

Burnsville, NC: Streetscape and Trail Conceptual Master Plan
for the Western Loop



Prepared for the North Carolina High Peaks Trail Association

October 2015

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CDAC Team Members (from left): Elizabeth Gilboy, Alexander Jones, Melissa Philen, and Joe Niland. Not Pictured: Lara Browning and Jess VanNoy.

The Community Design Assistance Center (CDAC) is an outreach center in the College of Architecture and Urban Studies at Virginia Tech that assists communities, neighborhood groups and non-profit organizations in improving the natural and built environments. Assistance is provided in the areas of landscape architecture, architecture, planning, and interior design. Working with communities, the conceptual planning and design provides communities with a graphic vision of their project that can then be used for grant applications and fundraising for the next steps toward implementation.

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SOUTHERN GROUP
OF STATE FORESTERS



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Healthy Yancey

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Toe River Arts Council

Yancey County Chamber of Commerce

and

Those who volunteered time for the betterment of their community

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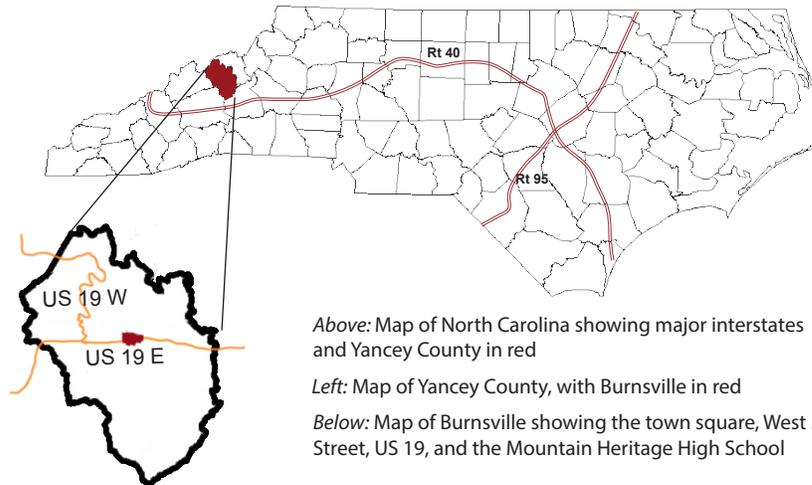
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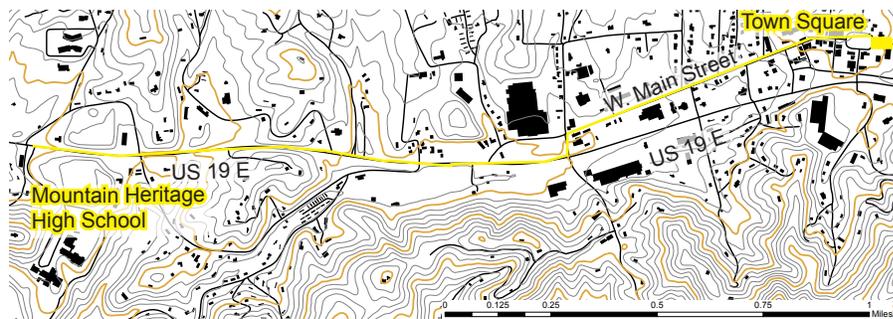
PROJECT DESCRIPTION



Above: Map of North Carolina showing major interstates and Yancey County in red

Left: Map of Yancey County, with Burnsville in red

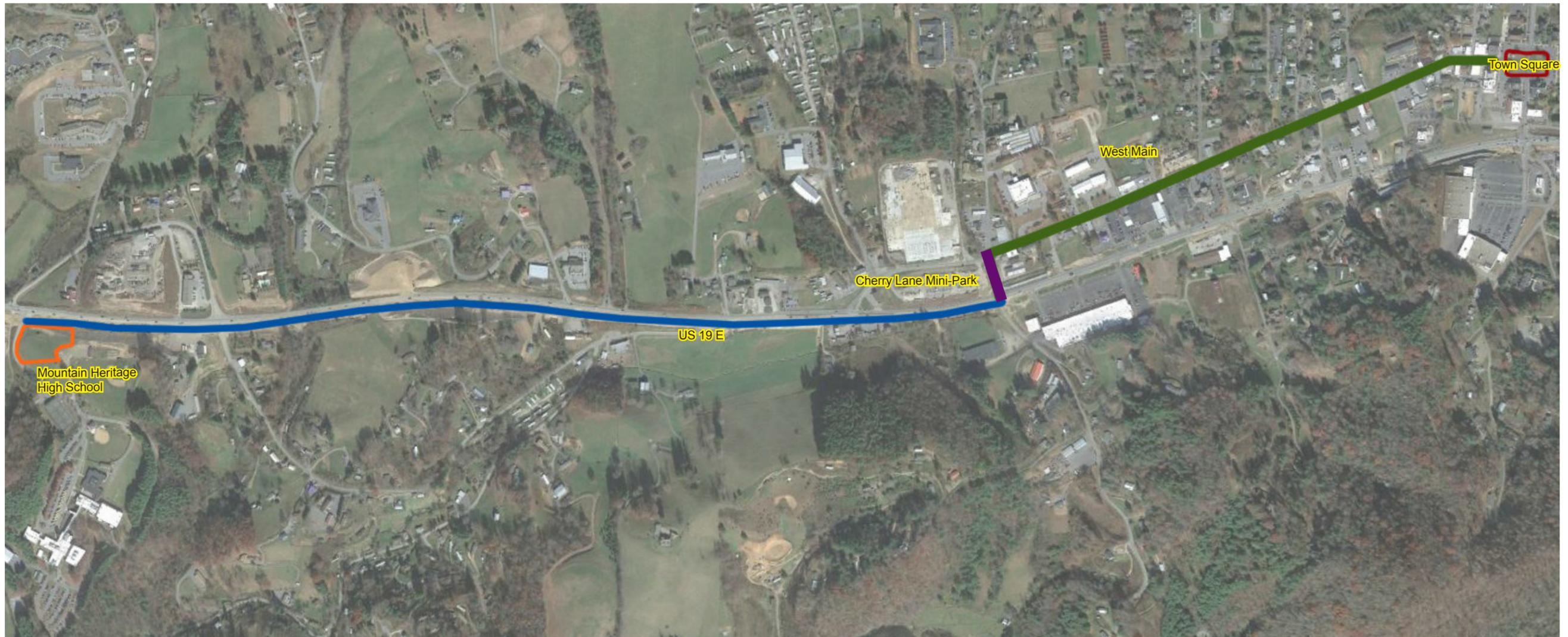
Below: Map of Burnsville showing the town square, West Main Street, US 19, and the Mountain Heritage High School



Burnsville, North Carolina, a lone incorporated town in Yancey County, is nestled at the foothills of the Black Mountain Range in Yancey County. It has 17 named peaks over 6,000 feet in elevation, including the highest mountain in the Eastern United States, Mount Mitchell, at 6,684 feet in elevation. Because of its proximity to the Black Mountain Range and Appalachian Trail, Burnsville has the potential to connect to these outdoor resources and host visitors as a trail town. Providing a trailhead, gateways into the town, and a walkable main street were forefront in this design process.

In conjunction with the North Carolina High Peaks Trail Association, the Community Design Assistance Center (CDAC) developed the Western Loop Trail which traverses Burnsville's Main Street and connects historic downtown Burnsville at the town square to the Mountain Heritage High School's Nature Trail.

This design work includes a gateway design for the entrance to the Mountain Heritage High School, a mini-park for Cherry Lane, a streetscape design for West Main Street, and a trailhead concept at the Burnsville town square.



Locator Map: West Main Street and Western Loop Trail

- Proposed Mountain Heritage High School and Nature Trail Gateway Concept
- North Carolina Department of Transportation US 19 East Highway Improvement Project
- West Main Streetscape Concept
- Cherry Lane Mini-Park
- Town Square Concept

The purpose of the Streetscape and Trail Conceptual Master Plan for the Western Loop is to create a pedestrian and cyclist connection between the Mountain Heritage School Nature Trail and the Burnsville Town Square via US Highway 19 East, Cherry Lane, and West Main Street. The North Carolina Department of Transportation is currently undergoing a highway widening project for US 19 East that will include a pedestrian sidewalk as well as some plantings. The design concepts for the Mountain Heritage High School Gateway, Cherry Lane mini-park, West Main Streetscape, as well as Town Square can be found on pages 10-20.

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DESIGN PROCESS

The design process for the Streetscape and Trail Conceptual Master Plan for the Western Loop began with an initial visit to Burnsville on June 22, 2015. The CDAC team met with area project stakeholders to discuss concerns and desires for the project, toured Burnsville and surrounding areas, and gathered important information about the existing conditions of Burnsville. By gathering this existing conditions information and documenting on-site data, the CDAC team was able to better understand Burnsville and conclude opportunities and constraints about each design area. This process of analysis would later influence design decisions in the conceptual designs.

A one-hour CDAC office charette meeting was held in order to brainstorm design ideas from other student designers at the CDAC. The ideas, opportunities, and themes discussed in the charette meeting were incorporated into the conceptual design work on the following pages.

The concepts shown on the following pages were presented to project stakeholders and residents of Burnsville on August 17, 2015.



Stakeholders meeting with Jake Blood and CDAC members Joe Niland and Melissa Philen



CDAC employees Joe Niland, Jess VanNoy, Carter Gresham, and Shane Gray working on a charette for Burnsville.



CDAC employees gained knowledge by walking around town and listening to what the community visioned and wanted.



Community meeting with Joe Niland and Melissa Philen discussing design concepts

PART I: CONCEPTUAL DESIGNS

**CONCEPTUAL DESIGN:
MOUNTAIN HERITAGE HIGH SCHOOL GATEWAY
DESCRIPTION**

Mountain Heritage High School, located approximately 1 mile west of downtown Burnsville, includes high school-aged students from Burnsville and the surrounding area. Mountain Heritage High School owns 122 acres of land, much of which is forested. The Cane River acts as a border to a portion of the high school property and is an educational asset to the high school and an amenity to high school visitors. Besides students, Mountain Heritage High School hosts athletes, hikers, bikers, and walkers, through a partnership with Healthy Yancey, a local health resource aiding active living.

Segments of a nature trail have been built. These segments, however, are not connected or delineated as a continuous loop. If a designated loop trail were installed, then visitors to the high school site could enter from US Highway 19, pass through meadow, woodland, riparian area, and circle back through woodland, along service roads, through meadow, and return to US Highway 19. This varied experience would meet a variety of goals: provide multiple opportunities for physical activity; provide access to nature; educate visitors about native plant materials; connect visitors to the Cane River and community resources.

A small park is proposed near the entrance to the high school along Route 19 East. This location would serve well as both a gateway to town and as a trailhead to the nature loop-trail that would traverse the Mountain Heritage High School property. The Mountain Heritage High School property would begin and end at this park. This gateway into the high school property and associated nature trail is very visible from US Highway 19 and will receive a lot of attention from people in vehicles traveling both east and west, particularly because of its location, elevated almost 20 feet above the highway.

This gateway and trail will complete a linear connection along US Highway 19 that aims to encourage pedestrians and cyclists to travel from the Mountain Heritage High School Nature Trail and the Cherry Lane mini-park into downtown Burnsville. This space is a multi-functional space and could be used by local residents, high school faculty and students, as well as tourists and visitors in Burnsville.

The design team developed two possible concepts and corresponding planting palettes, which can be found on pages 11-14.

**CONCEPTUAL DESIGN:
MOUNTAIN HERITAGE HIGH SCHOOL GATEWAY
CONCEPT 1**

The design purpose of Concept 1 is to provide a park space at the entrance to the high school property. With a robust planting palette and meadow grasses, the park site will beg attention and invite local residents, travelers along US Highway 19, and pedestrians into the high school property. The park would serve as a trailhead and contain maps and signage that would guide a visitor along the high school nature loop-trail and identify additional, nature paths, hikes, or destinations in the region.

