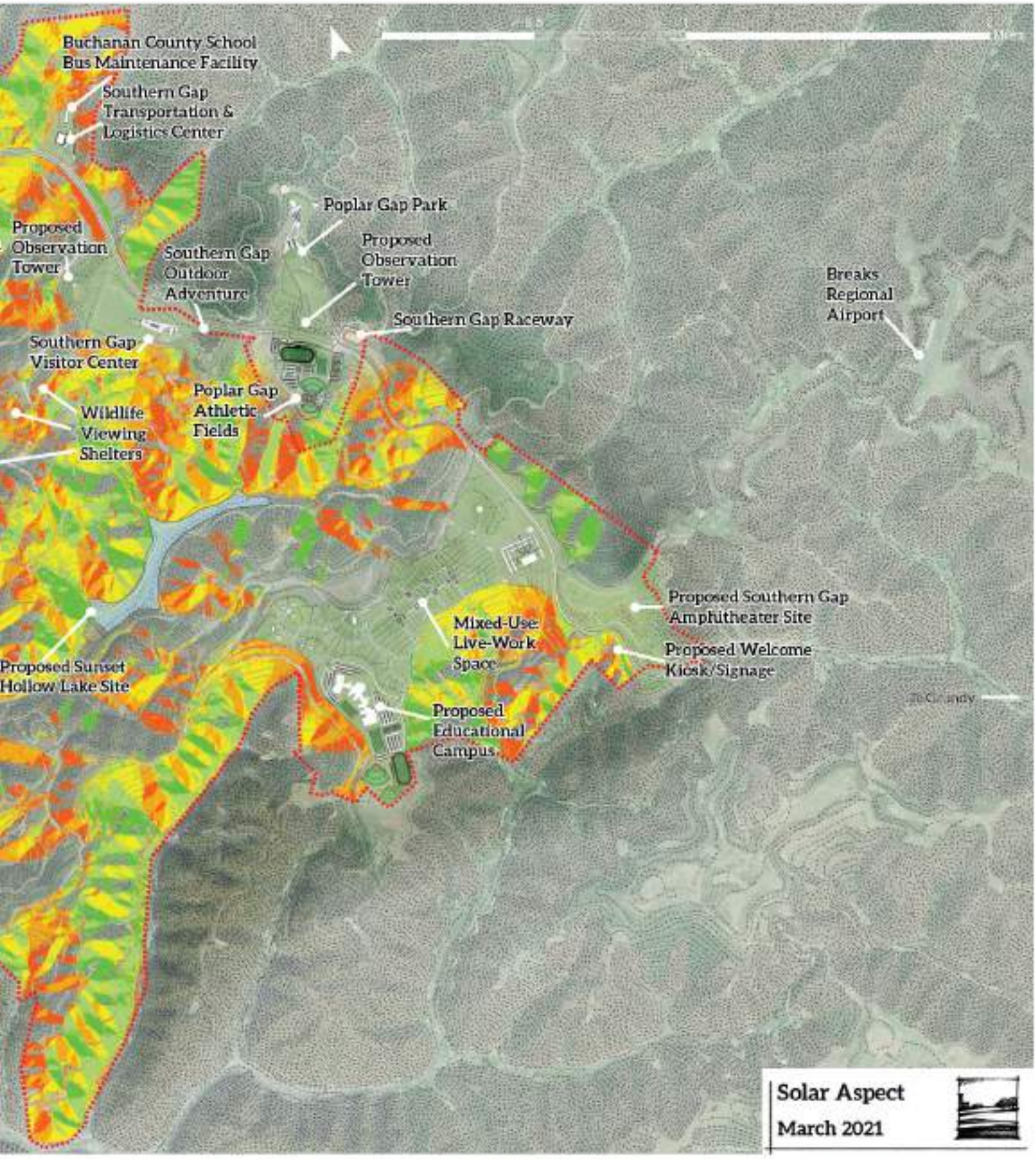
Proposed Sunset Hollow Lake Site
Proposed Educational Campus
Developable Areas
March 2021

SOLAR ASPECT MAP

This map shows areas where sun exposure is longest throughout the day. It can be used for architectural purposes to guide building orientation so that maximum sunlight is used to naturally light homes and businesses.

It also shows optimal locations for solar panels so that maximum solar absorption for energy is collected.

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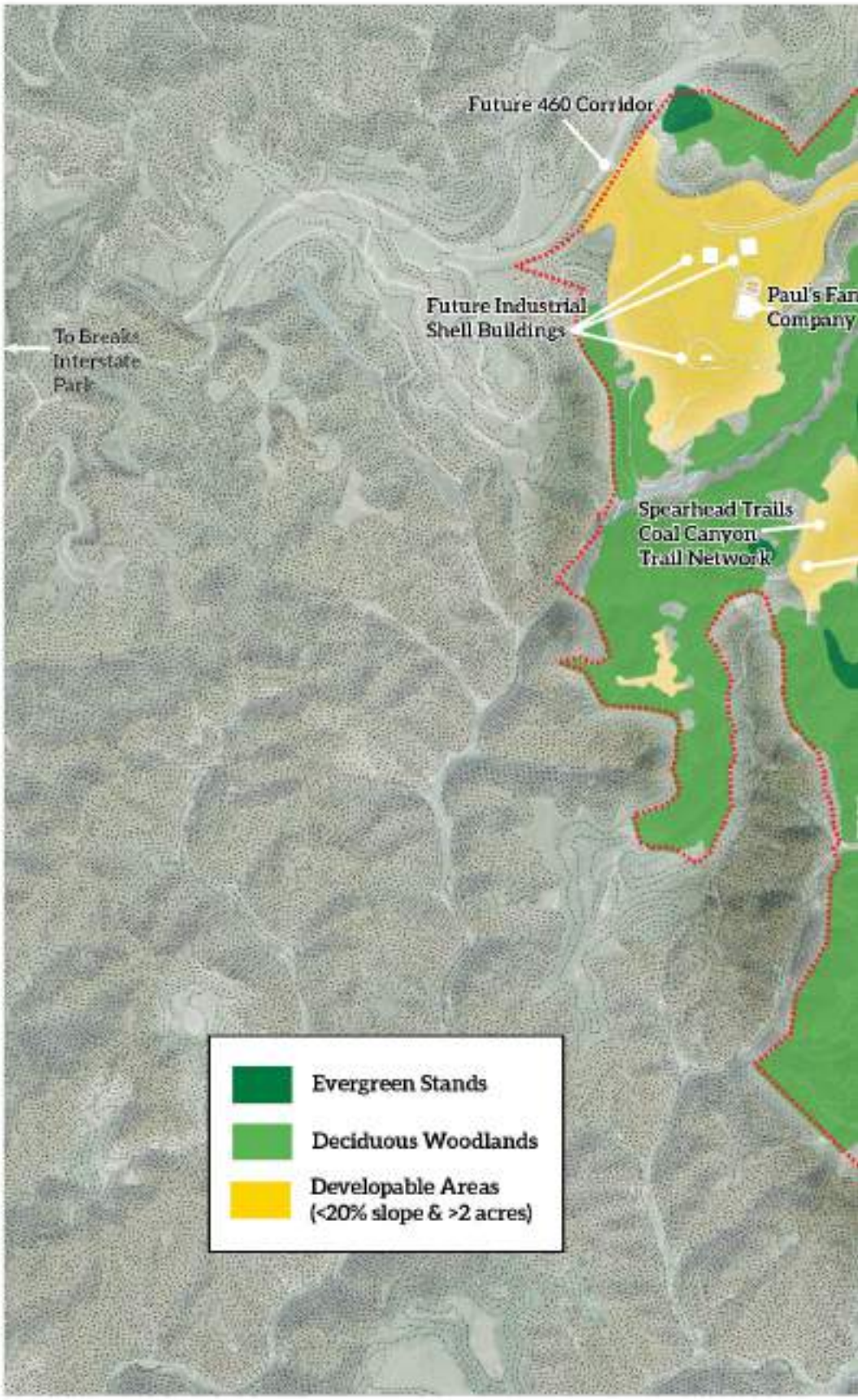
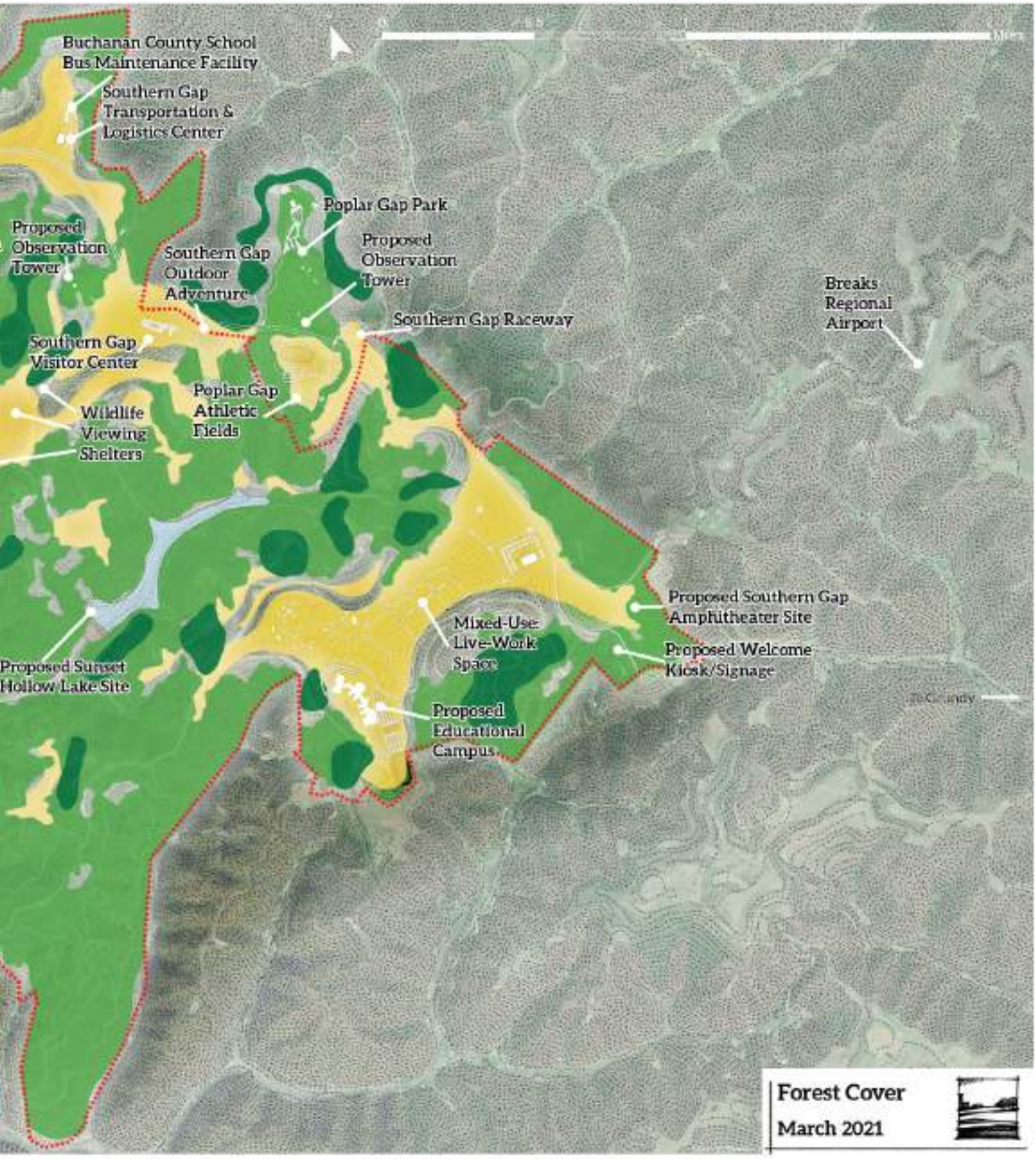
Proposed Welcome Kiosk/Signage
Proposed Sunset Hollow Lake Site
Proposed Educational Campus
Solar Aspect
March 2021

FOREST COVER MAP

This map is intended to show the existing forest biodiversity.

It clearly shows developable areas where land is already cleared or was never remediated after surface mining.