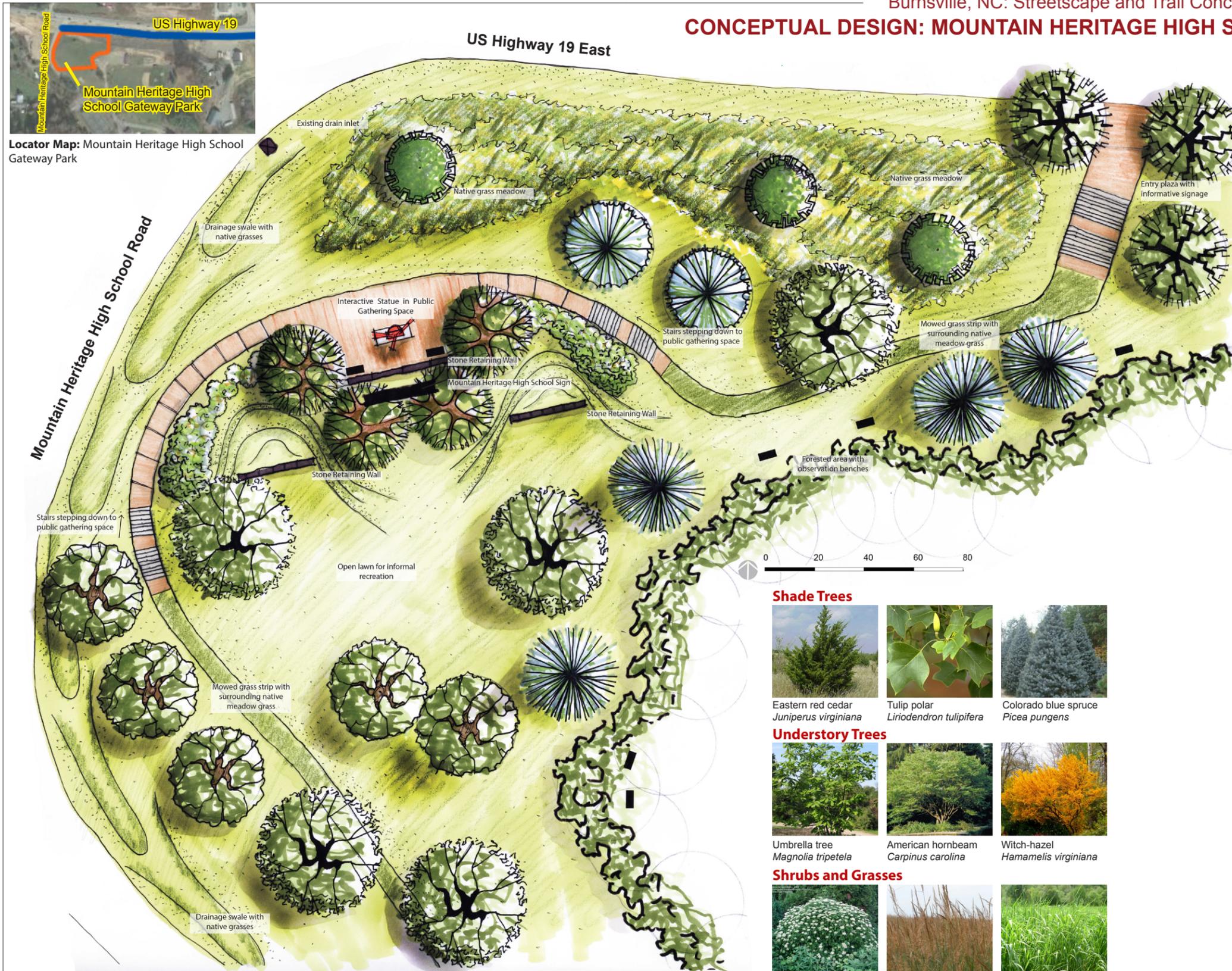
Signage at the gateway park and trailhead can be utilized to explain the wonders of the nature trail and its benefits to environmental quality as well as the Burnsville community. Because this gateway is located on a hill with more than 40 feet of elevation change, stairs and retaining walls are suggested to accommodate trail users and create a dynamic and memorable space. For trail users with a disability, an ADA compliment path was suggested to connect the gathering space to the parking lot at the top of the hill.

The gathering space also includes an opportunity to showcase local art. Local artists could conceptualize a statue, which would anchor the park's plaza and gathering space. The designers suggest a life-sized depiction of school children looking at a map and pointing in the direction of their destination. This sculpture could become a destination where hikers could gather around the sculpture and act as a character in the scene. This photo opportunity would draw more visitors to the site as a destination.

Native plant material is chosen to complement the design. These plant materials could serve as additional species that would support "The Mountain Heritage High School Nature Trail", a newly installed, self-exploratory, interpretive tree guide. In addition, selected shade trees would provide cover and shelter to hikers. The plant materials would offer food and shelter for birds, insects, bees, and butterflies, providing both teaching and learning opportunities within various curriculum.

Following is the plan for Concept 1 along with suggested vegetation.

CONCEPTUAL DESIGN: MOUNTAIN HERITAGE HIGH SCHOOL GATEWAY CONCEPT 1



Locator Map: Mountain Heritage High School Gateway Park



Example: An interactive statue placed in the gathering space below the Mountain Heritage High School sign could draw people to the gateway and encourage people to stay.



Example: A median, such as pictured above, could slow traffic entering and exiting the high school property.



Example: Grass drainage swale with native, unmowed grasses



Example: A native grass meadow that could withstand runoff water from US 19



Example: A mowed trail through a native grass meadow



Example: Stair veneer choices that can match other parts of trail or local culture



Existing Conditions: A view eastward towards downtown Burnsville showing the Mountain Heritage High School sign to the right on the hill. The proposed gateway park would welcome all travelers from US Highway 19 East.



Existing Conditions: A view eastward from the corner of US 19 and Mountain Heritage High School Road showcasing the high school sign with digital display. Park would provide a focal-point from road and offer expansive views of distant mountains.

Shade Trees



Eastern red cedar
Juniperus virginiana



Tulip polar
Liriodendron tulipifera



Colorado blue spruce
Picea pungens

Understory Trees



Umbrella tree
Magnolia tripetala



American hornbeam
Carpinus carolina



Witch-hazel
Hamamelis virginiana

Shrubs and Grasses



Southern Arrowwood
Viburnum dentatum



Indiangrass
Sorghastrum nutans



Mountain oatgrass
Danthonia compressa

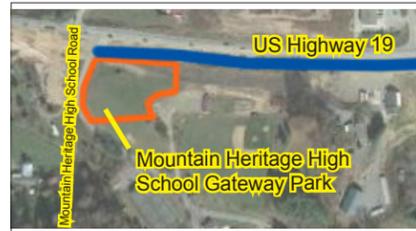
**CONCEPTUAL DESIGN:
MOUNTAIN HERITAGE HIGH SCHOOL GATEWAY
CONCEPT 2**

The Mountain Heritage High School gateway is the welcoming connection between everything that Burnsville has to offer and the walking/hiking trails within the Mountain Heritage High School's property. Because of the location of the gateway, residents of Burnsville, students of Mountain Heritage High School, and visitors to the area can inhabit this area as it is comfortably far enough from the school to feel open to anyone. The area currently features no amenities for those folks who use it as a trail and those who want to linger. In design Concept 2, amenities such as mowed and paved walkways welcome those who want to use the area as a trail. Statues, artwork, seating, and plantings are proposed for people who want to linger on the site and enjoy the mountainous views.

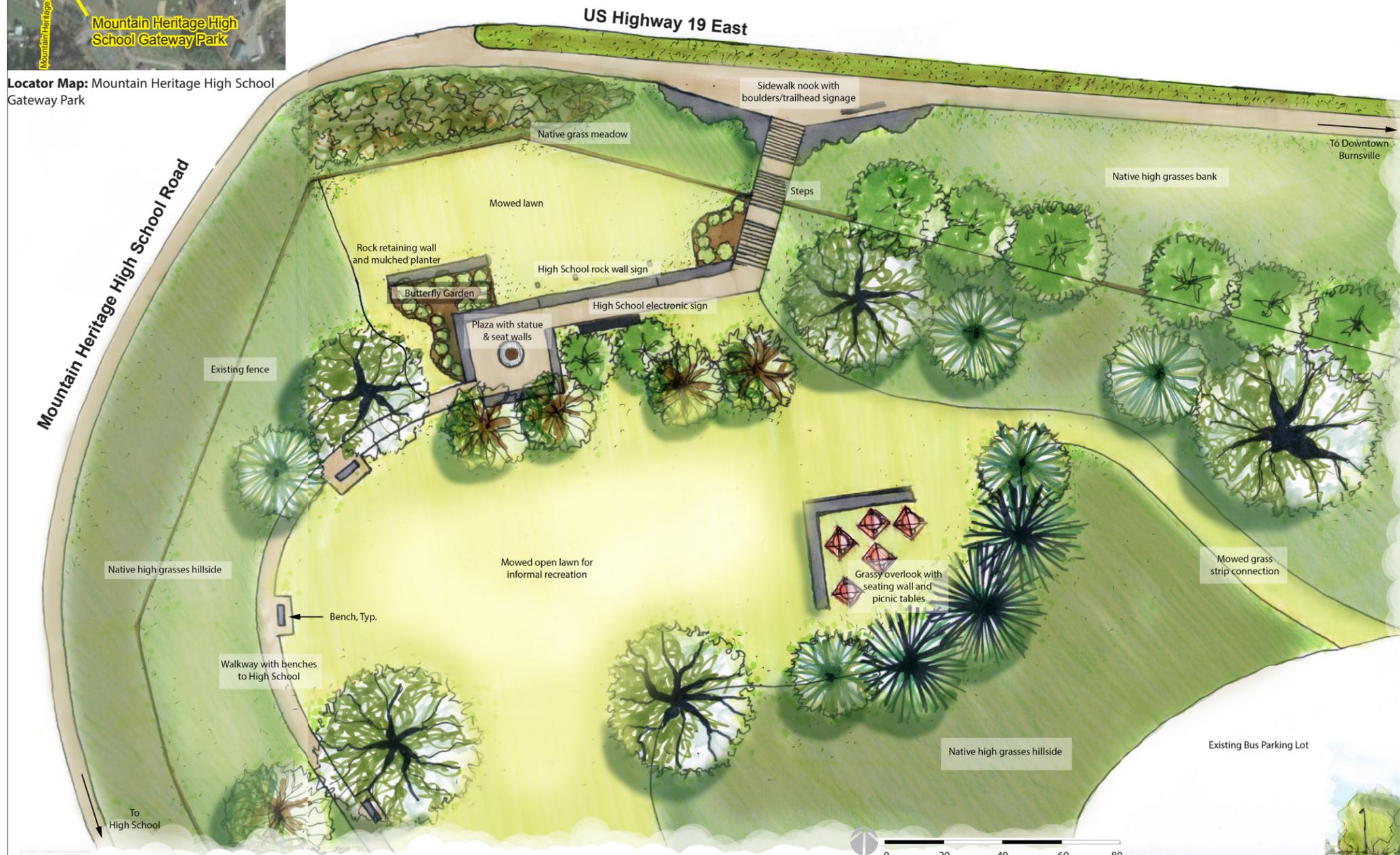
Concept 2 proposes to create a focal point for the school and the entrance to town from Interstate 26 along US Highway 19 E. The concept creates a park-like landscape by using native vegetation and materials found within the surrounding area of Burnsville. By incorporating both of the existing Mountain Heritage High School signs into the park design, the landscape would not only emphasize the high school entrance, but also bring attention to the nature trail. The concept also serves as a comfortable gateway to the high school from the US Highway 19 E trails. Rather than walking along the side of the high school's entranceway, the landscape is located on a hill. A set of entry stairs are required to get to the plaza near the high school signage. The existing signage would be landscaped with rock retaining walls to level the areas around the site. The flattened area will serve as a place for photographs as it will contain an iconic statue/piece of art, garden space, and seating walls. An open grassy lawn behind the school signage is an area that can hold recreational activities comfortably as it is surrounded by trees, but still open to the mountainous backdrop that the hillside provides. Near the baseball field and bus parking, there will be a grassy area with a seating wall and picnic tables for classes and picnics to take place that provide the best views of the site.

Following is the plan for Concept 2 with suggested vegetation.

CONCEPTUAL DESIGN: MOUNTAIN HERITAGE HIGH SCHOOL GATEWAY CONCEPT 2



Locator Map: Mountain Heritage High School Gateway Park



Example: A statue similar to the one found in Burnsville's Town Square could be placed next to the Mountain Heritage High School sign. The statue could serve as the icon to the start of a trailhead.



Example: Tables with umbrellas in grass. This provides space for classes, gatherings, and meals.



Example: Grass drainage swale with native, unmowed grasses would require minimal upkeep.



Example: A native grass meadow that could withstand runoff water from US 19 and the hill.



Example: A mowed trail through a native grass meadow would connect the bus/baseball lots to the trail and signage.



Example: Stairs constructed of stone veneer that can match other parts of trail. The stairs could blend in with the proposed boulders.



Illustration: View of proposed Mountain Heritage High School Gateway and existing school signage.

Shade Trees



Eastern red cedar
Juniperus virginiana



Yellow buckeye
Aesculus flava



Colorado blue spruce
Picea pungens



Umbrella tree
Magnolia tripetala



American hornbeam
Carpinus carolina



Witch-hazel
Hamamelis virginiana

Grasses



Indiangrass
Sorghastrum nutans



Mountain Oatgrass
Danthonia compressa

Butterfly Garden



Common milkweed
Asclepias syriaca



Dense blazing star
Liatris spicata

CONCEPTUAL DESIGN: CHERRY LANE MINI-PARK

The Cherry Lane corridor marks a natural terminus for Main Street and connects foot traffic and bicyclists to US Highway 19 East. The road, however, remains both unpleasant and dangerous for pedestrians. Between West Main Street and US Highway 19 East, expansive parking lots, wide roads, and minimal landscape amenities characterize Cherry Lane. Sidewalks and road crossings are not continuous making an uncomfortable and dangerous pedestrian environment.

Water is a problem in this area and is handled with a highly engineered solution of piping stormwater runoff into the sewer system. This method negatively impacts the environment and offers no opportunity for an interaction between people and Burnsville's natural water systems. At this gateway into town, opportunities for people to walk, bicycle, stop, or stay are limited.

This design proposes to enhance this small segment and transform the corridor into a gateway for Burnsville's Main Street, by creating a small park, or mini-park. Cherry Lane could serve as a trailhead and entrance for the Town of Burnsville's Western Loop Trail. Cherry Lane is a transitional landscape between the Western Loop Trail and the West Main Streetscape revitalization, proposed between pages 17 and 19. This conceptual design aims to provide a comfortable place for trail users and local residents as well as signify an attractive entrance to Burnsville's West Main Street.

The existing watercourse, McIntosh Branch, delivers runoff water from the surrounding mountain and properties north of Cherry Lane via an underground culvert. The culvert dispenses water at Cherry Lane where water is then directed into another culvert buried underneath the right-of-way on the west side of Cherry Lane. Currently, this water is piped underground along the western side of Cherry Lane.

This conceptual plan daylights runoff water in a wetland swale and aims to achieve zero site water runoff. The proposed wetland would hold the water temporarily, and filter water impurities, before recharging the water table with purified water. If a large magnitude rain event occurred, then excess water would overflow into underground gravel bunkers, where it can return to the earth via subterranean outlets.

Pedestrian bridges and decks over the wetland would provide an opportunity for people to stop and remain along the trail. Interpretive signage, discussing water systems, the site's design, and native vegetation, would be placed throughout the park. This plan forms a connection and narrative between people in Burnsville and the water systems that are present in the area.



Locator Map: Cherry Lane Mini-Park

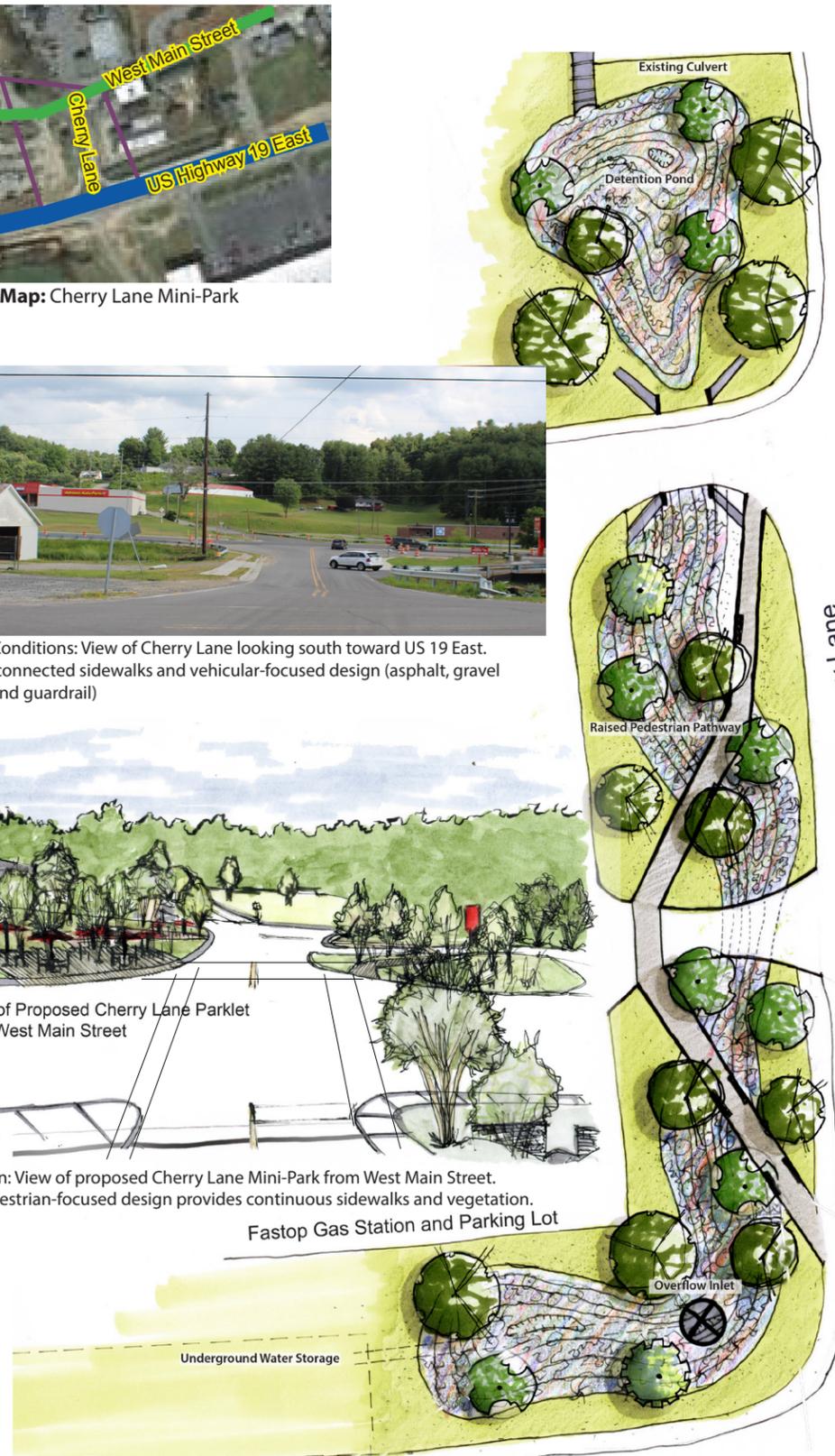


Existing Conditions: View of Cherry Lane looking south toward US 19 East. Note: disconnected sidewalks and vehicular-focused design (asphalt, gravel parking and guardrail)



View of Proposed Cherry Lane Parklet from West Main Street

Illustration: View of proposed Cherry Lane Mini-Park from West Main Street. Note: Pedestrian-focused design provides continuous sidewalks and vegetation. Fastop Gas Station and Parking Lot



Example: Wetland overflow drain



Example: Constructed wetland in a park setting



Example: Pedestrian bridge over wetland



Example: Informative signage about the ecological value of wetlands along pedestrian bridge



Example: Wetland and rain garden planting

CONCEPTUAL DESIGN: WEST MAIN STREETScape

The street character on West Main Street between Church Street and Hillside Drive is primarily characterized by residential single family dwellings. The street right-of-way (R.O.W.) in this area is 60 feet wide which is large enough to develop a healthy streetscape concept that will allow for public space and build a pleasant, functional, and effective environment for people living on this street, drivers, and pedestrians to coexist. Currently, the street condition is only suitable for vehicular traffic and pedestrian movement is not safe or enjoyable. The average setback of the residential dwellings and businesses is large with expansive front lawns and parking lots. Having large lawns and convenient parking in the fronts of structures is functional, yet it has become a less than ideal standard practice on Main Streets.

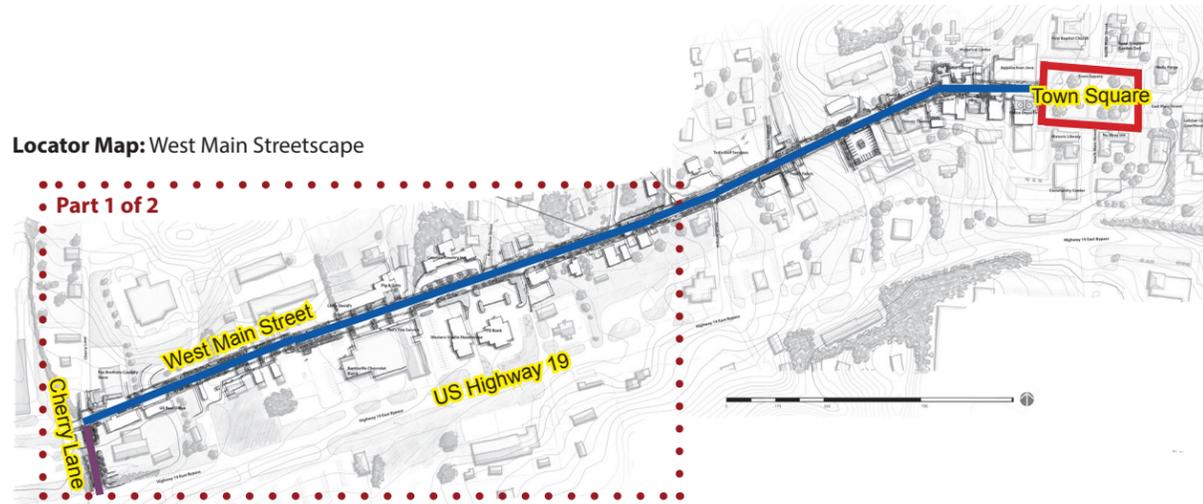
Buildings, vegetation, and pedestrian amenities, such as benches, light fixtures, and wayfinding signs, along the sidewalk have the ability to create outdoor corridors on the street, much in the way walls inside a building encourages a sense of enclosure for people. Street corridor enclosure provides traffic calming by persuading drivers to be more cautious and alert of their surroundings and provides an environment that is more suitable for pedestrian foot traffic.