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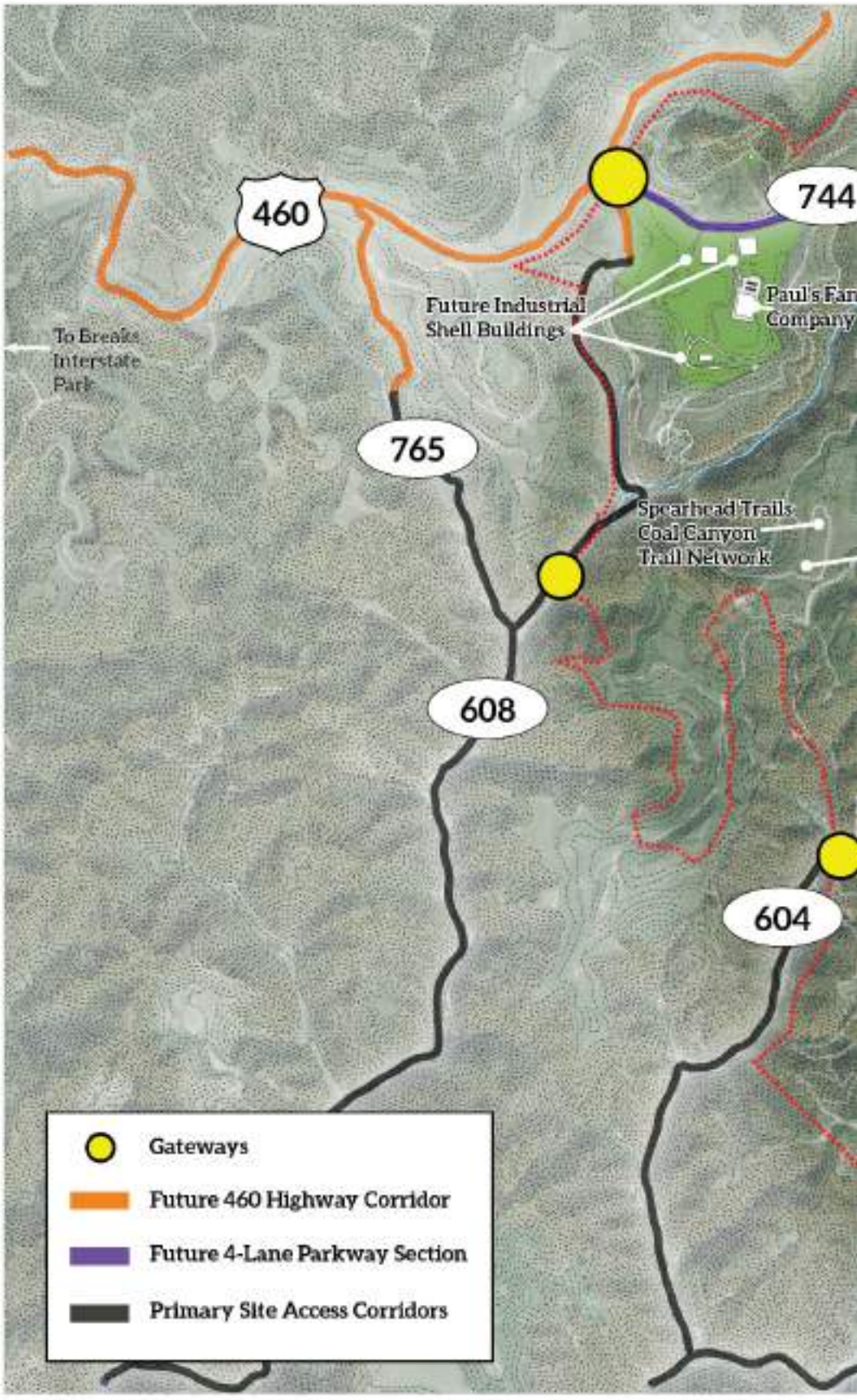
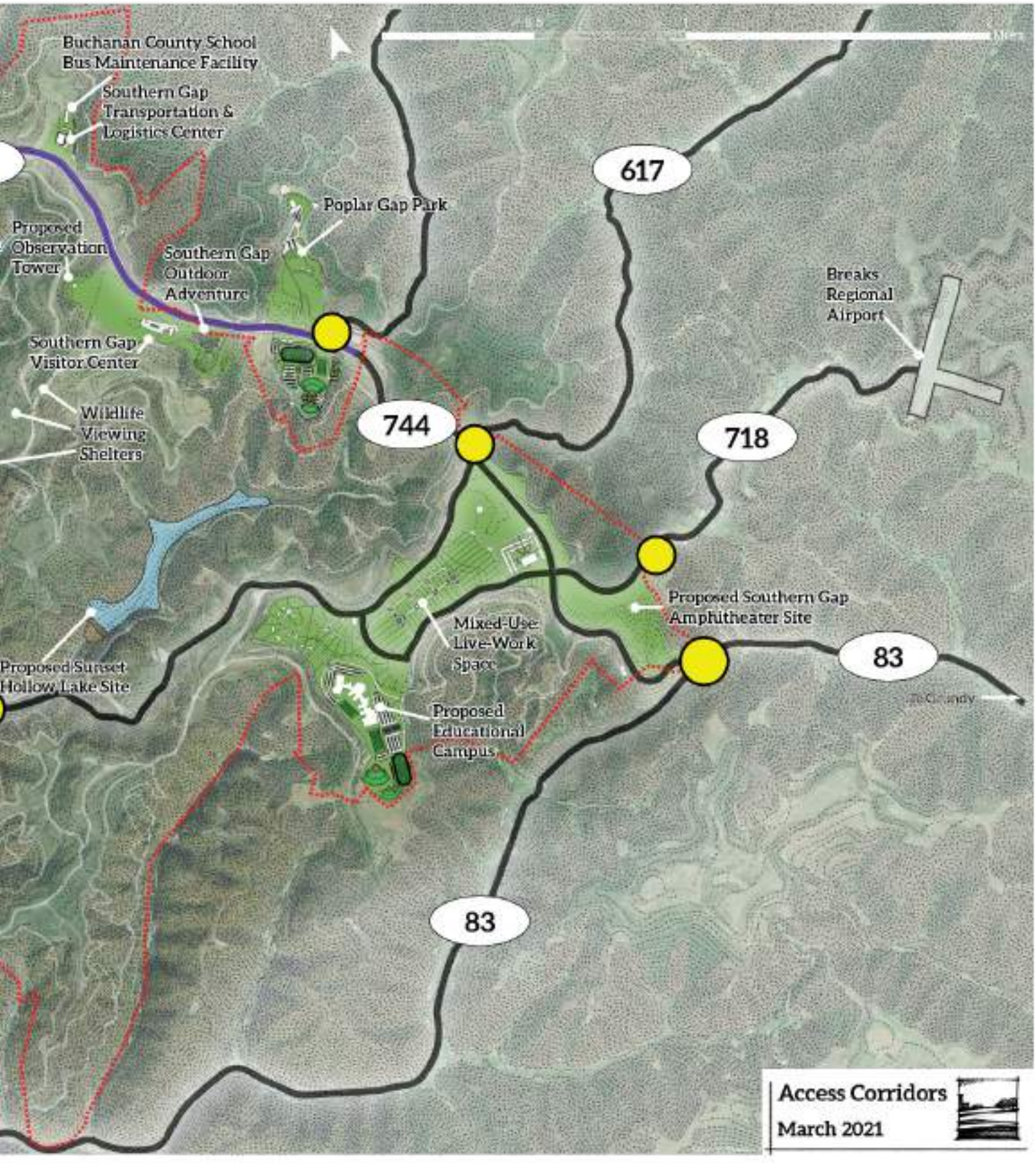
Proposed Sunset Hollow Lake Site
Proposed Educational Campus
Forest Cover
March 2021

ACCESS CORRIDORS MAP

This map shows major gateways and main corridor through site with the vision of a buffered, parkway aesthetic.

It also shows connection to new airport as well as entrances from Lovers Gap which serves as the current major gateway into the site. The 460 (shown) & 121 (not shown) corridors will be an additional major gateway into Southern Gap from the north end.




Buchanan County School Bus Maintenance Facility
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Poplar Gap Park
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718
Wildlife Viewing Shelters
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Mixed-Use Live-Work Space
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Proposed Sunset Hollow Lake Site
Proposed Educational Campus
83
Access Corridors
March 2021