Above-ground space constraints are more obvious than those underground, but are equally as important. Tree height, crown width, and branching habit must be compatible with adjacent trees, buildings, street lights, and signs. The presence of electric, water, sewer, and gas utilities, below and above ground are also important to locate when selecting trees and other plants for streetscape purposes. Tree pits excavated within sidewalks are much more confining than when located in lawns. Not only is the hole generally smaller for the tree roots, but also pipes, wires, or basements that may extend to the right-of-way may negatively influence tree growth habit.

The design on the following pages suggests installing streetscape improvements, which makes use of the 60' R.O.W. and recommends a continuous multi-use path abutting the R.O.W. Along the multi-use path a 5' planted bioswale is recommended as a buffer on both sides of the road. This bioswale would not only provide an aesthetic walking and biking experience, it would also feature curb cuts so that stormwater runoff would be managed through a sustainable practice. Low street trees line the corridor to offer shade and comfort to the pedestrians. These conceptual design details could enhance the West Main Street corridor, provide a visually pleasing and inviting entrance into downtown, provide a pedestrian-friendly environment, and manage stormwater runoff.

Locator Map: West Main Streetscape

Part 1 of 2



Existing Conditions: A view northeastward of a single family residential dwelling on the corner of West Main Street and Orchard Street showcases a large building setback and an expansive front lawn. This condition provides little sense of community in Burnsville and chance happening between townspeople and trail users.



Detail of a residential and commercial portion of West Main Street between Church Street and Hillside Drive



Existing Conditions: A view northward at the corner of West Main Street and Hillside Drive at this auto garage is an example of a large building setback with an expansive concrete building front condition. This provides no street corridor enclosure and is an uncomfortable setting for pedestrians.



Flowering Dogwood
Cornus florida



Serviceberry
Amelanchier x grandiflora



Amur Maple
Acer ginnala



Star Magnolia
Magnolia stellata

Street tree species were selected to be compatible with overhead power lines. All species mature at less than 20 feet of height.



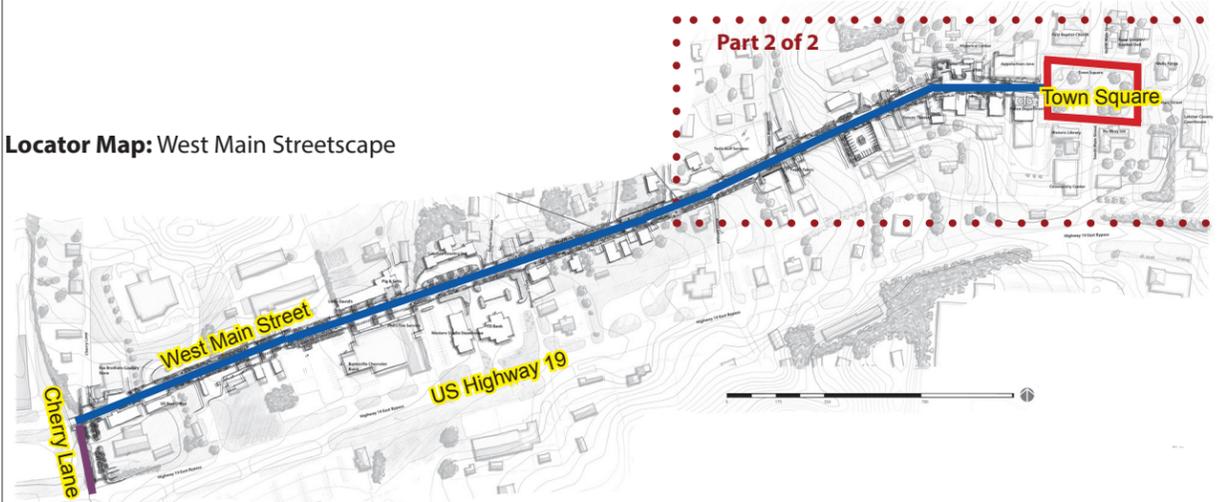
Example: Water containment areas in a downtown provide streetscape as well as solutions to storm water management



Example: Street trees, wide sidewalks and close building fronts create a sense of street corridor enclosure. Curb cuts and greenspaces along roads can receive exiting water runoff, new water runoff, erosion problems, and drainage issues.

Burnsville, NC: Streetscape and Trail Conceptual Master Plan for the Western Loop
CONCEPTUAL DESIGN: WEST MAIN STREETScape (2 of 2)

Locator Map: West Main Streetscape

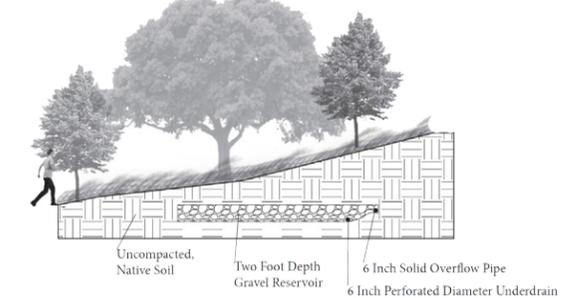


Examples: Bio-retention in areas of high pollution and water runoff such as parking lots

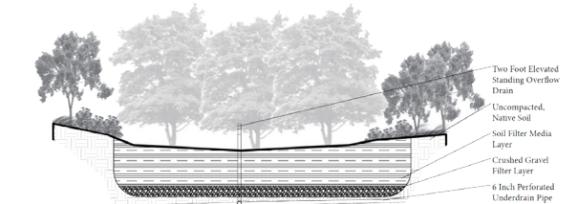


Example: In a large rain event, water is concentrated in areas where it can be returned to the groundwater supply

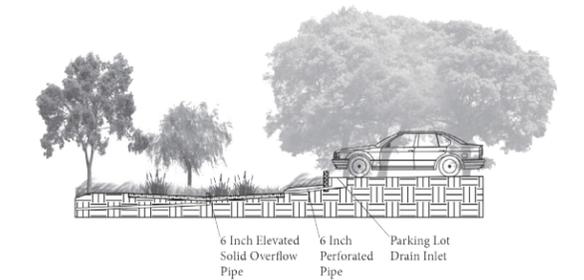
Examples of Sustainable Storm Water Management Practices Proposed for West Main Street



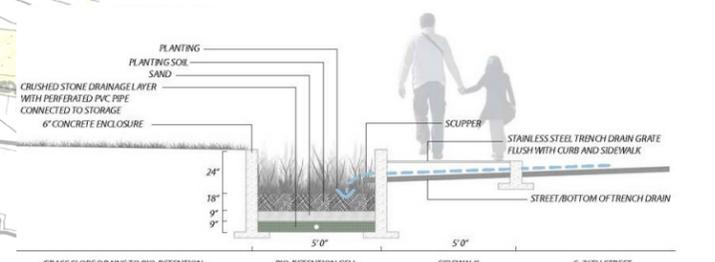
Example: Detail showing gravel basins buried underground can receive excess water that surface level water management solutions cannot handle in the event of an extraordinary large rain event.



Example: Detail showing bio-detention areas and how they can temporarily hold large amounts of water before the water has time to return to the earth. Bio-detention areas can engage people in wildlife and natural systems.



Example: Detail of bio-retention swales, which can be utilized to clean pouted water from roads and parking lots while also achieving zero site water runoff.



CONCEPTUAL DESIGN DESCRIPTION: TOWN SQUARE CONCEPT 1

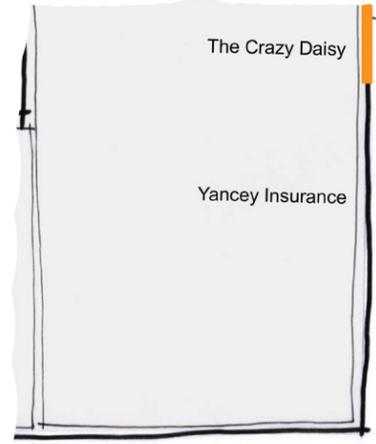
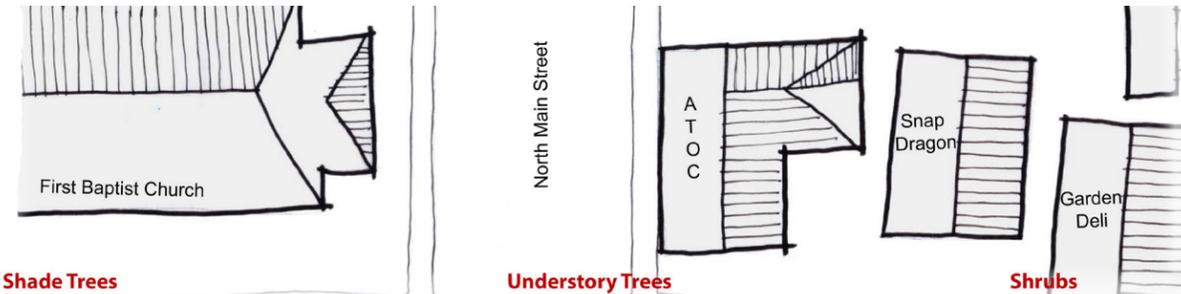
The Burnsville town square is a public space central to the town. The space is currently used for informal gathering spaces and community events. The town square is slightly under one acre in size and could potentially serve as a location of a trailhead for the Burnsville trails and West Main streetscape. In the center of the town square, a statue of Otway Burns provides a historical glimpse into the town's origins. The town square is a type of public stage or forum in Burnsville because it is surrounded on all sides by a street and storefronts. Eyes are always on this square, however the space is currently underutilized by townspeople due to its lack of programmed elements. The town square is primarily an open space for informal gatherings and recreation. This site is in a prominent location within Burnsville and has the opportunity to be an exciting and enticing public space that trail users and local Burnsville residents may enjoy.

Two alternative concepts were developed for the town square. Concept 1 is reminiscent of hydrological systems that are present in the area in a way that meets the needs of local townspeople and trail visitors. The plan is centralized around the existing statue of Otway Burns and utilizes the statue in its original location as a focal point. The hydrological concept is divided into four sections, as determined by the existing brick pathways that lead to the statue. Informational signage about the trails that converge at the town square is proposed. A berm is proposed to mimic the black mountains and the relationship the Black Mountains have on the rivers. Splash pad geysers are proposed in this design to offer people a place to cool off in the hot summer months, particularly after a long hike. A landscape stream provides bubbling noise to shelter conversations in the park and create a tranquil atmosphere. Where the Girl Scout created water fountain is located, a new patio is proposed for the existing water fountain, accented by trees in planters that provide additional seating in the town square. The water fountain patio has a great view of the existing Highway of Hope Mural that highlights Burnsville's art culture.

Following is the plan for Concept 1 with suggested vegetation.



The existing Highway of Hope Mural at the Burnsville Town Square offers places for place identification, fabulous photo opportunity, and a memorable visit to the Town Square.