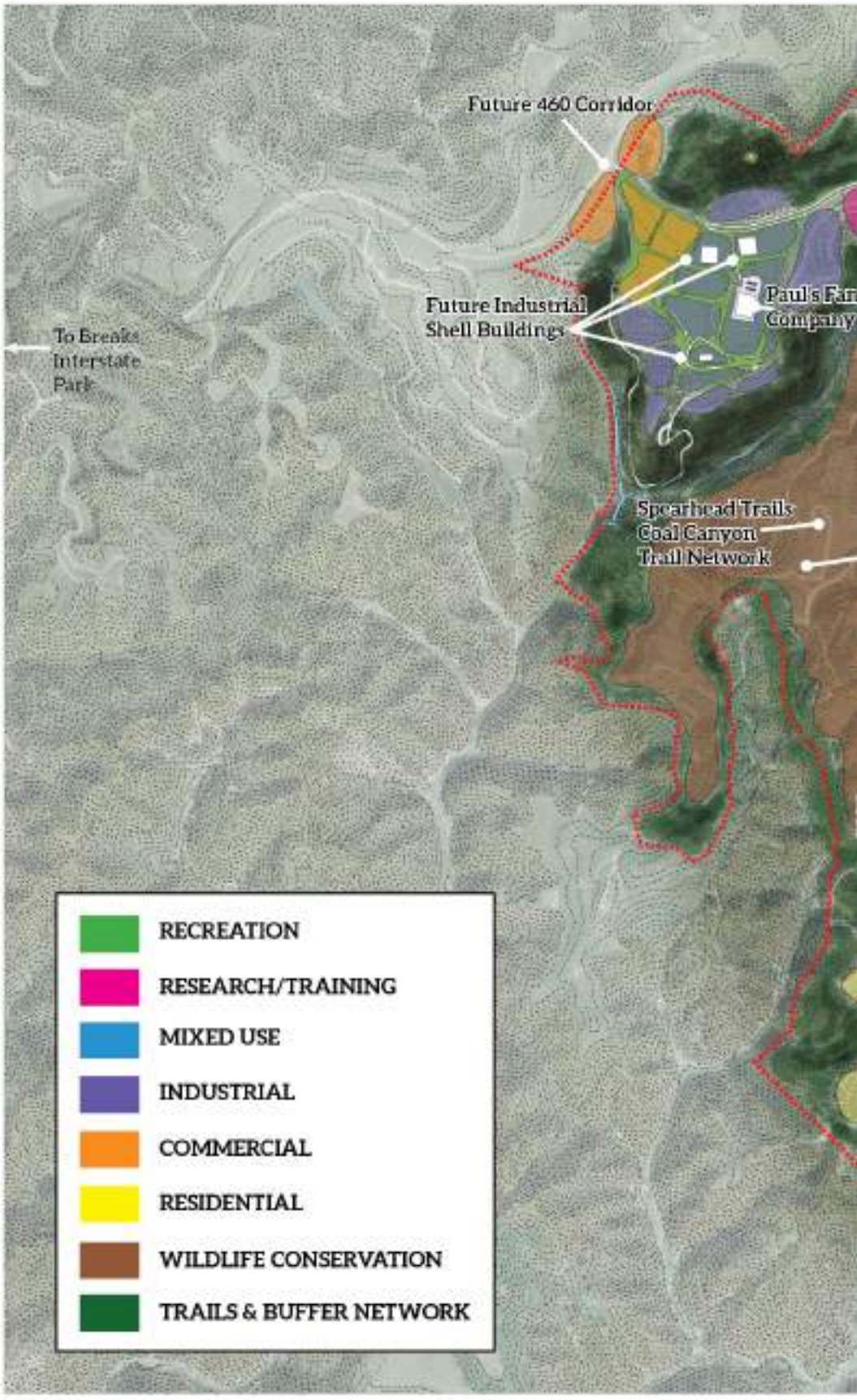
LAND USE AREAS

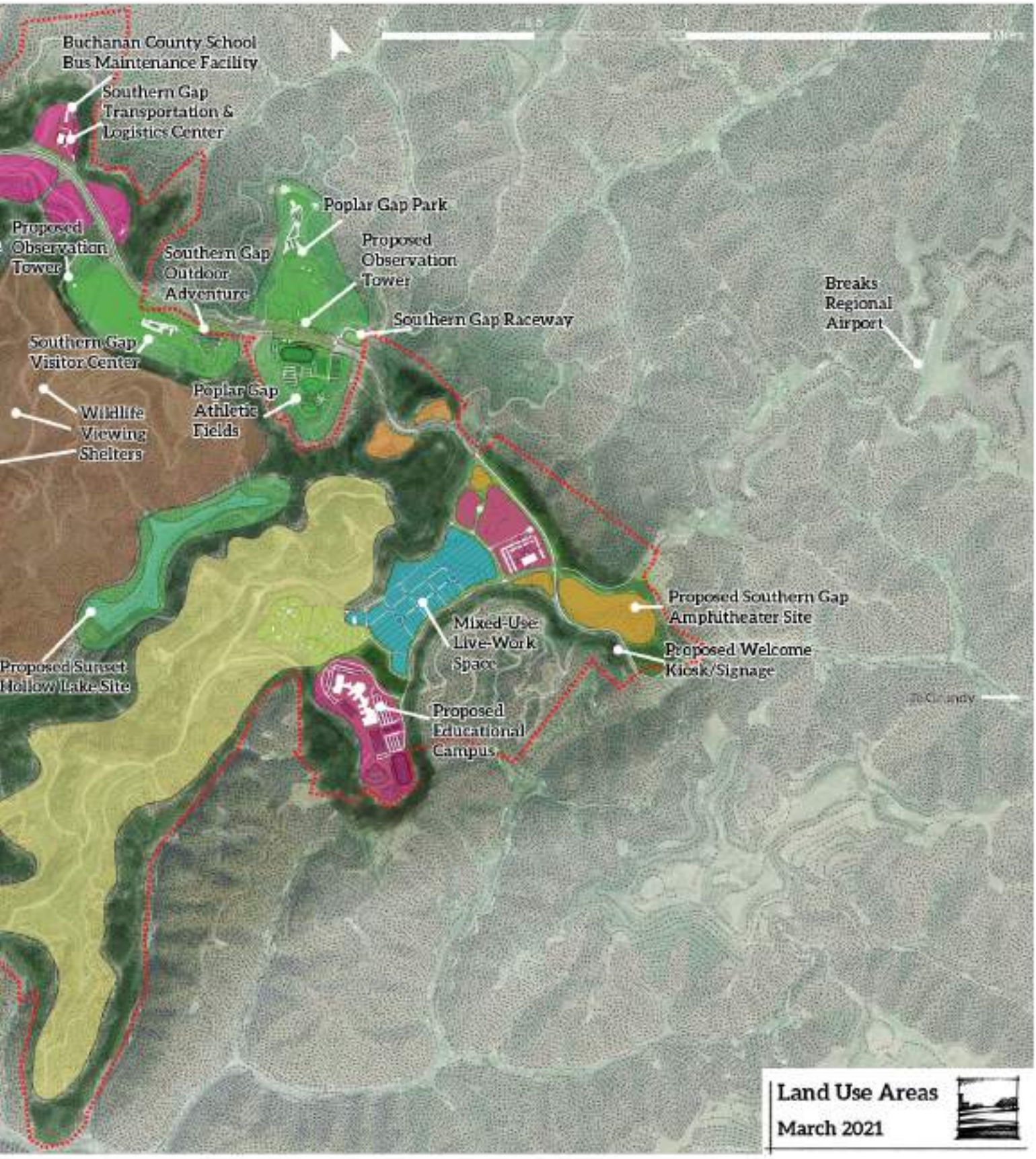
Chapter 3

LAND USE AREAS MAP

This map shows proposed land use based on existing development and the environmental factors described in Chapter 2.

Land Use	Acreage	Percent
Trails & Buffer	974	31%
Wildlife Conservati	780	25%
Residential	527	17%
Recreational	325	10%
Industrial	162	5%
Research/Training	145	5%
Commercial	121	4%
Mixed Use (Village)	70	2%
Total	3,104	

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Proposed Educational Campus
Land Use Areas
March 2021

DESIGN GUIDELINE AREAS MAP

Broader land use categories used to describe the design guideline areas can be simplified into 3 general groups that contain overlap:

-Live
Residential

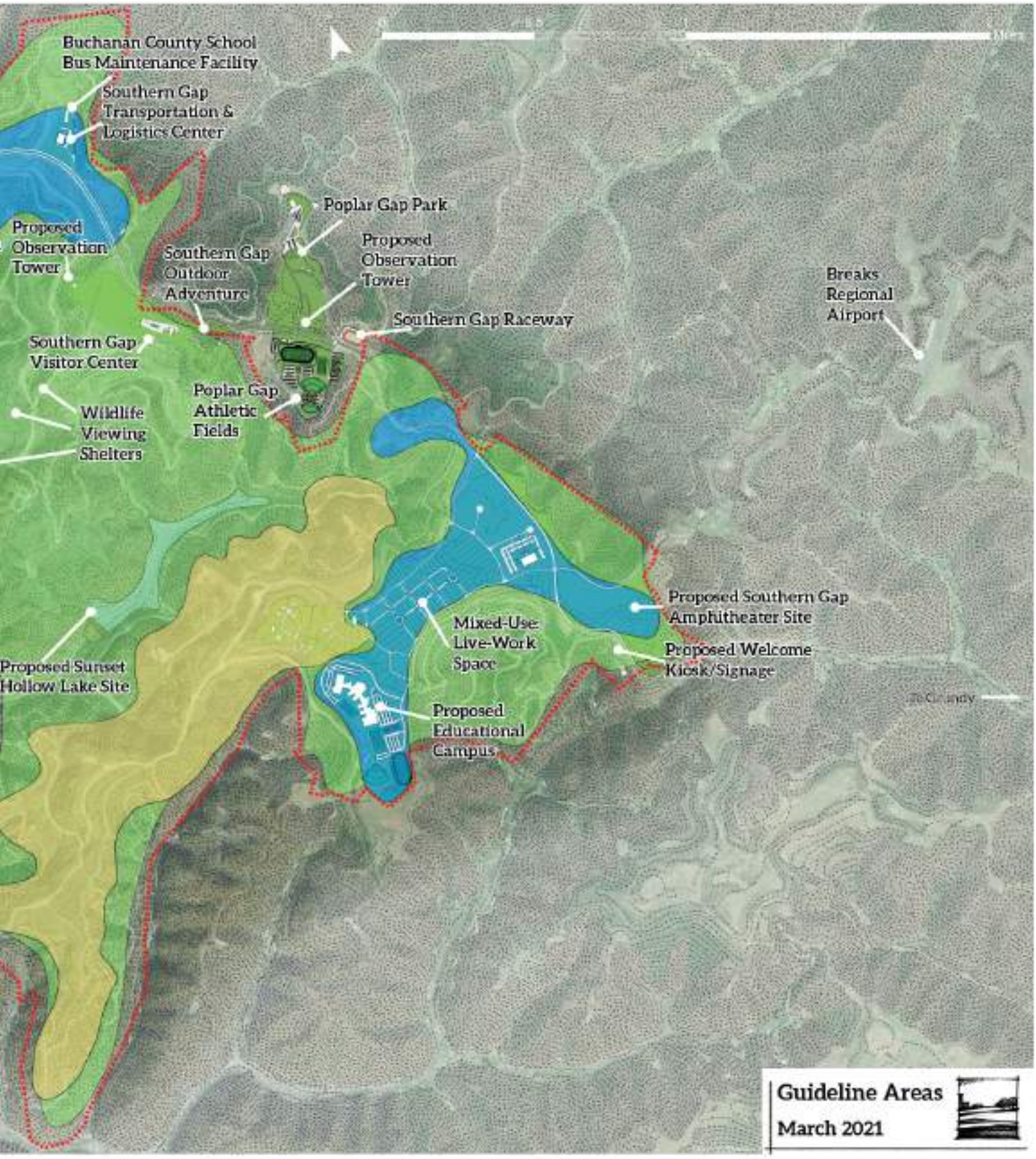
-Work
Commercial & Industrial

-Play
Recreational

Each general area has notable, unique features; Design Guidelines help to create synchronous, aesthetically pleasing designs.

The green on the map includes general, universal guidelines for the entire site; while the blue and yellow show overlapping areas which have additional design guidelines. The blue shows areas of commercial, industrial, and mixed-use development while the yellow is specific to residential neighborhoods and housing.

For more information, refer to the companion document "2021 Design Guidelines."


Buchanan County School Bus Maintenance Facility
Southern Gap Transportation & Logistics Center
Poplar Gap Park
Proposed Observation Tower
Southern Gap Outdoor Adventure
Proposed Observation Tower
Southern Gap Raceway
Breaks Regional Airport
Southern Gap Visitor Center
Poplar Gap Athletic Fields
Wildlife Viewing Shelters
Proposed Southern Gap Amphitheater Site
Mixed-Use Live-Work Space
Proposed Welcome Kiosk/Signage
Proposed Sunset Hollow Lake Site
Proposed Educational Campus
Guideline Areas
March 2021

LAND USE AREAS

DEVELOPMENT VISION

In developing the 2021 Master Plan for Southern Gap, discussions were held with community leaders, stakeholders, economic development interests and design professionals to refine the common vision for this unique project. Discussions indicated that in addition to the need for economic development and employment opportunities, there is a need for quality affordable housing of varied types and a need for supporting commercial services. Moreover, there is an overarching desire to have all land use areas immersed in the extraordinary natural scenery and habitats that is now emerging at Southern Gap.

The future growth of Southern Gap may also include opportunities for sustainable development practices and technologies that tap into the abundant ecotourism and recreational opportunities at the site. Southern Gap presents a tremendous opportunity that will establish a model development that could serve as an attractive, unique, and educational draw for the Appalachian region, the state, and the nation. Below is a list of ideas that were gathered during initial discussions that helped to form the vision:

ECONOMY

Enhance the economy of Buchanan County and the region through:

- *-New opportunities for existing local businesses*
- *-Attracting new businesses, residents, and tourists*
- *-Space for emerging and sustainable industries*
- *-Expanding educational opportunities facilities*
- *-Development of research and development facilities*

HOUSING

Allow for residential diversity of housing types, including:

- *-Single-family of varying types with a variety of lot sizes*
- *-Townhouses and apartments closer to Village Center*
- *-Affordable housing that meets local demands*
- *-Mixed-use housing in the Village Center*
- *-Retirement or rehabilitative living*

DESTINATIONS

Create unique development opportunities as destinations, including:

- *-Mixed-use Village Center with housing, retail/commercial, offices, and residential*
- *-Entertainment and convention venues such as an amphitheater, stage etc.*
- *-Recreational amenities such as biking trails, equestrian facilities, ATV, etc.*
- *-Lake reservoir for aquatic activities such as fishing, boating, swimming, etc.*

SUSTAINABLE

Create a model for a sustainable "green" community by:

- *-Integrating renewable energy and utilities systems*
- *-Attracting renewable energy research and development facilities*
- *-Drawing corporate offices for renewable energy companies*
- *-Preserving and enhancing natural open space*
- *-Developing community gardens and greenhouses for agricultural production*

Aerial View of site from distance

Camping as Economic Driver in Tourism

LAND USE AREAS

WILDLIFE CONSERVATION AREA

The centerpiece of the new Master Plan, the wildlife conservation area is a 780-acre preserve in the center of the property. Home of Buchanan County's very-own elk herd, this marks the location of the first successful reintroduction of this originally native species in the Eastern United States. The herd has become accustomed to the sloping meadows and the wooded valleys, and this has become a major tourist draw. Over the last decade, viewing blinds have been placed, and many evenings the herd is enjoyed by dozens of spectators in the bleacher-style blinds.

The wildlife conservation area is visible from most land use areas, and accessible to all land use areas through the trails and buffer network. The unique amenity is a definite attraction. As the herd continues to grow and prosper, the EDA will need to consider issues with managing the wild animals with people, to minimize potential injury to the wildlife and peoples. One of the easiest Wildlife Conservation Area packages to adapt is Pennsylvania's Elk Smart initiative.

Wild Appalachian Cottontail found on the site
Photo credit: Emily Rice, Bluefield Daily Telegraph

Wild Eastern Elk found at Southern Gap
Photo credit: Emily Rice, Bluefield Daily Telegraph

Remember to be ELK safe!

E: Exclude human food-
Feeding the elk human food is not only illegal, but it trains elk to be comfortable around humans which can lead to dangerous encounters around homes and roads.

L: Lookout for their well-being-
Share the responsibility with the community and visitors of the region by reporting illegal, or disruptive activity related to elk to the Virginia DGIF.