Shade Trees

Understory Trees

Shrubs



Example: Landscape berm for seating and playing



Example: Landscape stream and boulders

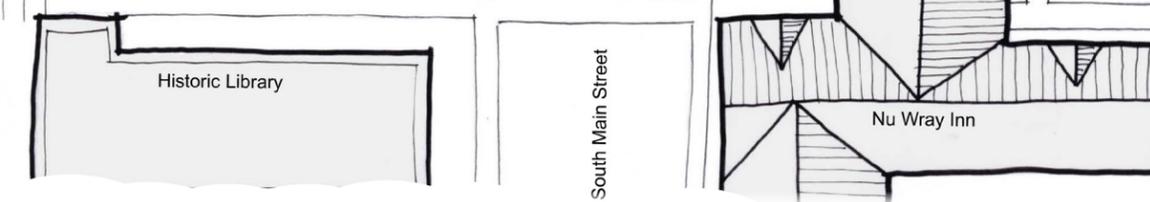
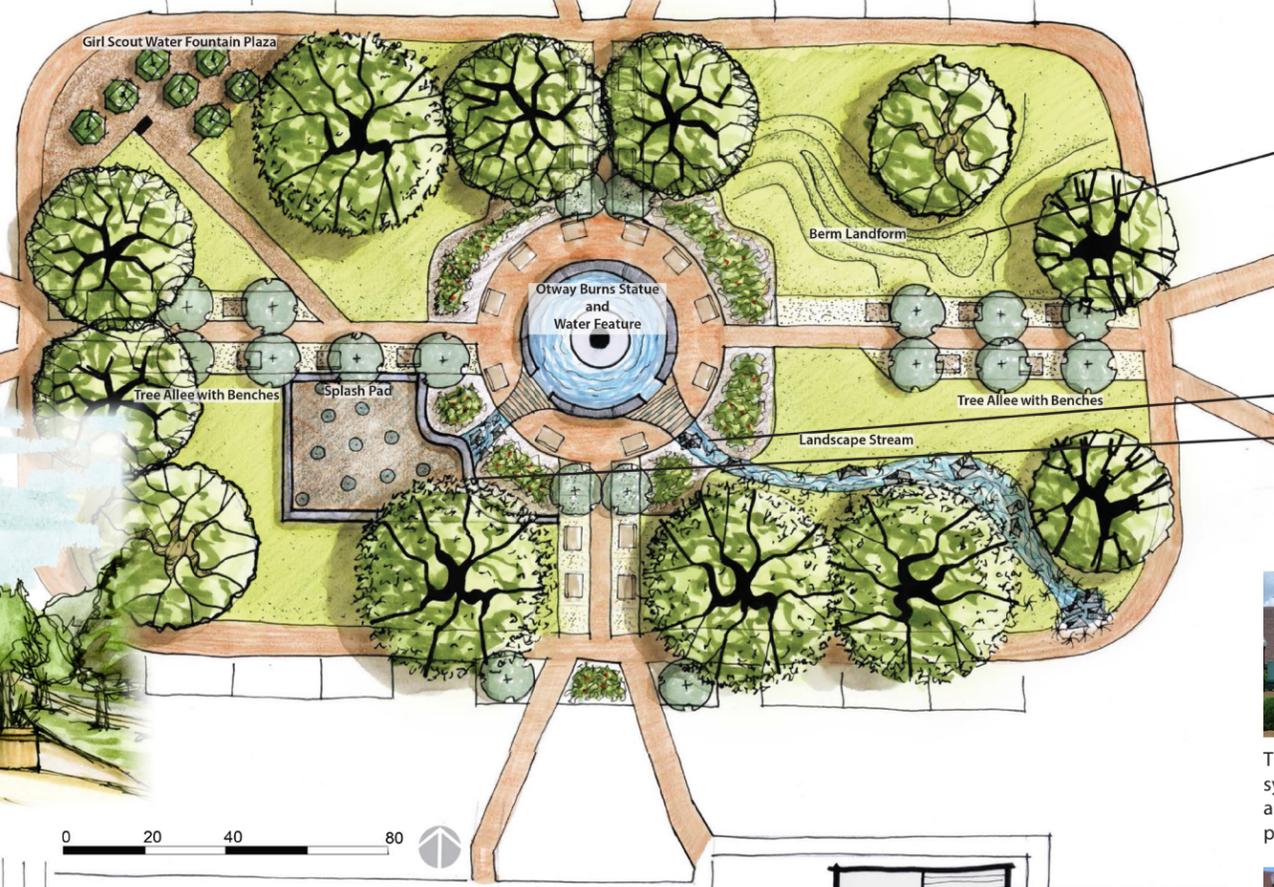


Example: Splash pad with geysers

View of Proposed Girl Scout Drinking Fountain Plaza



Burnsville Police Department



The Otway Burns statue is symbolic to the town, but the space around it gives little opportunities for public interaction



The axial views to the Otway Burns statue form the organizational basis for other design elements



The Girl Scout water fountain is a great public amenity, but is rarely used because the space around the fountain provides no shade



Burnsville Town Hall located on the Town Square

CONCEPTUAL DESIGN DESCRIPTION: TOWN SQUARE CONCEPT 2

Otway Burns stands proudly in the town square as he dictates future spatial design. Past, present, and future landmarks lend hand in the conceptual design process for this memorable space. Oriented to the cardinal coordinates, each quadrant helps inform users of the historical value they are presented with at information kiosks. To the north, visitors are welcomed by trailhead maps offering information about the Appalachian Trail as well as other hikes nearby. The east kiosk invites guests to journey to the Linville Gorge Wilderness Area where they will find a beautiful, natural waterfall immersed in the landscape. The south center boasts information on the nearby Black Mountains, and discusses the seven mountain peaks with Mount Mitchell being the highest point. The west gives tribute to Otway Burns, whose statue faces west to represent his movement and dedication to westward expansion, as he gazes to the trails of the Great Smoky Mountains.

Throughout other areas of the town square, history begins to reveal itself. Facing Otway Burns from the west are Native American statues, as westward expansion caused many run-ins. Surrounding the existing Girl Scout water fountain are statued animals, paying tribute to the farming and wildlife culture in the area. Thomas David “Big Tom” Wilson, a famous bear hunter and trail guide, is paid homage through a statuesque piece within these animals. Sweeping to the south of the site are land masses representing the seven peaks of the Black Mountains, discussed on the southern information signs. Behind Otway Burns to the east is his boat, which he used for privateering. The bow is delineated by the fountain and extended into the road through varying paving patterns. Curvilinear paths sweep through this axial space, bringing contemporary flair to a historic landmark.

Following is the plan for Concept 2 with suggested vegetation.

Trees



Black Gum
Nyssa sylvatica 'Red Rage'
Fringe Tree
Chionanthus virginicus



Yellowwood
Cladrastis kentuckea
Bald Cypress
Taxodium distichum

Shrubs



Winterberry
Ilex verticillata 'Red Sprite'
Dwarf Oakleaf Hydrangea
Hydrangea quercifolia 'Pee Wee'



Knockout Rose
Rosa radrazz
Dwarf Fothergilla
Fothergilla gardenii 'Mt. Airy'

Perennials



Cutleaf Coneflower
Rudbeckia laciniata
Blue Wild Indigo
Baptisia australis



Fall Phlox
Phlox paniculata
Cherokee meaning: 'It has dirt in it, no gloss'
Butterfly Milkweed
Asclepias tuberosa
Cherokee meaning: 'Chigger, jigger'



View from Girl Scout Water Fountain



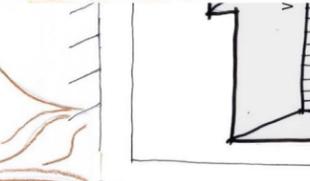
Example: Wildlife statues surrounding Girl Scout Water Fountain



View across square, looking from west sidewalk



Example: Native American statues emerged in the landscape on western quadrant



Example: Paving patterns using inlaid brick of different shades



Example: Paving patterns using inlaid brick of different shades

PART II: INVENTORY AND ANALYSIS

INVENTORY AND ANALYSIS: WEST MAIN STREET

While a portion of West Main Street from the town square to Ray Street have a very pleasant street character that is conducive to pedestrian and vehicular cohesion, areas along the more western portions of West Main Street from Ray Street to Cherry Lane have poor quality and character. These streetscape issues can be solved with thoughtful and effective streetscape design. Primary issues along West Main Street include a lack of vegetation for shade, steep topography, a lack of public open space, as well as expansive, underutilized, unstructured, and unorganized paved parking areas. West Main Street, which is not suited for pedestrian travel, is identified by little sidewalk character, no vegetation, and a massive amount of paved areas. Vehicles tend to park on the edges of the road in areas usually delineated for pedestrian traffic and alleys between buildings are blocked with parked cars. West Main Street is a transitional zone between the town square to the less urban portions of the Burnsville and the trail to Mountain Heritage High School. This street has the opportunity to serve both visitors and local residents of Burnsville alike in the public realm.

Observing any built environment can reveal some indicators as to how people, natural systems, and economies interact. These indicators can tell a story over time and can partially reveal past and present components of the story. These signs and stories embedded in the landscape are useful in understanding the relationships and balances between social, environmental, and economic aspects of a community.

Bounded by the Burnsville town square and the eastern limits of Burnsville at Cherry Lane, is the Burnsville Streetscape Trail. The trail is a portion of a larger trail that connects downtown Burnsville with the Mountain Heritage High School on US 19. This streetscape trail will terminate at the town square which serves as a trail nexus, converging many other trails in Burnsville area including the Scenic Byway, quilt and art trail, as well as the Mount Mitchell Trail and Appalachian Trail in close proximity. The streetscape will traverse West Main Street in Burnsville and aims to resolve specific issues that the Town of Burnsville faces in addition to celebrating local arts and culture. West Main Street and the town square is the governmental center of Burnsville as well as the seat for Yancey County, North Carolina. The government and public service departments such as the police and courthouse are located here, close to the retail and restaurant area of downtown Burnsville.

Density of Town Fabric on West Main Street

S p a r s e

Dense



Existing Image: Pedestrian areas are responding to infrastructure instead of coexisting. Provide continuous sidewalks on both sides of the street.

Existing Image: Cars on Cherry Lane have a wide turning radius and can move fast. Make this intersection a safe pedestrian crossing.

Existing Image: Telephone poles placed in the middle of asphalt paving create a hazard for cars backing out. A lack of storm water management creates unwanted sediment and debris deposits. Organize a more safe pedestrian environment by proposing curbs and curb cuts, which will also direct and funnel water into greenspaces.

Existing Image: Runoff water solutions such as this culvert on Cherry Lane provide little ecological benefit for native plants and wildlife in the area. Solutions that combine water issues and ecological responsibility are more desirable and add value to adjacent properties.

Existing Image: A lack of storm water management leaves streets with barren areas unsuitable for any type of activity. Manage storm water runoff by carving greenspaces and detention areas into the paved or gravel lots.

Existing Image: Tire skid marks at 90 degree turns are indicative of excessive vehicle speeds. Narrow the street corridor and provide street tree plantings to slow vehicular traffic.



Existing Image: There are a few painted pedestrian street crossings to offer pedestrians safety from fast moving vehicles and alert driver awareness of pedestrians. Making turns can be an unorganized and fast-paced free-for-all.



Existing Image: Minimal painted pedestrian street crossings offer little safety from fast moving vehicles and driver awareness of pedestrian crossings is limited. Clearly mark crossings for pedestrian safety.



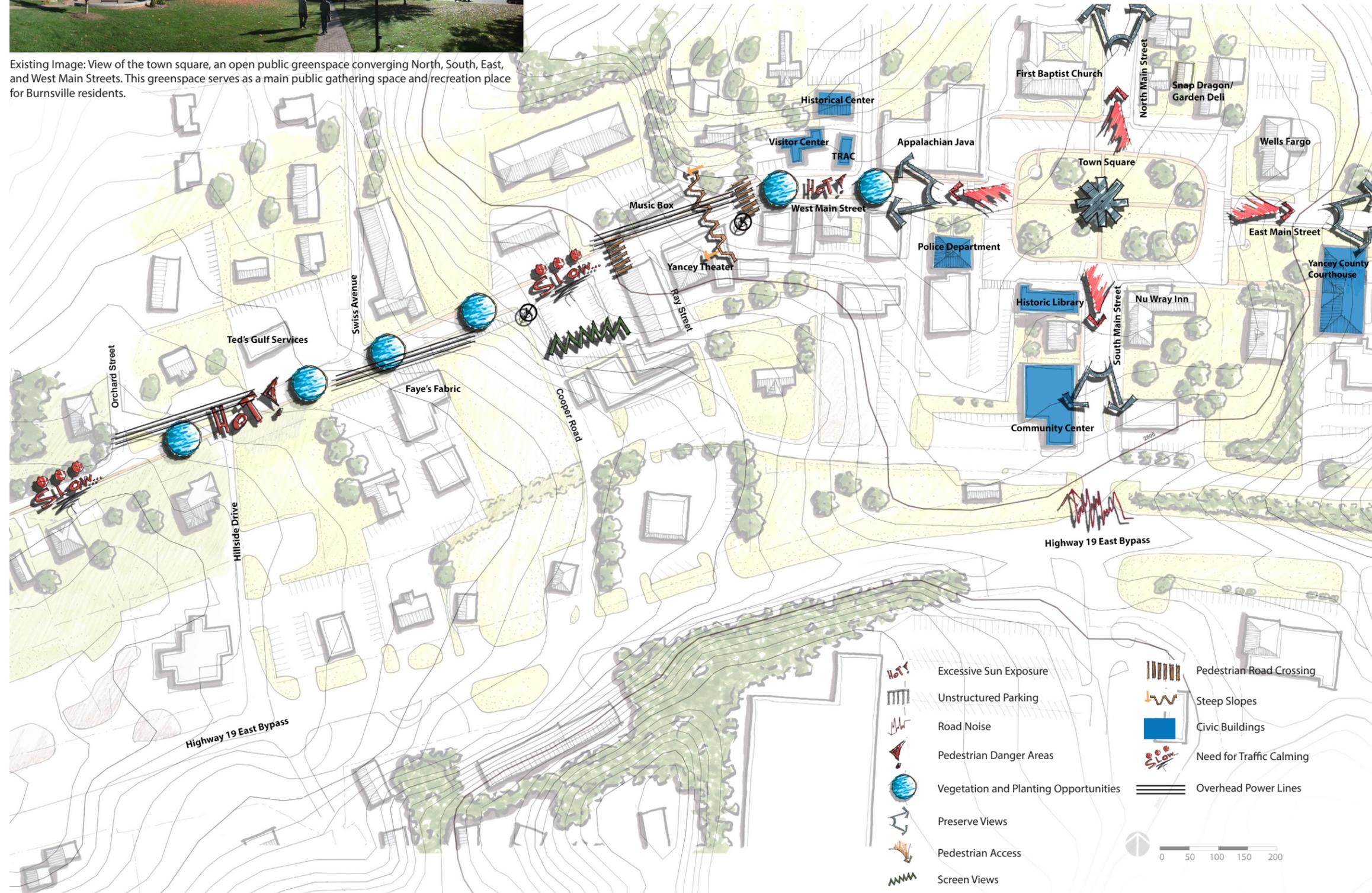
Existing Image: View eastward on West Main Street. Main Street starts to lose character and become more expansive with little pedestrian accessibility. Provide pedestrian-friendly, street trees, benches, lights, and signage along the corridor.

- Excessive Sun Exposure
- Unstructured Parking
- Road Noise
- Pedestrian Danger Areas
- Vegetation and Planting Opportunities
- Preserve Views
- Pedestrian Access
- Screen Views
- Gateway and Landmark Opportunities
- Pedestrian Road Crossing
- Mountain Drainage Swale
- Steep Slopes
- Need for Traffic Calming
- Overhead Power Lines

Burnsville, NC: Streetscape and Trail Conceptual Master Plan for the Western Loop
INVENTORY AND ANALYSIS: WEST MAIN STREET (2 of 2)



Existing Image: View of the town square, an open public greenspace converging North, South, East, and West Main Streets. This greenspace serves as a main public gathering space and recreation place for Burnsville residents.



Blending Pedestrians and Vehicles



CASE STUDIES AND DESIGN PRECEDENTS

A prominent issue along West Main Street is pedestrian safety. There are limited and disconnected sidewalks and there is no space for pedestrians to move freely in a safe environment. Plantings, street bumpouts, multipurpose lanes, narrow roads, parallel parking, and small parks could add a social and environmental quality to the street as well as act as a traffic calmer, giving right-of-way priority to pedestrians. In turn, when people are happier about being on the street, local businesses perform better because they receive more foot traffic around their stores.

College Avenue | Blacksburg, VA



Restaurants on College Avenue feature outdoor seating while cars calmly pass by.



A change in materials delineates areas for vehicles and pedestrians.



Plants tolerating highly saturated soil are planted in containers where water is directed.

College Avenue in Blacksburg, VA, is a primary pedestrian corridor connecting the campus with downtown.

Important features:

1. A single, one-way driving lane allows for wider sidewalks and a more pedestrian oriented environment.
2. Wider sidewalks provide space for seating and plantings, including storm water infiltration.
3. The avenue can easily be closed to traffic for special events and festivals.
4. The use of brick and stone reflects the surrounding architecture and general character of Virginia Tech.

A unique feature of the College Avenue promenade is a sharp curve in the road. The curve serves as a traffic calming method used to inhibit drivers from traveling at high speeds in the pedestrian area. Material choice delineates the street from pedestrian walkways, yet allows for safe crossing.



The curve in College Avenue forces cars to travel more slowly and be mindful of the pedestrian environment.



Runoff water is funneled into grates where it irrigates plants, cleans water, and returns water to the ground, keeping it out of the sewer.

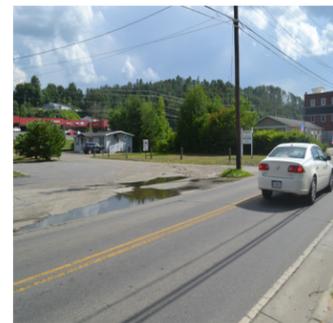


An alternative to traditional curb and gutter, street runoff water is diverted into brick channels and into drain inlets. Stone paving acts as a rumble strip and keeps cars from drifting into the sidewalk.

Rainwater Harvesting and Rain Barrels

Benefits of Rain Barrels:

1. Rainwater is better for plants and soil
2. Independent water source in times of drought or water restrictions
3. Reduces runoff pollution
4. Contributes to erosion prevention efforts
5. Cuts down on the amount of water that must undergo expensive and energy-intensive sewage treatments
6. Helps control moisture levels around the foundation of buildings
7. Inspiring example of environmental stewardship



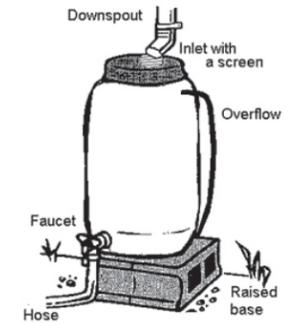
Minimal storm water management causes unsightly water issues and environmental problems on West Main Street in Burnsville.



Rain barrel examples



Barrels need to be raised to create water pressure. Otherwise the water dribbles out of the faucet/hose.



CASE STUDIES AND DESIGN PRECEDENTS

Trailhead and Gateway Design

A gateway can attract the attention of people passing by the nearby shopping center as well as the highway. Gateways may serve a community well for branding and marketing purposes. In addition, a structure or sculptural piece can also create a landmark for the trail and attract visitors of Burnsville to utilize the trail. The trailhead at the town square can create a positive image and make a statement for the town.



Kiosk and signage materials are crucial to the success of trails and identifying a trail character. Kiosks and signage provide information about the trail itself, where it goes, how long it is, etc. In Burnsville, the town square and Cherry Lane focal areas could act as interpretive signage stations and should be showcased, attracting local residents and tourists alike.

The kiosk itself can reflect the local materials, heritage, ecology, and culture of Burnsville, as well as possibly highlight the talent of local artists.

A unique path can demand attention and entice people to take a walk. The image to the right is a path that mimics the movement of water through a desert. In Burnsville, a path or concept similar to this has the opportunity to reflect the environmental qualities of the area such as geology, mountain heritage, or the Burnsville arts.



Gateway Valley Development | Orinda, CA

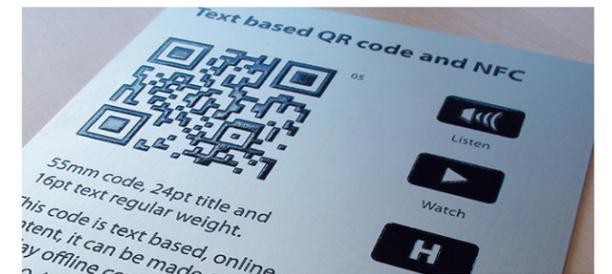
The Gateway Valley Development is a community that connects the residents to the surrounding natural systems and open spaces and provides a multitude of community amenities including a trail system. The development is an integrated system of multi-purpose environmental corridors that provide a convenient and beautiful means of scenic walks, surface drainage routes, and connections into regional open space and trails.



This project exemplifies exceptional analysis and careful consideration for both environmental and historic cultural contexts in the mountainous landscape of coastal central California. Ecological zones, surface drainage areas, and potential wildlife movement corridors were preserved and enhanced and became the armature of the analysis and design process and led to a long term sustainability future. The site experienced mining abuse and environmental restoration was a predominate issue and the work was largely considered a reclamation project. Steep topography and large rock outcroppings were a challenge when designing the trail system, however they were used as an asset instead of a liability.



Standard and typical signs offer little user experience and are boring and unmemorable. Wayfinding signage should reference local materials and culture.



Trail signage can incorporate technology such as this QR code that can be scanned with smart phones and used for information while on a trail.



Trailhead signage can be considered a spatial design opportunity and create rooms within a larger open area.

Trail Town | Salida, CO

Town Art Salida's buildings are covered with a variety of murals that speak to the history, culture, and charm of the town. The murals serve to tell visitors stories about the town's history, as signs for the current use of the buildings, and also as artifacts and historical references to the town's history.

River Trail The Arkansas River serves as the center of activity of the town in regards to the art, culture, and recreation. It also serves as a trailhead for Salida; all trails diverge from the river.



Trail Towns and Streetscape Corridors



A Trail Town is characterized as a node adjacent to a long distance trail or more importantly, a network of long distance trails that are linked together by Trail Towns. Trail Towns serve as a destination for people who wish to exit the trail and explore local scenery, landmarks, goods, services, as well as the cultural and social values of the Trail Town locality. A Trail Town is a welcoming, friendly, and inviting atmosphere that encourages both trail visitors and local residents alike to commingle and supports the daily needs and activities of both populations. A trail is an important asset for any town and can aid in the social, economic, and environmental growth of the town.



Key Components of a Trail Town

Trailhead areas where users can access the trail leading from town to a trail. This area is accessible by road and provides parking and some amenities for trail users.

Access Trail or connector routes between the town and a trail.

Gateways are the point at which trail users enter the business district of a town.

Central Business District that may serve as a hub of goods and services for the trail users.

Nodes are specific points along or near the gateway or in the Central Business District that will be visited or utilized by users of the trail.



Main Street Trail Corridors

Main streets through Trail Towns serve as an excellent trail corridor for both local residents and trail visitors, as they are often a social and economic hub for the town. The National Main Street Center's "Four Point" approach outlines successful main street design strategies.

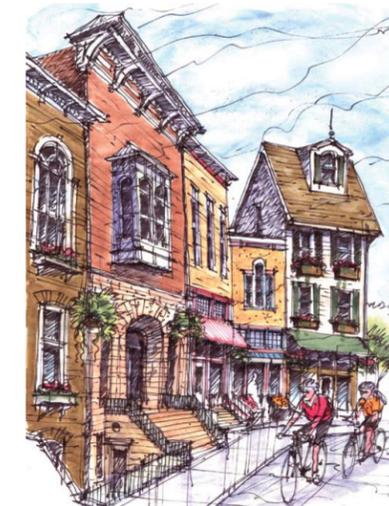


Burnsville, NC: Streetscape and Trail Conceptual Master Plan for the Western Loop CASE STUDIES AND DESIGN PRECEDENTS

Source: Allegheny Trail Alliance, and Regional Trail Corporation. Trail Towns, Capturing Trail-Based Tourism. N.p.: Allegheny Trail Alliance, 2005. Print.