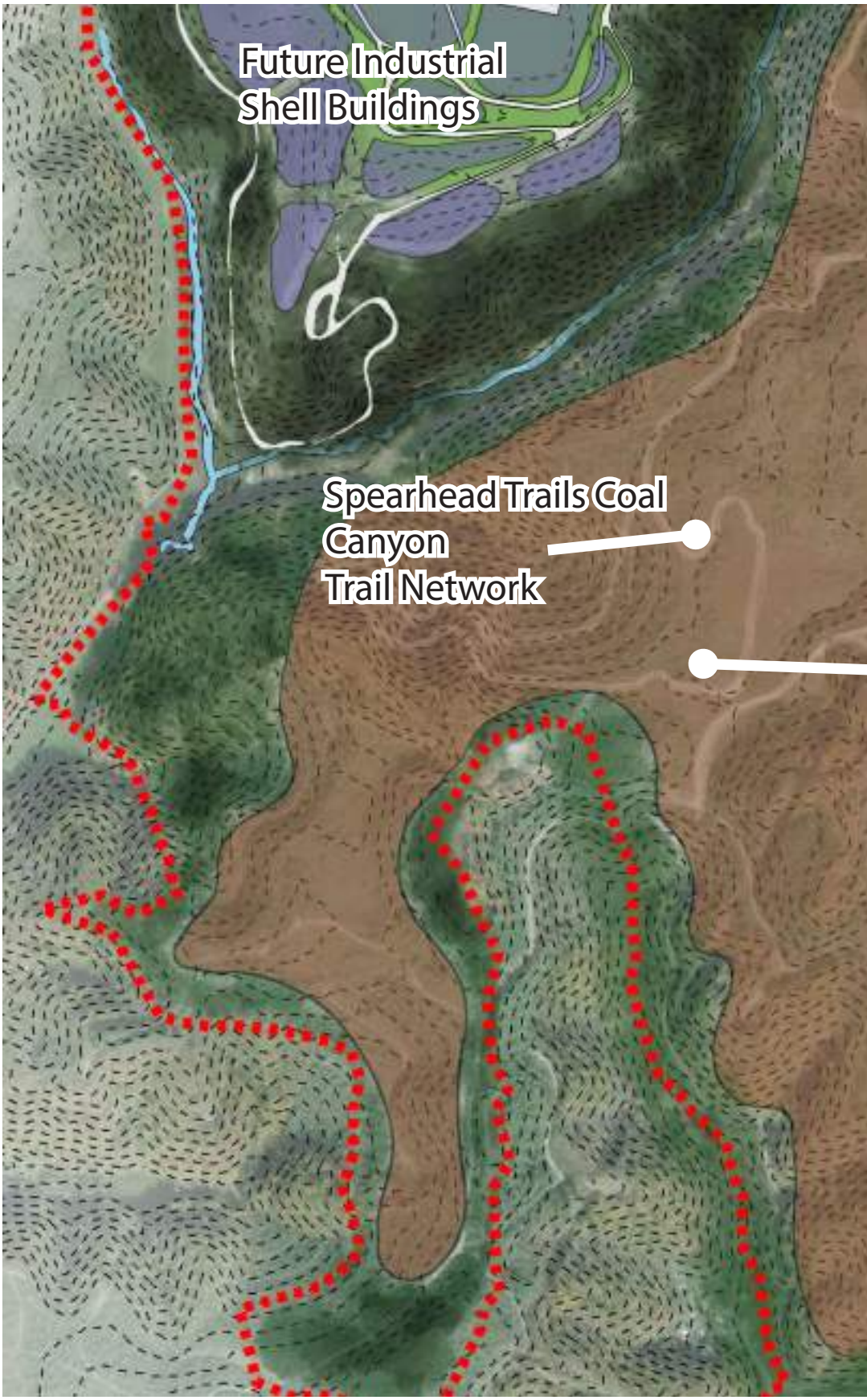
K: Keep your distance-
100 yards or more is recommended between you and the elk. Elk are wild and known to be aggressive when defending their young, therefore they should never be approached, especially in the fall breeding season.

Open field that is center of the Elk Habitat with viewing shelters as seen below

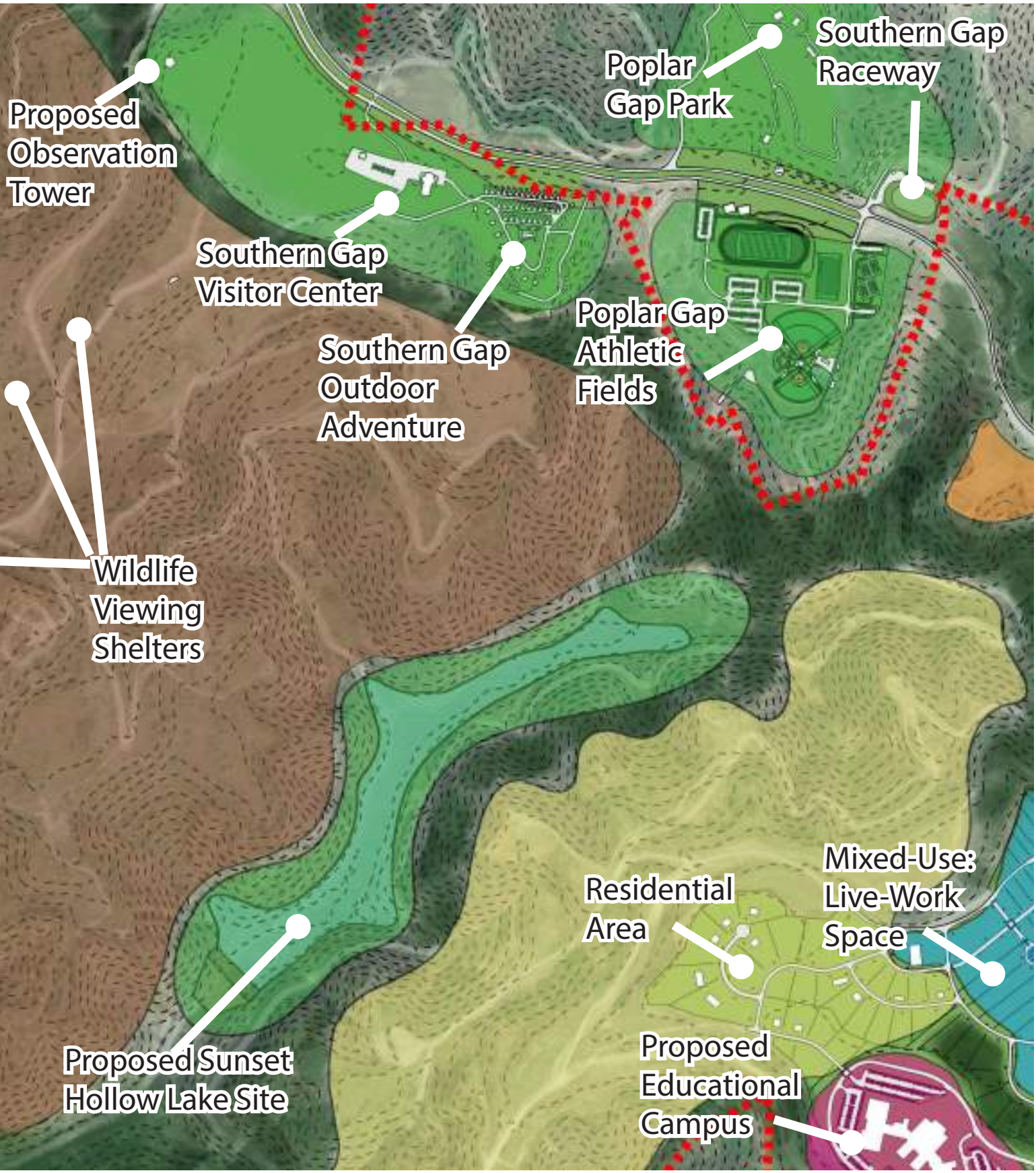
Wildlife Viewing Shelter overlooking the Elk food plots below

LAND USE AREAS

Over the last decade the wildlife conservation area has become the principal tourist draw, a source of pride, and a visible sign of natural regeneration. It is unique to a business park and the mainstay of the Southern Gap brand. All other land uses relate to this landmark central feature.



Wild Eastern Elk at Southern Gap
Photo credit: Emily Rice,
Bluefield Daily Telegraph


Proposed Observation Tower
Poplar Gap Park
Southern Gap Raceway
Southern Gap Visitor Center
Southern Gap Outdoor Adventure
Poplar Gap Athletic Fields
Wildlife Viewing Shelters
Residential Area
Mixed-Use: Live-Work Space
Proposed Sunset Hollow Lake Site
Proposed Educational Campus

LAND USE AREAS

VILLAGE CENTER DEVELOPMENT

Existing Site Development

With infrastructure in place, the heart of the Master Plan will focus on the multi-use Village development of Southern Gap's southeastern-most plateau which serves as the focal point for most of the site's commercial and residential activity. As it is built-out ,the Village Center area will become its own destination for residents and tourists.

At the center of the southern plateau, the Village Center is a 60-acre area of concentrated mixed-use development. The intent of this area is to provide a "downtown" center for Southern Gap, with two to three-story mixed-use buildings hosting retail storefronts with upper-level residences or offices; a steady rhythm of street trees and streetlights along the sidewalks; a coordinated style of benches, lighting, waste receptacles and other furnishings; on-street parallel parking and plenty of pedestrian activity. The anchors of the Village Center are proposed to be a Hotel and Conference Center as well as a venue for entertainment. Retail storefronts on the first floors give way to upper-floor residential apartments, providing ideal live-work spaces for entrepreneurs.

VILLAGE DEVELOPMENT (continued)

This central area will also be easily closed to traffic for street festivals and other special events. Parking will largely be accommodated along the streets, but several additional lots are provided at the rear of Village Center buildings for residents and workers. A small greenway is proposed to wrap around the Village, creating a greenway buffer along edge areas of undevelopable slopes.

Immediately adjacent and to the west of the Village is Southern Gap's principle single-family residential neighborhood including lower-density development that connects to a proposed future lake site. Residents will all travel through the Village on the way to home. The Fire/Rescue Station marks the transition between Village and Residential land use. The off-site valley to the south of the Village Center, and the on-site valley to the north of the Village retain tracts of forested land, providing beautiful views from the mixed-use Village area. Residential development currently to the west features large single-family homes. Future additions may include a variety of house sizes surgically inserted into the forest land to preserve existing trees and minimize the visibility of structures from the Village Center, more on this can be found in the residential section of the Design Guidelines document.

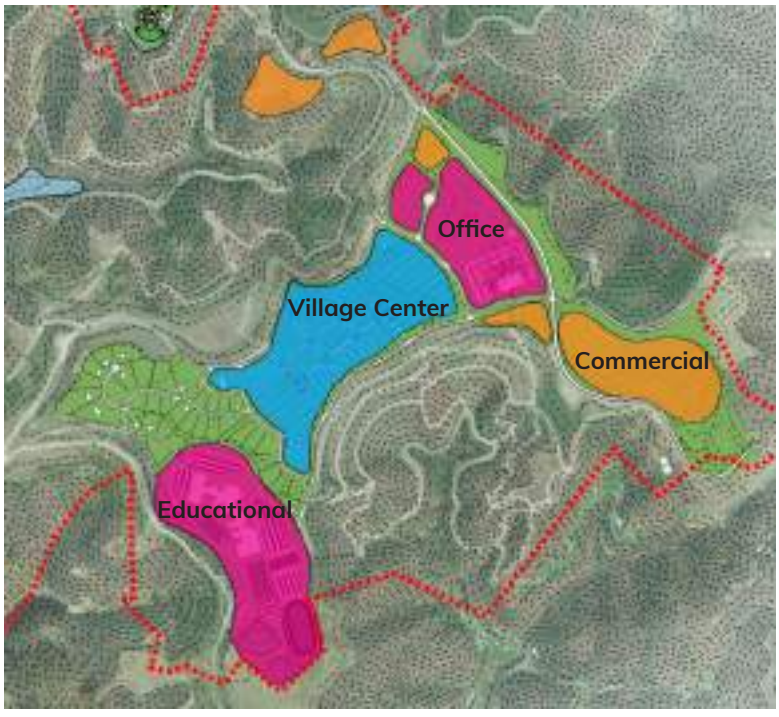
LAND USE AREAS

VILLAGE DEVELOPMENT (continued)

An important feature of Southern Gap is connectivity of its streets and developed areas to the development's network of trails and greenways. Commercial and residential streets will link throughout the site and create connecting loops through residential areas, with only a few instances of cul-de-sacs where topography precludes linking these to other streets. The multi-purpose trails will be dedicated to pedestrians and bicyclists weaving through the community's greenways, protected forest areas in the valleys and community gardens, providing alternative connections between residential areas and the Village Center by traversing through natural areas.

The Village will serve as the entrance into Southern Gap until the Coalfield Expressway is completed. Two roads will enter the mixed-use Village Center from Route 83: the existing Route 604 along the northern edge of the plateau and an extension of Route 718 along the southern edge below the existing facility which will be occupied by the new Virginia Employment Commission. Both roads wind along the upper edge of remediated slopes, flanking the Village Center in the middle of the plateau, before connecting to residential streets at the western end of the plateau and to existing country roads beyond Southern Gap. From the south, the proposed Highway 744 connection to Route 83 will replace Route 718 and be a major gateway into Southern Gap. It will feature a parkway setting, with mountain meadows interspersed with forested areas on both sides. As a primary gateway into Southern Gap, the 718 intersection will feature Southern Gap's primary gateway signage and wayfinding, coordinated with a mix of plantings, low stone wall features and ornamental street lighting. Colors and materials will relate to those used elsewhere on the site, setting the tone for the architectural quality of the development.

In the long-term, the southern gateway entrance will open to the developed portion of the project and eventually connect to the future 460 corridor to Breaks Interstate Park and beyond the region. The southern entrance will also feature opportunities for neighborhood mixed-use retail businesses at the new intersection of the realigned Route 718. The northwest corner of this intersection is proposed to be heavily landscaped to screen the existing entrance facility. The mixed-use village is proposed for the blue area in the map.



Master Plan of Village Center

Aerial View of Village Center

LAND USE AREAS

VILLAGE DEVELOPMENT (continued)

Proposed Educational Campus

A long-term anchor use adjacent to the village may be a consolidated future school or collegiate use. The proposed educational development site is located on the southwestern most part of the Southern Gap property and covers approximately 50 acres. Like the residential use, the campus is a complementary use to the village, and can share in infrastructure, and can feature some shared activities, such as parking or group assembly facilities, as busy times might not correspond. An early siting study indicates that the 50-acre site can support a campus with multi-story buildings of approximately 360,000 square feet, with over 700 parking spaces, two multipurpose fields, an athletic stadium, tennis courts, a baseball field, softball field and track and field facility with cross country trails meandering throughout the entirety of the Southern Gap property. The views surrounding the campus provide 360-degree panoramic views extending for miles from every corner of the property. The campus site rests atop a ridge has drastic forested slopes draping down the steep terrain into the forested off-site valleys below.

Siting study of a typical educational facility in relation to the Village Center

RESIDENTIAL NEIGHBORHOOD DEVELOPMENT

Village Center

The densest development of housing is proposed in the live/work buildings in the Village Center, proposed as upper floors in 2-6 story buildings. Upper story apartments and condominiums will enjoy spectacular balcony views to the valleys. Streets in the Village Center area are narrow while still allowing for on-street parking, with homes situated close to the street and sidewalks to promote walking. Parking lots are shown toward the outside of the Village Center, for night-time use by residents.

RESIDENTIAL NEIGHBORHOOD DEVELOPMENT (continued)

Single Family Homes

The 2021 Master Plan greatly simplified and expanded the area of residential development. Based on the initial success of the single-family houses, many additional traditional lots are anticipated. Taking cues from traditional neighborhood developments (TNDs), townhouses and the smaller lots will be located on shelf-oriented cul-de-sacs and eyebrows where smaller houses can be clustered, to enjoy the distant views. Ideally, some of these will be located near the village, making them walkable to the village and educational campus.

New Fire Station with recent Residential Housing beyond

The largest area of existing residences is just west of the village. With the fire/rescue station serving as a gateway to the district, several dozen homes are completed, or in the process of design and construction. The lots of this area varying in size of roughly ¼-acre, ½-acre, and ¾-acre. Some homes in the residential area will be ideal for first-time homeowners and retirees seeking proximity to Village Center amenities, while others are sized for expanding families and business leaders. a high-quality neighborhood fabric, with consistent setbacks, well-designed and maintained homes and attractive tree-lined streets, will appeal to buyers beyond this market.

As discussed in the guidelines, homes should feature front porches where residents can sit and speak to their neighbors as they walk by. Beyond this neighborhood, ½-acre and ¾-acre lots will be distributed on winding residential streets, with greenspace woven between them. Throughout the development phasing of residential areas, housing will have proximity to nearby community gardens where residents can share resources such as composting and irrigation facilities and grow food for their own tables or for sale locally. Large portions of the residential area still retain large trees and some forest land, and these should be preserved to maintain the value of these properties. Throughout the neighborhood, trails for biking, walking, and horseback riding will connect to the greenways and preserved forest areas throughout the property.

LAND USE AREAS

RESIDENTIAL NEIGHBORHOOD DEVELOPMENT (continued)

Other Residential Areas

Other residential areas not immediately adjacent to the Village are proposed to be developed near the lake located on the southern portion of the property. These residential units will feature wildlife and lake views and privacy along densely forested areas accompanied by large tracts of conservation land featuring the reintroduced elk population. This area would also be easily accessible to the proposed lake via trails. These residential "pockets" will have connecting "eyebrow" loops, with the shoreline reserved for smaller residences, to maximize this shared amenity space.

"Eyebrow" cluster housing taking with surrounding scenic views

Example cluster housing surrounded by central shared-amenity space on a rural Appalachian hilltop

Cluster townhouses around the proposed Sunset Hollow Lake

Cluster townhouses around a central common area

LAND USE AREAS

Recently built homes at Southern Gap based on the 2007 Master Plan and Design Guidelines implementation

Recently built homes at Southern Gap based on the 2007 Master Plan and Design Guidelines implementation

LAND USE AREAS

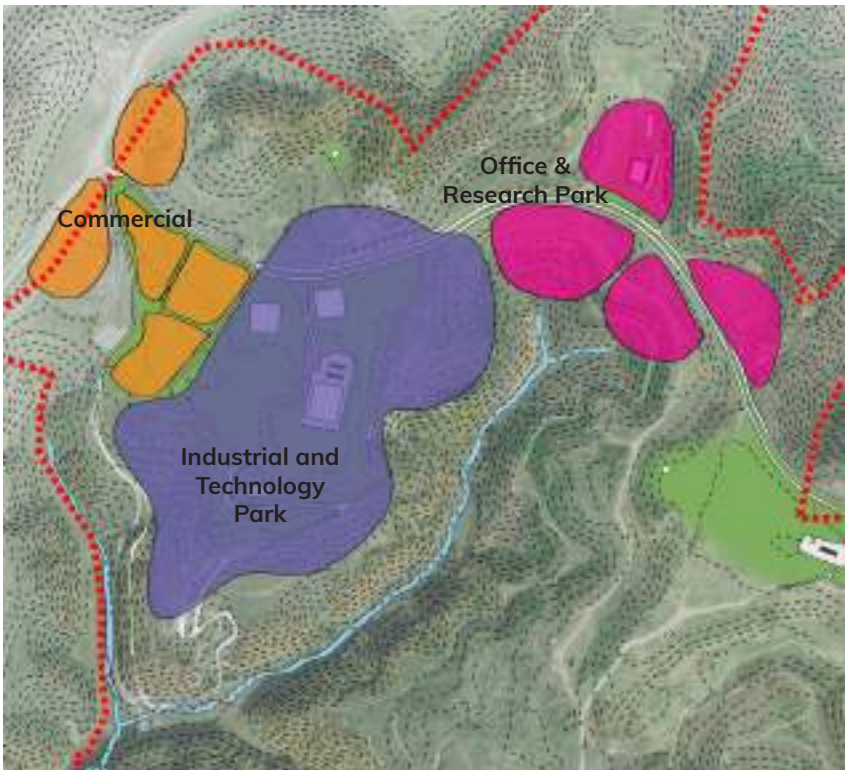
TECHNOLOGY PARK DEVELOPMENT

Industrial Shells/Plats

The northwestern most portion of Southern Gap features a 280-acre development site dedicated to more intensive manufacturing and training uses directly adjacent to the proposed dual lane Route 744 and immediately next to the future 460 corridor. This area may also contain the County maintenance facility, county bus maintenance, construction equipment as well as storage yards, intensive service facilities for passenger or commercial vehicles, manufacturing facilities, etc. This dedicated industrial area is ideal for these types of uses because it is flat, and somewhat isolated from the other developed portions of Southern Gap that do not desire or require proximity to these types of uses.

In total, this area has been divided into eight large parcels of varying sizes depending on future occupants' requirements. Each of the large parcels may be subdivided again. This flexible system allows the EDA to gradually develop sites to fit needs of companies. As many as 24 lots are illustrated as an example. Varying roads will be connected via a single road within this industrial area. Of the 280-acre site, the developed parcels graded for future industrial shells total approximately 180 acres and their subdivided lots vary in sizes. The smallest site totals 2 acres and this site could be a flex site for adjacent parcels, if needed. Parcels can range from up to 30 acres in size. This portion of the site can be seen in the purple area in the map below. In addition, the Industrial Research and Technology Park is composed of commerical, office, and research land use areas.

Construction in Progress on Industrial Facility at Southern Gap



Flexible Lotting Pattern showing 24 Small Lots

Flexible Lotting Pattern showing 8 Large Lots

TECHNOLOGY PARK DEVELOPMENT (continued)

Transportation and Logistics Center

Innovation drives economic growth; research and development (R&D) activities fuel it by allowing scientists and researchers to develop new knowledge, techniques, and technologies. As technology is created and evolves, opportunities such as the new Transportation and Logistics Center can produce a coherent relationship between new jobs and new education opportunities for the regional and local economy to prosper. New development such as this can be the anchor to attract further industrial, commercial, and educational assets for Southwest Virginia.

The Research Park Campus is a proposed site feature that can be located slightly east of the Industrial Park along future Route 744 and current Route 718. With facilities lining the available flat terrain, the research park will be dedicated to studying various technologies at Southern Gap, likely in partnership with various universities or state and federal agencies. The park's buildings will themselves be visible testaments to green technology and architecture, with two prominent buildings forming a flanking entry road and other buildings stretching along the Highway 744 road front. Shaded parking for these facilities will be located at the rear of the buildings.

Recently Constructed Transportation and Logistics Center

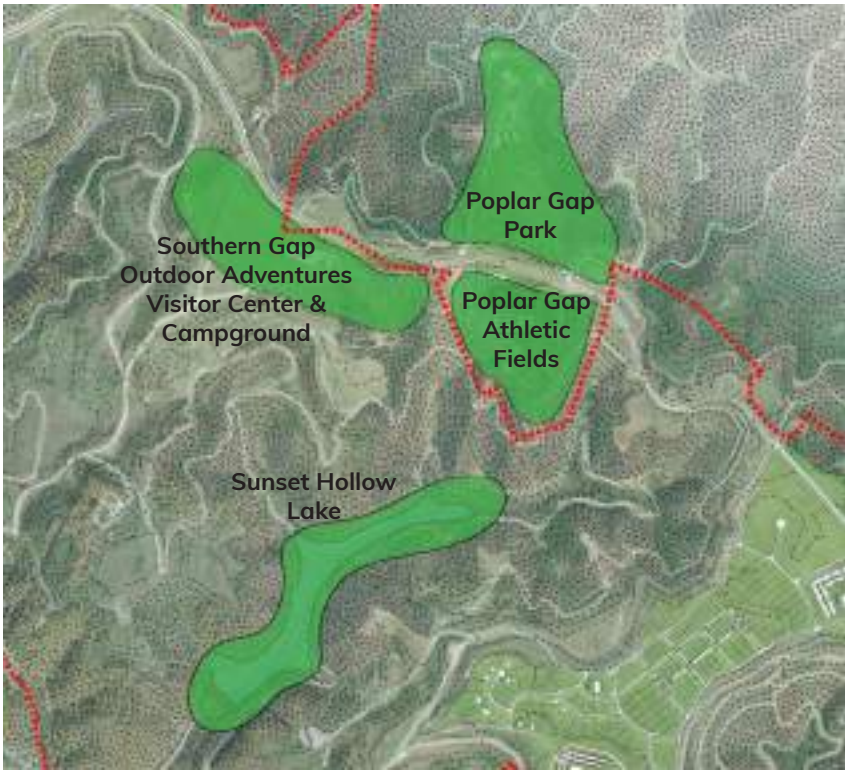
Bus Maintenance Facility

Directly adjacent to the Transportation and Logistics Center and also included in the Research Park is Buchanan County's Bus Maintenance Facility which will serve as the location for local mechanics and trade students to perform mechanical work to the County's fleet of school buses. The facility was constructed in 2019 and is now fully operational. This facility also serves as a unique anchor for further mechanical and engineering related development to provide opportunities for the expanded region. This building also has additional space for local officials and County government personnel to use as offices and to hold meetings as it provides excellent internet connection.

PARKS & RECREATION

Poplar Gap Park

Since 2000, Poplar Gap Park has been a major recreational amenity for Grundy and surrounding Buchanan County. The park includes various recreational fields on the lower level accompanied by a small racetrack, while the elevated portion of the park includes a recreational building, equestrian amenities, playground, and small amphitheater where the Folklife Festival is held each year as part of this region's direct ties to the Crooked Road and bluegrass music. This part of the park will include additional amenities and has the most impressive views within the Southern Gap property. An overlook tower is proposed to be developed somewhere immediately surrounding the park site. The core parks area is shown in green in the map below.