Necessary Amenities for Trail Visitors

Trail visitors have a unique set of needs that must be considered when adapting a Trail Town for trail users. It is important to consider the various lengths of time that people may stay in any given Trail Town as well as the different types of trail users such as hikers and pedestrians, aquatic enthusiasts, road bicyclists, mountain bicyclists, vehicular users, and equestrians. Similar to the concept of a Trail Town being a linked series of trail communities, the Trail Town's amenities should be organized in a similar linked organizational structure.



General Needs of Trail Visitors

The general needs of trail visitors can be accommodated by a trail town in a comprehensive design strategy that is attractive, continuous, organized, and catered to slow moving traffic types. Some typical needs of different trail users in a Trail Town include:

- Affordable lodging
- Clothes dryer
- Potable water
- Trail and town signage
- Trail and town maps
- Grocery store
- Safe camping
- Local outdoor outfitter
- Basic first aid
- Shower and bathroom
- Variety of restaurants

1. **Organizing** community members and groups that have an important role in the trail corridor area in a hands-on, volunteer based program with a clear organizational structure of decision making.
2. **Designing** a Trail Town street corridor capitalizes on the town's assets and landmarks as well as creates a unique sense of place that incorporates attractive window displays, signage, clean sidewalks and streets, sufficient lighting, thoughtful accessibility and circulation patterns, and pleasing and inviting landscaping. These aspects convey a visual image of what the Trail Town has to offer and why people should spend time in the town.
3. **Economic Restructuring** improves the purposes for the town's enterprises and capitalizes on the existing enterprises. By converting unused spaces into valuable and productive properties, the streetscape will be more lively and competitive.
4. **Promotion** sells the image of the Trail Town and markets its unique characteristics to local customers, investors, new business, and visitors. It conveys a positive town image through advertising, promotions, and special events carried out by the volunteer organization.



CONCLUSION

Trails and trail systems are a significant cultural experience in Burnsville. The trails of Yancey County help to bring attention to the area through trail visitors as well as residents using the town's public spaces. Because Burnsville is the lone incorporated town in Yancey County, connecting the existing trails to the economic hub of the county is a vital aspect of future plans for Burnsville. This project focuses on the internal connections within Burnsville for both visitors and local residents. This project aims to bring attention to the opportunities that surround Burnsville, create a walkable urban environment, facilitate the interaction between neighbors and town visitors, increase economic activity, and furthermore, develop a clear loop trail connecting the Town Square to Mountain Heritage High School. The CDAC team has striven to create a conceptual plan that responds to local values, morals, culture, history, and economic activity, as well as address environmental and natural system concerns.

The ideas and plans presented in the document have the potential to positively change the way residents and visitors access and use Burnsville's public spaces. This report serves as a starting point for future plans of Burnsville. Information in the report and the drawings can be helpful when applying for grants for the next steps or implementation.

PART III: APPENDIX

Burnsville, NC: Streetscape and Trail Conceptual Master Plan for the Western Loop

STAKEHOLDER MEETING: JUNE 22-23, 2015

Community Stakeholders Meeting at the Burnsville Town Hall,

Date: June 22

Time: 2:00 PM – 4:00 PM

Attendance: Nancy Stairs (NC Dept. of Agriculture and Consumer Services), Lara Browing (Former CDAC Project Manager), Melissa Philen (CDAC Project Manager), Joe Niland (Student Designer), and Jess VanNoy (Student Designer)

Background of the Project Region

- Yancey County full of history and natural features- Black Mountain
- Only incorporated town in Yancey County
- Mt. Mitchell, the first State Park in NC
- 80,000 acres of forest resources
- 100 miles of trails in Black Mountain
- Appalachian Trail north of town
- Mountain to Sea Trail (passes from GA to Piedmont) south of town
- Many trails exist in county: Nature, quilt, Toe River Arts, Civil War, Cultural (Native American, Cherokee, and ancient inhabitants)

Overall Problem: Many trails, but no real connection

- NC High Peaks desires to see Burnsville having a trail head and connecting head from the square to the trails by the north, south, east, and west
- Seeks several connections to the Appalachian Trail
- Focus is on western section of trail: Burnsville to Mountain Heritage High School through a NC Forest Services grant

Stakeholder: Outdoor classroom and completed portion of nature trail

Stakeholder: Sidewalk along 19 connecting high school to East Yancey Middle School (7 miles)

High School Public Amenities

- Trail at high school, open to the public at all times
- Community track, open to public (repaved with public funding)
- Public restrooms also open to the public at all times
- Disk golf course at high school's property

Need for Marketing

- Branding and wayfinding (500 artists in county, musicians, actors- using pieces of art as public art

SmArt Initiative, a State Program with Economic Development Commission

- With Highway 19 widened
- Wanting gateways into Burnsville.
- Hired Jack Mackie to create public art through community engagement (he will be coming late July for a meeting)
- Wants to repurpose Yancey County Library Building
- Create a nexus of trails as destination to studio tours, music, quilt, civil war, scenic, hike, and river
- Along 19E nooks with mountain rock seating
- Street plantings west to high school
- "Look and Discover"

Burnsville, NC: Streetscape and Trail Conceptual Master Plan
for the Western Loop

STAKEHOLDER MEETING: JUNE 22-23, 2015 CONT.

Mountain Heritage High School (MMHS) Trail

- education, fitness, interpretive
- open for more ideas: outdoor classroom, athletics, town connection, likes art connection to town
- offering a quiet place to do work in a small setting
- create art
- reflection
- trees- education
- science classes
- ease of access along trail
- athletes use the current trail for cross country practice
- maintain and expand pollinator garden, Monarch Garden certified as a "Roseland/ Carter Monarch Butterfly Trail"
- access to restrooms
- 2-5 mile loop from nature trail, to stadium, and along river (within Estel Higgins property)

Project: for general trail user, "The Mountain Heritage High School Nature Trail"

- Start at Mike Orr building
- 8 stops/ 2 trees per stop
- Supplementary information available online
- QR codes

Biking Trails

- Basic need for biking trails (cycling and mountain)
- Safety an issue for biker
- Bikes create erosion
- Brown University, University of MD, and more coming to bike and train on 19E
- Burnsville Metric every year

Potential for loop trail from town to bridge over Cane River:

- Under bridge and on the North side of 19E, found ancient Indian village
- Natural path from village to plateau (Burnsville)
- Large easement along north of 19
- Tie Health Center and Community College to loop

Trailhead

- Kiosk with multiple boards to describe area trails, history, art, etc.

History

- Yancey History Association, a historic society, Annex, and museum
- MaCorroy House

Mitchell Branch

- Runs underground (converted)
- daylight to town
- located near tool shed

New Gateway to town, Cherry Lane

- drain near road, water issues
- education, fitness, interpretive
- open for more ideas: outdoor classroom, athletics, town connection, likes art connection to town
- offering a quiet place to do work in a small setting
- create art
- reflection
- trees- education
- science classes

Burnsville, NC: Streetscape and Trail Conceptual Master Plan
for the Western Loop

STAKEHOLDER MEETING: JUNE 22-23, 2015 CONT.

Overall

- There seems to be an opportunity for design of downtown: planting, seating, pedestrian comfort, connecting sidewalks, kiosk

Trail Walk at Mountain Heritage High School with Jake Blood June 23, 2015

USGS Soil Survey, Soils:

1. County Visitor's Center
2. Drainage Basin at high school entrance
3. Town Square
4. Slope @ high school entrance
5. Slope on eastern side of high school entrance

Details

- Norb McKinney, a retired science teacher, can identify all species in amphitheater bog
- 500-600 high school students
- Yancey County < 20,000 population
- Burnsville = 2,000 people (farms still exist in town proper)
- Rock is Neisse mines- Schist and Neisse Rocks
- Higgins' house on high school property
- NC High Peaks Trail complete to Hole 9 of disk golf, get a map of disk golf area
- Briars, poison ivy, and invasive species on site
- Solar panel - used to heat water for school's steam radiators, transferred to oil for heating

Bog

- at amphitheater (full of trillium)
- High school site was a Christmas tree farm
- Pines- desire to reforest
- Create a Chestnut Foundation Farm
- Nancy Stairs requested for a Forest County Ranger to come to see pines and why they are felling

River Access

- Had a test station- ambient water quality
- conduct macroinvertebrate research
- water access good once you are down at river
- desire to extend trail along river on Higgins' property
- until they gain access to Higgins' property, extend the loop along river and install wide path
- Daniel Boone's brother had a property/ house below practice field near the river
- Phase 4, Loop Trail- along river toward water treatment facility and onto Boy Scout Trail

Design

- Trail from ORR building bus parking to nature trail
- Wayfinding in this area

Burnsville, NC: Streetscape and Trail Conceptual Master Plan for the Western Loop

COMMUNITY MEETING: AUGUST 17, 2015

Preliminary Conceptual Design Presentation

Community Meeting at the Burnsville Community Center, 5:30 – 7:30

Attendance: Melissa Philen (CDAC Project Manager), Joe Niland (Student Designer), and Alexander Jones (Student Designer)
Begin: 5:38 PM

Jake (introduction to Burnsville and the project):

- Promote and protect the Black Mountains
- Hiking and improving the trails of the Black Mountains
- Mountainous area and county with one town – Burnsville
- Only incorporated town in all of Yancey County
- Yancey County is known for its natural resources – Mt. Mitchell and US Forests
- Over 120 miles worth of trails including the Appalachian Trail
- Unconnected to the surrounding trails with citizens from across the world on it
- Burnsville NEEDS at least a trail for connection
- A lot of potential, especially to the natural resources, yet lacks the trails needed
- One of the few remaining town squares in all of North Carolina
- First choice would be to connect to Mt. Mitchell, property owners are an early issue
- High school is still a ‘work in progress’

Melissa (introduction to CDAC and Joe):

- Explanation of what CDAC is and how it works
- Discuss project, go over case studies, and get opinions
- 1st initial visit... Stakeholders meeting, walked the town and high school, got ideas for concepts

Joe and Melissa (introduction to case studies and project):

- College Avenue introduction; explanation of streetscapes, environmental and economic impact
- Signage, inform visitors of how to get place to place (creates a more inviting area)
- Overhead power lines, enclosing the street, making Main Street blend in with the town square
- Uncomfortable to be on Main Street unless you are in a car
- Promote businesses is the most important; bring in commerce
- Buffer between the pedestrian and the traffic (5 feet)
- How can you provide access to West Main Street and keep all traffic (but slower speeds)
Audience member: Speeding is a large issue “they fly way too fast”
- Focal area: make drivers slow down for pedestrians by trees and the landscape
- Very little vertical elements near Cherry Lane
Audience member: Are you aware of the flooding problem in the area?
- No curbs, no separation of road and parking lot, ect. // goes back to case studies
- Depressions for water to be collected
- Underground water reservoirs or sewer

Burnsville, NC: Streetscape and Trail Conceptual Master Plan
for the Western Loop

COMMUNITY MEETING: AUGUST 17, 2015

Joe and Melissa (Town Square Trailhead):

Plan 1 (Joe)

- Audience members: Don't move Mr. Burns
- Concept focus around water
- Spend money downtown
- Water fountain feature around Mr. Burns
 - Audience members: He was a Naval Captain
- Mountains honor Mr. Burns, just as this trailhead would do
- Kids can play and have the opportunity on the site, especially in the splash pad
- Hikers could use the splash pad
- Movable stage can be placed on the splash pad site
- Girl Scouts Plaza becomes more of a gathering space and compliments the rest of the design
 - Audience member: How does this impact the Craft Fair?
- How does the Craft Fair impact the site?
 - Audience member: Around the whole square with huge tents. Tents on all sides of the square.
- How much space is needed for the Craft Fair stage?
 - Audience member: Contact the Chamber of Commerce; Jamie for square footage and aerial images during event. Ginger for photos of the event.
 - Audience member: Craft Fair is in the 60th year. Site would be beneficial year round though.
 - Audience member: I would think you would need less trees in the site.
 - Audience member: 186 vendors this past year.
 - Audience member: Set up the square for more than one event a year. Flexibility in the Craft Fair
- How big are the craft fair vendors?
 - Audience member: Bike races beginning in the square.
 - Contact: Healthy Ancy, Randy Adkin, Alberts

Plan 2 (Melissa)

- Paving pattern in the road to represent Mr. Burns' ship
- Fountain at the bottom of the square to represent his work as a naval captain
- Nice gathering spaces on the side
- Mr. Burns' kiosk featuring steam wheels and interpretive signage for upcoming events
- Leave the monument, benches, and brickwork as is rather than creating all new; leave a trace of history
- Brick kiln black walls represent Black Mountains
- Representation of Smoky, Appalachian, and Black Mountains in the berms
- 'Who we are in the Town of Burnsville?'
- Interpretive statues around the Girl Scouts fountain to bring in local art; interpretive

Burnsville, NC: Streetscape and Trail Conceptual Master Plan for the Western Loop

COMMUNITY MEETING: AUGUST 17, 2015

Audience member: Berms aren't capable to hold chairs during festivals; limits space. Blacksburg has a lot of young people. Burnsville has a lot of old people who want chairs. A little bit of a different concept here in Burnsville.