Existing Signage at Poplar Gap Park Athletic Fields

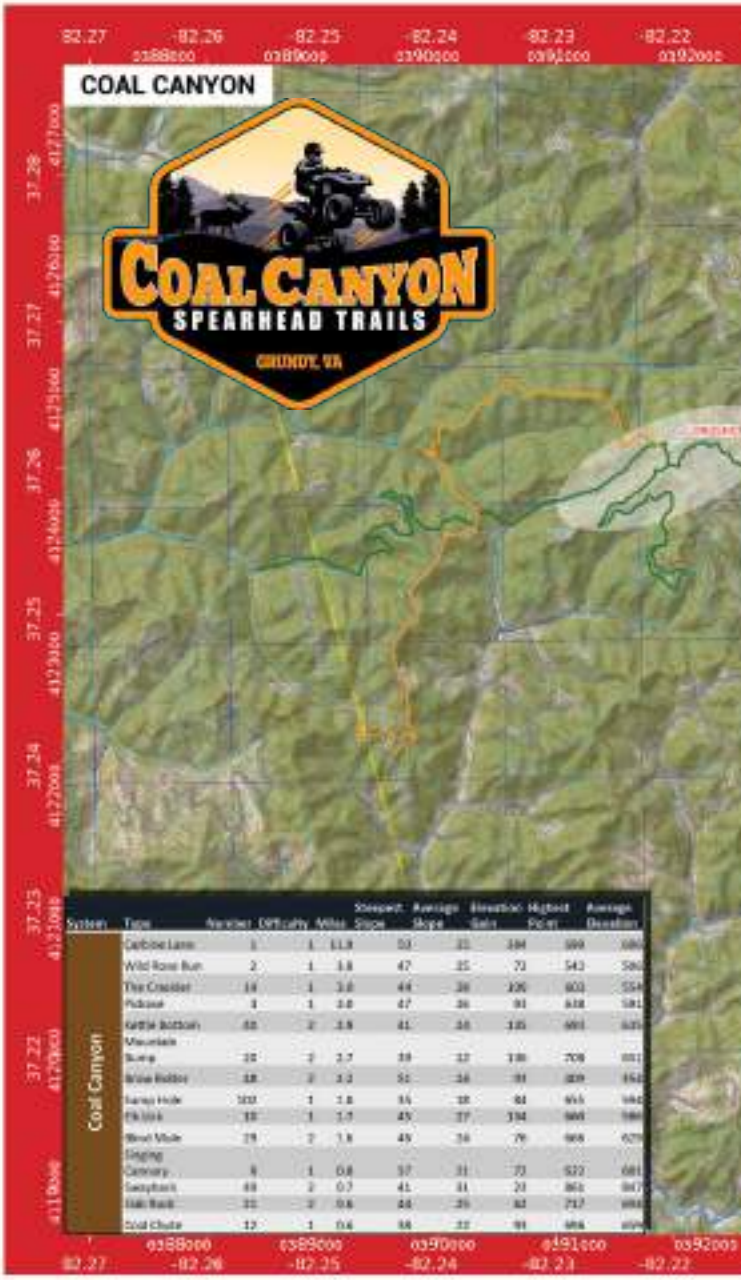
SPEARHEAD - COAL CANYON

PARKS & RECREATION (continued)

Spearhead Trails

Over two decades of sustained effort, much of it by volunteers, Spearhead Trails has built hundreds of miles of ATV, UTV and MX interconnected trail networks of interconnected footpaths, bike paths and multi-purpose trails integrated with major destinations in the Southwest Virginia region. This network is primarily on the surface mining sites of Southern Gap and is interlaced with a wider network of trails primarily on private land giving right-of-way.

The system of Spearhead Trails located on the Southern Gap property is called the Coal Canyon system and spans over 70 miles with over 60 individual trails within the network. The highest point is at approximately 2,800 feet or 860 meters. The average slope is approximately 25 degrees or 45%, while the steepest slope is almost double that at 51 degrees or 125% slope.



Continued effort should be made to improve, connect, and expand the existing trail system to achieve these goals. Criteria for choosing to improve an existing trail or create a new one includes safety, access to trails, and demand, as well as economic, scenic, cultural, and historical value. All proposed new development should consider incorporation of existing formal and informal trails and should consult the 2018 Spearhead Trails Design Package, which shows trail Design Guidelines that correspond with the revised Southern Gap guidelines. Utility corridors, abandoned roads, and public lands should be considered for inclusion of trails. As the Southern Gap Master Plan is built-out, there will be a need to relocate some of the Spearhead trails. Whenever there is potential for private property to be incorporated into the trails, the work will continue in conjunction with landowners to ensure there is agreement about how and where land will be used for the trails..


Grundy
BY THE NUMBERS
Trails
63
Miles
66
Average Slope
25
Steepest Slope
61
Highest Point
890
Legend
Easy
Medium
Hard
Very Difficult
MX (Motocross)
ATV Permitted
Park
Overlook
Trailhead
ATV Permit
Campground
Dining
Wildlife Observation
Art/Music
Hotel
Mercator Projection
WGS84
UTM Zone 17S
Rkm
mi

LAND USE AREAS

PARKS & RECREATION (continued)

Southern Gap Visitor Center

Southern Gap Visitor Center offers a breathtaking view of the site from all angles atop a ridge overlooking the challenging topography below. It is a 7,500 square foot building that was built in 2019 and has hosted numerous events such as weddings, receptions, anniversary parties, baby showers, reunions, corporate events, retreats, or other gatherings. It features a 4,500 square foot banquet room with seating for approximately 300. It also showcasing a grand fireplace which greets visitors upon entering the facility. The space opens out to a 2,000 square foot observation deck that provides scenic, panoramic views of the Southwest Virginia mountains. It also features a 400 square foot conference space suitable for small gatherings that is also equipped with a counter and sink for catering opportunities. The center has access via the main road along the various Spearhead Trails System and acts as the headquarters and primary off-road permit purchase location for the Coal Canyon Trail Network. It is also located directly next to the Outdoor Adventures Campground making it an ideal destination for visitors to the region.

Southern Gap Visitor Center

Visitor Center packed with outdoors enthusiasts, residents, and visitors.
Photo credit: Emily Rice, Bluefield Daily Telegraph

PARKS & RECREATION (continued)

Outdoor Adventures Campground

The Outdoor Adventures Campground contains approximately 20 pull-through camper and RV parking spots with hookups as well as 6 cabins that hold approximately 6 people each. In addition, they also have various primitive tent camping locations around the site surrounded by a central facility, including showers, bathrooms, and other guest amenities. In the near future, the facility plans to add 13 more pull through sites and over 20 new cabins of various sizes. Their existing cabins all have bunk beds and loft styles to maximize space and provide a level of comfort to visitors. This incredible resource is an asset to Southern Gap and residents of the region who seek adventure and glorious, panoramic views of the Appalachian Mountains.

Southern Gap Outdoor Adventures Rental Cabin

Southern Gap Outdoor Adventures Campground filled with visitors and residents at a local festival event

Future Sunset Holler Amphitheater

Southern Gap is an optimal location to site a commercial-grade amphitheater, given its natural scenic vistas and available acreage for additional development. Sunset Holler was formed at the request of the Buchanan County IDA and the project is managed by Sunset Holler Inc. formed for the purpose of developing and overseeing operations of this proposed 4,000-seat amphitheater at Southern Gap. The amphitheater will host live music performances, film screenings, speaking engagements, weddings, sports, and events. The amphitheater is in the beginning phases of development, which provides the opportunity for public engagement and outreach support as well as providing time for new investments.

LAND USE AREAS

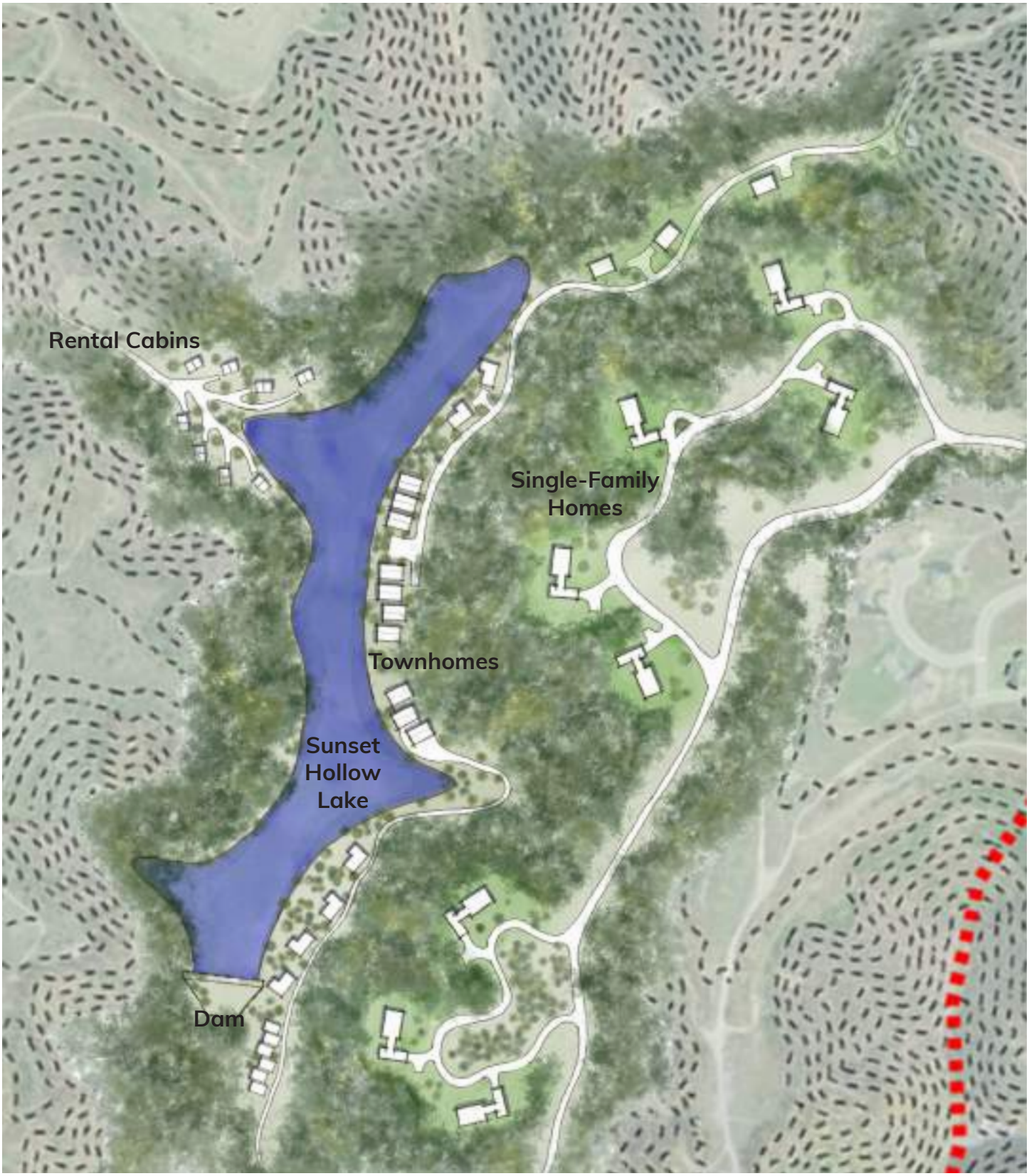
PARKS & RECREATION (continued)

Future Sunset Hollow Lake

Sunset Hollow Lake will be a 27-acre reservoir that will be created by the construction of dam on Russell Prater Creek. The lake will serve both citizens recreation needs as well as wildlife as a water source. It will also provide the ability for local residents and visitors to use the lake for recreational and residential purposes, short-term or long-term. The eastern side of the lake will be home to a series of townhomes and small single-family homes while the northwest side will allow for short-term rental options by renting small cabins just below the existing Outdoor Adventures Campground and Southern Gap Visitor Center.

While this lake will be limited in size and ability for expansion will become an incredible asset to the Southern Gap property as well as those living or visiting this beautiful region. Lastly, the lake will have a maximum depth of approximately 200 feet, an average depth of approximately 80 feet with a surface area of 1.2 million square feet, therefore holds more than 780 million gallons will be held in this proposed reservoir to accompany outdoor recreation goals and supply water to those living and working at Southern Gap.

Typical lake recreation area with boat rental, fishing pier, and picnic areas


Rental Cabins
Single-Family Homes
Townhomes
Sunset Hollow Lake
Dam

LAND USE AREAS

PARKS & RECREATION (continued)

Hiking Trails and Buffer Network, Hosting Scenic Vistas

Shared green space/recreational areas are essential to improving quality of life. Green spaces are typically comprised of vegetation and associated with natural elements. They can provide environmental benefits by offsetting greenhouse gas emissions and decreasing storm water impacts. They also provide direct health benefits by providing spaces for physical activity and social inter-action. Shared green space opportunities utilizing forests and meadows relates directly to the cultural and scenic landscape of Buchanan County.

In addition, trails offer the ability to access these areas by utilizing pedestrian and bike-friendly trails that can provide a package of benefits to a community – including benefits to public health, economics, transportation, and community identity. They create health recreational opportunities by providing people of all ages with low-cost places to walk, job, hike, or bike. Trails help people of all ages incorporate exercise into their daily routines which can improve overall public health and wellness. Trails often double as transportation corridors that link community amenities. They also help to preserve essential natural landscapes and offer opportunities for protecting plant and animal species, while also engaging the public with this vast biodiversity.

Typical Proposed Overlook Tower

Wild Eastern Elk found at Southern Gap
Photo credit: Emily Rice, Bluefield Daily Telegraph

Tremendous 360 degree views of the surrounding mountain landscape showcasing the interconnected all-purpose trails

Cross section of typical trail

Scenic, paved greenway with ADA accessibility

LAND USE AREAS

The map to the right shows the trail and buffer network area in dark green and shows the core wildlife conservation area in brown. with potential locations for proposed observation towers. The white lines show existing trails.


Potential Overlook
Potential Overlook
Potential Overlook
Scenic Views & Buffer Trails

SUSTAINABILITY

Chapter 4

ENVIRONMENTAL DESIGN MEASURES

GREEN BUILDING TRENDS

The 2007 Southern Gap Master Plan focused extensively on voluntary energy programs, both for site-scale generation and for individual generation and storage. The full detail is available in the 2007 master plan. In the 2021 master plan update, we have provided a brief overview and update of the voluntary energy programs.

Individual Project Building Techniques

There are many approaches and techniques which are utilized across the nation and globe for achieving sustainable designs. Sustainable building systems utilize highly efficient materials and products that enhance energy performance by reducing the amount of energy required to operate a facility or building, reducing operational costs, and reducing the impact to the environment.

- When designing buildings, set goals for energy performance at the beginning of the design process. Adopt an integrated design approach, and educate the design team on project goals, costs, and benefits.
- Perform energy analysis of design concepts and test to make sure they meet the goals established at the beginning of the project.
- Appropriately size mechanical systems based on anticipated performance and loads. Prepare energy performance specifications for construction documents (CDs). Track, measure and verify energy usage over time.
- All building appliances, electronics, lighting, and materials should consider Energy Star ratings at a minimum, where applicable.
- Use recycled or local materials, which do not require much by way of transportation. Builders might choose wood from local forests, certified for sustainable practices.

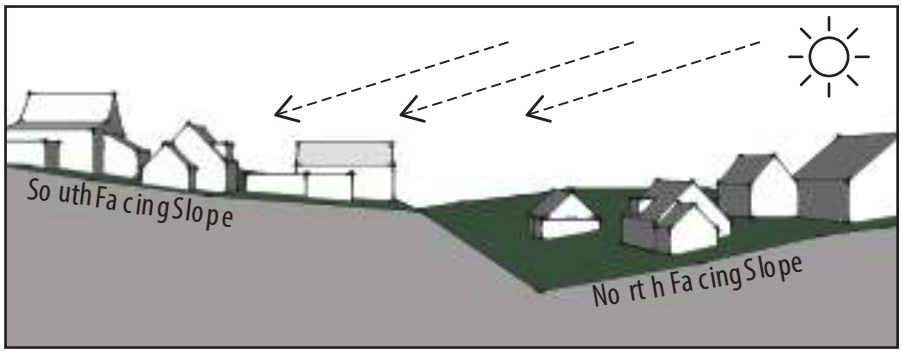
Builders and homeowners across the country are becoming increasingly interested in green building as a sustainable building practice. A green home is one that has been built using environmentally sensitive construction techniques, or a house that has had green features added to it. Green homes use less energy, water, and natural resources, and generate less waste than their non-green counterparts. The green building movement is synonymous with sustainable building practices, which advocate environmentally responsible construction as both a philosophy and a set of real-life applications. For example, sustainable recommendations might include swapping out light bulbs for compact fluorescents, or striving for net-zero energy consumption by investing in renewable energy sources like wind and solar power. A net-zero energy building is a facility that produces as much energy as it consumes on an annual basis. This simply means that the building uses no more energy than it can generate itself as the goal is for them to be self-sufficient, automatic machines by generating the energy they consume. While a traditional building is designed and constructed and plugged into the grid to pull as much power as it wants, a net zero building can be innovatively designed to not exceed the energy limit that is estimated based on the operations and usage the building is designed for. While making a home or building net-zero might have a slightly higher upfront cost, the long-term cost is going to be lower as the building will be producing its own power.

GREEN BUILDING TRENDS (continued)

When designing for sustainable facilities, the following should be considered in order to achieve the sustainable Vision for Southern Gap:

Building Siting & Orientation

- Consider siting buildings so that their solar panels receive unobstructed solar radiation between the hours of 9:00 a.m. to 5 p.m.
- Orient buildings on the site so that they allow for an east-west configuration. If this is not possible, manipulate the building shape so that it increases the potential for natural daylighting and solar load control.
- Highly occupied spaces, internal to the buildings, should be located on the south and north sides and organized for optimal energy zone efficiency and daylighting.
- Site buildings so that they minimize impacts onto neighboring buildings and limit potential threats to future solar accessibility.



Building Massing

- Smaller buildings should utilize compact building massing and design in the form of a cube, in order to minimize conductive heat transfer.
- Larger facilities should utilize a building massing and design in the form of a rectangle that allows for most of the floor area to be located close to the perimeter of the building. This will optimize daylighting and natural ventilation.
- Utilize three-dimensional (3D) computer simulations and software early in the design process to calculate and measure the trade-offs between building façade or solar panel exposure and daylighting benefits.

True sustainability cannot be achieved at one time or in isolated sites and buildings within a larger project such as Southern Gap. It is a long-term approach and practice that begins during the planning stages and is carried throughout the entire lifespan of a project, from construction through occupancy. Sustainability calls for systems thinking, systems integration at varying scales, and acknowledgment of the connections between economic, environmental, and social responsibility. Systems thinking and integration is an important concept that presents a key opportunity since it is previously undeveloped and renewable energy opportunities are abundant.

ENVIRONMENTAL DESIGN MEASURES

GREEN BUILDING TRENDS (continued)

Systems Building Techniques

Not only is development at Southern Gap presented with an opportunity to create sustainable and "green" buildings from the start, but this project is presented with an even greater opportunity to create and capture larger-scale renewable energies. Planning for and integrating larger-scale renewable energy technologies into the overall Southern Gap development plan while linking these with individual sustainable buildings and sites will create the most optimal sustainable design.

Planning for sustainability and renewable energies is not only about reducing energy demands and producing cleaner energy, but it also includes addressing how energy moves from production sources to the end users and supplementing the traditional electrical grid with clean energy production closer to the end users. Today, energy movement and delivery are primarily accomplished through high-voltage transmission lines that carry large amounts of electricity over long distances from centralized power plants to end users. This system is less sustainable in the long-term, and the future of energy production and movement is changing to more sustainable approaches that include highly efficient buildings and utilization of renewable energy at the point of consumption, in or closer to buildings. The future for new and additional energy production is moving towards energy production that is closer to the end users. Examples of this are photo-voltaic shingles or small roof-mounted wind turbines which convert solar radiation and wind energy into electricity for usage in the building itself, while also pumping excess electricity back into the electrical grid.

Many renewable energies are abundant at Southern Gap, including wind, solar and geothermal opportunities. Additionally, Compressed Natural Gas (CNG) is being collected on the site and can be utilized as an alternative to gasoline, with potential to fuel all County vehicles if they are adapted for CNG use. These renewable and clean energies should be utilized and generated within Southern Gap to the fullest extent possible and integrated at varying scales throughout the property. Planning for and implementation of large-scale renewable energy collection and distribution systems within the entire Southern Gap property while integrating these systems with the smaller scale systems mentioned above will create the most sustainable and efficient system possible. It may be possible to capture and produce enough energy from these renewable systems for the entire project once completely built out, without relying on the existing electrical grid. Southern Gap could generate enough energy so that it can supplement the electrical grid to the surrounding region. Over time, investments in renewable energy systems with energy management will pay for themselves, especially as technological advances take place over the coming years. Currently renewable energy technology is in its infancy, but it is becoming cost-effective.

RENEWABLE ENERGY ALTERNATIVES

Wind

Many opportunities for wind remain untapped in the Central Appalachian region but as new renewable energy sources continue to become more widely available and prove to be viable investments, this could be a resource further explored in the remote elevated development areas of Southwest Virginia such as Southern Gap. Wind power development is invariably considered in the broader context of all energy sources, and is evaluated against other options' generation capacity, pricing, potential revenue, cost effectiveness, and efficiency. There are some general concepts surrounding wind energy that are worth consideration:

- Southern Gap lands that already have experienced habitat loss due to abandoned mine land areas, are stated to be the most viable option in central Appalachia for wind turbine development
- Provide funding for wind energy test sites, as contributing funding to this endeavor would enable the development of reliable on-site wind energy assessment tools, enabling developers to assess their meteorological resource independently
- Expand loan programs, which have been started in the state and can be expanded
- Establish marketing efforts with Virginia wind developers. Wind development can provide substantial tax revenues for counties, for established utility-scale projects

MIcro Wind Turbines along scenic mountain greenway

ENVIRONMENTAL DESIGN MEASURES

RENEWABLE ENERGY ALTERNATIVES (continued)

Solar

Like the wind energy, utility scale solar farms are a potential use for the highly-exposed slopes of Southern Gap. They can also provide substantial tax revenues for counties, for established utility-scale projects.

Hydroelectric

Hydroelectric power comes from water in motion as gravity pushes enormous amounts of water through energy turbines that are spun by the flow rate. In the hydrologic cycle, atmospheric water reaches the land surface as precipitation. Some of this water evaporates, but much of it either percolates into the soil or becomes surface runoff. Water from rain and melting snow eventually reach the lake reservoir where evaporation is constantly occurring.

A dam is proposed to be constructed in the center of the Southern Gap property at as shown on the Master Plan map. The proposed 200-foot-wide dam will allow for greater hydrological control and even provide the ability to tap into another sustainable resource with hydroelectric turbines engineered within the dam to harness power and distribute to facilities surrounding the lake. It is estimated that hundreds of thousands of gallons of water will be contained by the dam.

Industrial Scale Greenhouses

Industrial scale greenhouses do not directly create energy in the form of electricity, however they are an important fuel source for the communty and recommended to be considered moving forward. Greenhouses and nurseries are very similar with their only difference being climate control. A greenhouse allows for certain conditions to be replicated for optimal production of certain crops, while nurseries are typically exposed to the outdoor elements. Both can be implemented at Southern Gap to serve different purposes based on plants and seasonality. In a temperate climate such as Central Appalachia, there are many suitable crops that could grow well in either circumstance as the weather is often fair with seasonal weather patterns. There are countless herbs and plants that can easily be grown in Central Appalachia at Southern Gap and consumed locally or sold throughout the region at a local Farmers Market for nutritional consumption or non-consumption purposes. There are numerous new-age cash-crops which could be further explored for cultivation and wholesale. While some of the soil found on the former surface mine site might not be suitable for plant growth, much of the soil is and can be used in indoor and outdoor industrial scale greenhouses and nursery complexes.

Climate-controlled greenhouse full of various native plant species

IMPLEMENTATION

Chapter 5

IMPLEMENTATION

THE 2021 MASTER PLAN

A Planned Developing Community

Southern Gap is a planned community that is a unique development for Virginia. It has the ability to be a model for sustainable development where residents can live, work, learn and play. The development will focus on providing various types of high-quality, yet affordable housing opportunities and integrating sup-porting commercial activities to create a true community set amidst Virginia's restored mountaintop elk habitat. Using carefully considered Design Guidelines and this master plan to guide the community's physi-cal growth, Southern Gap's development will continue to put forth certain values. The community will take advantage of the area's natural amenities, establishing an outdoor-oriented lifestyle community by siting buildings and residences to take advantage of mountain views, by developing trail connections and pedes-trian routes that encourage people to move about by foot, bike, ATV, or horseback for recreational and functional needs, and by encouraging the development of other outdoor activities.

Southern Gap will also be visibly dedicated to reducing the impact of the community's activities on the lo-cal and regional environment. One goal is to employ creativity and cutting-edge innovation to gracefully incorporate green technologies into buildings and the landscape, both at the level of individual properties and at a larger community-wide scale. A key element of the phasing will be further developing the Village Center as well as a Technology and Research park dedicated to the exploration of new technologies on the site for application in other areas of the region, state, and nation. In addition, further development of "greenspace" is recommended including interconnected parks, preserve areas, nature trails and community gardens throughout Southern Gap, drawing residents and workers to interact with the site's natural amenities.

Key Opportunities

- Southern Gap as a regional tourism destination
- Outdoor recreation and scenic wildlife viewing are increasing in popularity and could be appealing for both existing residents and tourists
- Economic revitalization and numerous socioeconomic benefits of new development
- Sustainable measures including renewable energy to power homes and businesses in the community are an emerging technological opportunity
- New educational campus could draw new residents and attract new development
- 460 expansion to Kentucky and Breaks Interstate Park will benefit regional access
- Funding from Appalachian Regional Commission, DOT, EDA, and other grant agencies
- Master Plan and Design Guidelines will help provide a roadmap for new development

Key Challenges

- New development will require private investment from new corporations
- Population in the region has gradually declined, therefore an influx of new residents and construction of new homes will require creative planning
- Remoteness and rural character of Southern Gap provides a level of privacy; however, it also makes the region more difficult to access

PLANNING TOOLS

While the Southern Gap Master Plan document and its images represent the completion of a critical step toward achieving a viable Southern Gap community, they are only a step of a long-term plan to develop this model community. The Master Plan updates a vision for the community, but implementation will re-quire the steady, concerted work of a range of individuals, institutions and agencies and the employment of a range of tools to move the process forward.

Design Guidelines

Currently, there are a number of planning tools at the disposal of the IDA, the most significant of which is the 2021 Southern Gap Design Guidelines document. The Design Guidelines carefully describe the vision and intent of Southern Gap, making recommendations to property owners and developers on ways to meet this intent and outlining various requirements for property development. The specified requirements and design review process are tools for the IDA to ensure that property development and construction continue to meet the established minimum standards for Southern Gap.

CC&Rs

In addition to the Design Guidelines, the IDA developed an enforceable set of restrictive covenants for Southern Gap. Restrictive covenants are regulations that prohibit certain uses or activities on Southern Gap properties and will be filed with the property deed at the county courthouse and transfer with the land to future property owners. The restrictive covenants will need to be updated to better correspond to the 2021 Design Guidelines.

Governance

As Southern Gap reaches a critical mass of residents and commercial establishments, the IDA and the De-sign Assistance Board will continue to balance the need to protect community integrity and individual property values with the flexibility needed to profitably develop Southern Gap.

As the next priority area, the Village Center, comes to life, the IDA may want to consider encouraging the formation of neighborhood groups and merchants associations. These groups would consist of local resi-dents and businesspeople working together to improve their areas within Southern Gap and promoting their common interests within the larger development. These can also work with the IDA and Design Assis-tance Board to help shape the growth of Southern Gap and address issues of concern within the develop-ment. Within the Village Center for instance, a merchant's association can help develop marketing materi-als for the village, organize street festivals and other events to draw people into the village and raise fund-ing for additional landscaping, furnishings, or beautification efforts. The initial work in purchasing the Southern Gap land and preparing a development Master Plan has been paid for by grants from public agen-cies (like Virginia Coalfield Economic Development Authority and the Buchanan County Industrial Devel-opment Authority). However, future development of Southern Gap will require both public and private funds to achieve development goals.

IMPLEMENTATION

IMPLEMENTATION OPPORTUNITIES

Next Priorities
With a good deal of the roadway infrastructure in place, a lot of the sewer and water and well along in the planning stages, and the Elk moved-in and multiplying, the next steps in Southern Gap's Master Plan are prioritized as follows:

1. Trails and Buffer Network and Wildlife Conservation District
2. Sunset Holler Amphitheater
3. Educational Campus
4. Diversified Residential Growth
5. Village Center
6. Sunset Hollow Lake
7. Continued Industrial Park Growth
8. Commercial Infill
9. Energy Generation

Each of these priorities is discussed in context below:

Trails and Buffer Network and Wildlife Conservation District
Created specially to buffer intensive land uses and to serve as the green connecting media between all land uses, the Trails and Buffer Network should be surveyed and acknowledged as a special land use category by the IDA Board. Once acknowledged, grant writing can be pursued, to reforest the Buffer Network and to create a series of permanent trails through the district.

Planning Grant for the Buffer District:

https://www.vof.org/2021/03/01/vof-seeks-grant-proposals-for-public-open-space-projects/

Reforestation Matching Planning and Implementation Grants:

http://www.dof.virginia.gov/financing/index.htm

The long-term positioning of the Wildlife Conservation district may take a similar course. By bounding the area and acknowledging the district, grant monies from the sources above, and through specific grant pro-grams in place to assist wildlife management and growth. These can help to fund habitat development, and signage programs:

https://www.fws.gov/wsfrprograms/subpages/grantprograms/SWG/SWG.htm

IMPLEMENTATION OPPORTUNITIES (continued)

Sunset Holler Amphitheater

Currently in the design stage, the Sunset Holler amphitheater will bring thousands of destination visitors to Southern Gap, many times a year. According to their website:

"Sunset Holler, Inc. is an IRC 501 (c)(3) nonprofit organization formed for the purpose of developing and overseeing operations of a 4,000-seat amphitheater at Southern Gap in Buchanan County, Virginia. Sunset Holler was formed at the request of the Buchanan County Industrial Development Authority and the two organizations are working closely to see this project become a reality.

The Southern Gap Amphitheater is slated to be a commercial-grade project, sited at Southern Gap in Buchanan County, Virginia. As conceived, the venue would be constructed to seat 2,000 guests, with a grassy hill behind it that can accommodate an additional 2,000 guests, for a total maximum capacity of 4,000 guests. The amphitheater will host live music performances, film screenings, speaking engagements, weddings, sports, and corporate events.

Overview: The Amphitheater is envisioned to be a commercial-grade venue sited at Southern Gap ("Southern Gap"), an approximately 2,000-acre mountaintop property nestled high in the central Appalachians in Buchanan County, Virginia. Southern Gap offers pano-ramic views of surrounding ridgelines and peaks for miles, a landscape largely unencum-bered by either industrial or urban eyesores. The result is stunning—a truly unique devel-opment opportunity in Southwest Virginia, primed for the right mix of projects and devel-opment talent. (https://www.sunsetholler.com/)"

As positioned, there is needed, there are many grant sources to assist with both the planning and design of this facility, as well as future talent recruitment. A few of these can b found through this bounce page:

https://roundthemountain.org/about/support-organizations/

Educational Campus

The 2007 Master Plan identified the need for a non-business anchor use at Southern Gap. Originally dis-cussed as a government building, through the years the discussion has evolved into more specifically an educational campus. Educational settings can bring the resort-style amenities of the facility to the stu-dents, and the students bring a vitality to the site that is unparalleled. The additional education-oriented users of the site will be instrumental in creating market for the Village Center to grow and prosper.

IMPLEMENTATION OPPORTUNITIES (continued)

Diversified Residential Growth

Excellent quality higher-end residences in place and under design and construction. The time is now to broaden the market and consider several other types of housing. Particularly needed in the Southern Gap region are:

1. High quality but smaller single-family homes (1,500 sf – 3,000 sf Range)
2. Special needs housing, especially for seniors. This can mean smaller cottages especially targeted for young retirees, up to a CCRC.
3. Workforce housing, especially for people who work at Southern Gap. Products may include Village apartments, townhomes, cluster houses.

A specific housing study is recommended, especially to target the housing market and to design in more detail the housing products, including a detailed proforma for their operation. Virginia Housing offers a Community Impact Grant that will fund this specific research:

https://www.vhda.com/BusinessPartners/GovandNon-Profits/CommunityOutreach/Pages/Grant-Program-Areas.aspx

Village Center

With infrastructure in place, the buildings of the Village Center are still in the future. Although a priority for the ultimate success of the plan, the market conditions have not yet proven viable for the buildings to launch. More positive announcements at the workforce and industrial facilities, like Paul's Fan Company and the Virginia Employment Commission make this eventuality closer and closer. The educational campus will also provide positive market force to the beginning of the Village Center construction.

Discussed above in the diversified residential growth chapter, a mixed-use, mixed-income (MUMI) planning study grant from Virginia Housing is the next step recommended to move building development forward in the Village Center.

Sunset Hollow Lake

An opportunity for better stormwater control and management, an opportunity to clean the water, keep it higher in the watershed, a diversifying wildlife benefit, a flood-control device, and a recreation amenity. Plus, it looks beautiful. What is there NOT to like about the Sunset Hollow lake? This amenity will also gen-erate additional land values. Partnerships for micro-generation should be investigated with local and dis-tant power companies, as there is increasing interest from consumers in buying green-generated power, even if it costs more. As plans become more solidified, the recreational amenities can be options to pursue with grant funding, especially if they accommodate people of all ability levels. Also grants to initiate and boost the new habitat:

https://dwr.virginia.gov/virginia-wildlife-grant-program/

IMPLEMENTATION OPPORTUNITIES (continued)

Continued Industrial Park Growth

Now that several facilities have begun construction and remodeling, the IDA is in second gear! Satisfied first-project developers will help economic developers to further the progress. The IDA has successfully gotten the property listed as an Opportunity Zone site. Continued research should study possible inclusion of the site into DHCD's Enterprise Zones as well.

https://www.dhcd.virginia.gov/vez

Assistance with Roads:

https://www.virginiadot.org/business/resources/local_assistance/access_programs/EconomicDevelopmentAccessProgramGuide.pdf

Commercial Infill

Infill development is the process of developing vacant or under-developed parcels within areas that are already largely developed or in the stage of large-scale development such as Southern Gap. As populations fluctuate and the needs of a community transform, vacant land becomes increasingly interesting when planning for the future. Instead of directing development outward, infill development helps replace exist-ing vacant lots and promotes land conservation through the reduction of greenfield development. Success-ful infill development programs often focus on reinvesting in the community by creating more efficient mixes of jobs and housing opportunities.

Commercial Infill is typically associated with dense, mixed-use development that integrates multiple uses (residential, commercial, cultural, etc.) into once central area with shared outdoor spaces. This results in more compact development, allowing more space for conservation. The vibrance of a mix of uses is at-tractive, important to the sense of place, and vital to economic prosperity. The existing Village road infra-structure will provide the necessary pallet for successful commercial infill and provide community charac-ter and identify. Restaurants, shopping, government, and many other dwellings will all be within a short walk. The 2-3 story live-work buildings, proposed to infill the existing plateau, will have the necessary commercial and residential amenities that create a shared, central hearth that is harmonious with the landscape and compliments the natural resources surrounding Southern Gap.

IMPLEMENTATION OPPORTUNITIES (continued)

Energy Generation

The best way to generate energy is to first conserve it, as in, by limiting use and saving what is typically wasted. We can solve the problem by reducing our demand from the energy grid and help solve this energy problem by striving for net-zero energy consumption, all the while generating renewable energy such wind, solar, geothermal, and/or hydro to be shared amongst all.

One of the biggest challenges we will face in our future is the generation of adequate energy for the expo-nentially growing world population. The best solution is to completely shift society's outlook on energy production and consumption. An industry that gave Appalachia its deep-rooted coal culture, even the name of the ATV trails on this site are called "Coal Canyon." This is leading and will continue to lead to the opportunity for new emerging "green" technologies that can transform a community and shape its future prosperity like coal has shaped Southern Gap's past. Without adequate energy generation, many basic life needs cannot be met, therefore, self-sufficient renewable energy supply can be an incredible opportunity for the more rural Appalachian region.

Much of the public funding investment will reinforce the commitment to green energy production and low-impact development and set the design standard for all development in Southern Gap. In particular the proposed construction of an educational campus and amphitheater plus the newly constructed residential homes, Fire/Rescue Station, Visitor Center, Poplar Gap Park, campgrounds, industrial shells, and many more will help set the tone not just for the quality of design expected of other developments within South-ern Gap but also for the innovative use of green technologies in the buildings and on the land. It can also provide opportunities for interpretive displays to educate the public and visitors about green technologies.

https://www.energy.gov/science-innovation/clean-energy

Conclusion

With continued investment in grants-based design and planning, and effort toward maintaining a high standard for development at Southern Gap, the IDA can ensure that Southern Gap's development brings a return on investment much higher than that of a more standard development that merely follows the tradi-tional development trend.