Audience member: We want the ability to hold at least 100 chairs.

Audience members: Kids make too much noise around the square in the summer. Kids need something during the summer to do here in the square on a Saturday evening.

More kids should come for events than they do now.

Audience member: Always teenagers hanging out in the square after shop hours.

- Enclosed spaces for teens?
- Adaptable, changing town square.
- Phasing plan; depending on the town's priorities
 - Audience member: one of the mayors want to keep the town square southern and old fashioned
- Pocket parks, opportunities for places other than the square for activities
 - Audience member: Yancey County GIS and Jake has property ownership.
- Traditional Town Square feel?
 - Audience member: old features with lighting lamps, benches. (OLD lamps)
 - Audience member: Astronomy event in the town square has lighting issues... contact Genie Martin – Town Clerk Chamber of Commerce
- Preserving southern square for groups of all ages and events
 - Audience members: theme is a bit strong, would be a big change
 - Audience member: I'm not too keen on splash pads but I'm old
 - Audience member: Splash pads could bring in families. Families travel all the way to Asheville for their splash pad. Splash pad could bring in business.
 - Audience member: Splash pad possibly planned near McDonalds... will get plan to CDAC
 - Audience member: Look at artist's fountain at the Girl Scouts Plaza. Incorporate that in final conceptual design.

Joe and Melissa (Cherry Lane):

Audience member: 19 crossing is an issue and very dangerous. Sidewalks on both sides. Stoplight needed for crosswalk.

- Over a mile from High School to Downtown
- Cherry Lane being the first 'town street gateway'.
 - Audience member: SLOW PEOPLE DOWN. Too wide open... anything to do to slow people down. -Wine shop owner
 - Audience member: West Main and Cherry way too dangerous and unsafe for pedestrians
 - Audience member: Trees on the corners of Cherry Lane blocks views of traffic...
- How to get rid of water along Cherry Lane and West Main Street
 - Audience member: Talk to the lumber company to see if they get on board
- Dream big for Burnsville include a park
- Line of sight dependent of speeds
 - Audience member: Jimmy Ray is community friendly
- Water management issues in the area

Burnsville, NC: Streetscape and Trail Conceptual Master Plan
for the Western Loop

COMMUNITY MEETING: AUGUST 17, 2015

Joe and Melissa (High School gateway property):

- Getting people into the high school property and keep them there from 19 is important
- Park is a place of relief
- Stairs to get higher and native grass meadows
- More of a destination and photo op for non-high school students
- Gateway for the high school and nature trails
 - Audience members: Like the idea of the gateway for high school and nature trails. All don't see a purpose of the existing area.
- Daniel Boone's brother sitting on the bench
 - Audience members: Like the idea of a photo op

Joe and Melissa (High School Trails Site):

- Multiple possibilities for signage
- Outdoor classroom and native plants to go along with the existing butterfly gardens at the high school
- Incorporate the trails with learning at the high school. Gateway to the site.
- Our work locate the signage and create places for and along the trails.
- Invasive species in the area
 - Audience member: enjoy the reasoning behind the trails on the high school site
 - Audience member: How to maintain this area and how much maintenance will be included
 - Audience member: All enjoy the local materials being used in the signage on the trails

Audience members' Final Thoughts:

- I enjoy the gateways and how peaceful of an area it would create. The gateways would create a unique emphasis.
- Create an educational trail from the high school.
- Overall design on Town Square should be conservative.
- Any changes on Cherry Lane would be beneficial.

End: 7:18 PM

Sample Name	LabID	pH	BpH	P ppm	K ppm	Ca ppm	Mg ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	B ppm	CEC meq/100g	% Acidity	% Base Sat	% Ca Sat	% Mg Sat	% K Sat	P Rating	K Rating	Ca Rating	Mg Rating
West Main 1	30236	6.44	6.32	16	101	575	80	5.4	9.5	2.1	13.3	0.3	4.3	11.2	88.8	67.3	15.5	6 M+	H-	M	H-	
West Main 2	30235	5.69	6.16	33	96	584	95	11.6	10	7.7	36.4	0.2	5.4	26.5	73.5	54.3	14.6	4.6 H	H-	M	H	
Town Square 1	30234	6.21	6.2	6	249	896	186	3.4	7.6	0.6	21.8	0.7	7.8	15.2	84.8	57.1	19.6	8.1 M-	VH	H	VH	
Town Square 2	30233	5.6	5.96	6	128	533	146	1.5	14.7	0.6	6.3	0.3	6.8	38.4	61.6	39.1	17.6	4.8 L+	H	M	VH	
Town Square 3	30232	4.97	6.08	4	105	89	80	1.6	8.8	0.4	11	0.1	3.3	58.2	41.8	13.6	20.1	8.2 L	H-	L-	H-	



Locator Map: West Main Street Soil Samples 1 and 2



Locator Map: Town Square Soil Samples 1,2, and 3

Burnsville, NC: Streetscape and Trail Conceptual Master Plan for the Western Loop

EXPLANATION OF SOIL ANALYSIS

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The accompanying Soil Test Report (and supplemental Soil Test Notes, when provided) will help you assess your plant's need for fertilizer and lime.

The "History of Sampled Area" section restates the information you filled in on the Soil Sample Information Sheet you submitted with the soil sample.

The "Lab Test Results" section shows the relative availability of nutrients numerically and if appropriate, as a rating. The rating may be interpreted as follows: L=Low, M=Medium, H=High, VH=Very High, EH=Excessively High (soluble salt test only), DEF=Deficient, or SUFF=Sufficient, and sometimes a "+" or "-" When soils test Low, plants almost always respond to fertilizer. When soils test Medium, plants sometimes respond to fertilizer and a moderate amount of fertilizer is typically recommended to maintain fertility. When soils test High to Very High, plants usually do not respond to fertilizer. If there is no rating for a nutrient, the adequacy of that nutrient in the soil for the plant you specified has not been determined.

The following is an explanation of the symbols and abbreviation used in the report:

Report Symbols and Abbreviations

P = phosphorus	K = potassium
Ca = calcium	Mg = magnesium
Zn = zinc	Mn = manganese
Cu = copper	Fe = iron
B = boron	SS = soluble salts
lb/A = pounds per acre	ppm = parts per million
meq = milliequivalent	g = gram
pH = acidity	Sat. = saturation
N = nitrogen	P ₂ O ₅ = phosphate
K ₂ O = potash	% = percent
Est-CEC = estimated cation exchange capacity	
AG = agricultural limestone (dolomitic or calcitic)	

Fertilizer Recommendation

The fertilizer recommendations may be used for the same crop for two to three years. After this time, it is advisable to retest the soil to determine if significant changes have occurred in nutrient levels. When the soil tests Very High for phosphorus or potassium and no fertilizer for these nutrients is recommended, you should retest the following year to determine if fertilizer will be needed. Due to the variability associated with sampling, fertilizer application rates may be varied by a plus or minus 10 percent.

No soil test is performed for **nitrogen** because this element is too mobile in the soil for laboratory results to be useful. Nitrogen fertilizer recommendations are based on the crop/plant to be grown, the previous crop, and when applicable, the soil's yield potential. Comments on the report and other enclosed Notes, if any, will have further information regarding nitrogen.

Lime Recommendation

If needed, a lime recommendation is given to neutralize soil acidity and should last two to three years. After that time, you should have the soil retested. The measured soil test levels of calcium and magnesium are used to determine the appropriate type of limestone to apply. If neither dolomitic nor calcitic lime is mentioned, or "Ag" type or "agricultural" limestone is stated on the report, then it does not matter which type is used. When no information on the Soil Sample Information Sheet was provided regarding the last lime application, the lab assumed you have not applied lime in the past 18 months. If this is not correct, contact your Extension agent for advice on adjusting the lime recommendation to take into consideration recent lime applications. Do not over lime! Too much lime can be as harmful as too little. For best results, apply lime, when possible, several months ahead of the crop/plant to be planted to allow time for more complete soil reaction.



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EXPLANATION OF SOIL ANALYSIS

Methods and Meanings

For more detail on the lab procedures used, visit www.soiltest.vt.edu and click on “Laboratory Procedures.”

Soil pH (or soil reaction) measures the “active” acidity in the soil’s water (or hydrogen ion activity in the soil solution), which affects the availability of nutrients to plants. It is determined on a mixed suspension of 1:1, volume to volume ratio of soil material to distilled water.

Virginia soils naturally become acidic, and limestone periodically needs to be applied to neutralize some of this acidity. A slightly acid soil is where the majority of nutrients become the most available to plants, and where soil organisms that decompose organic matter and contribute to the “overall health” of soils are the most active. When a soil is strongly acidic (< 5.0-5.5), many herbicides lose effectiveness and plant growth is limited by aluminum toxicity. When soils are over-limed and become alkaline (> 7.0), micronutrients, such as manganese and zinc, become less available to plants.

For most agronomic crops and landscaping plants, lime recommendations are provided to raise the soil pH to a slightly acid level of between 5.8 and 6.8. Blueberries and acid-loving ornamentals generally prefer a 4.5 to 5.5 pH, and an application of liming material is suggested when the soil pH drops below 5.0. For the majority of other plants, lime may be suggested before the pH gets below 6.0. This is to keep the soil pH from dropping below the ideal range, since lime is slow to react and affects only a fraction of an inch of soil per year when the lime is not incorporated into the soil. If the soil pH is above the plant’s target pH, then no lime is recommended. If the pH is well above the ideal range, then sometimes an application of sulfur is recommended to help lower the pH faster; however, most of the time, one can just let the soil pH drop on its own.

A Mehlich buffer solution is used to determine the **Buffer Index** to provide an indication of the soil’s total (active + reserve) acidity and ability to resist a change in pH. This buffer measurement is the major factor in determining the amount of lime to apply. The Buffer Index starts at 6.60 and goes lower as the soil’s total acidity increases and more lime is needed to raise the soil pH. A sandy soil and a clayey soil can have the same soil pH; however, the clayey soil will have greater reserve acidity (and a lower Buffer Index) as compared to the sandy soil, and the clayey soil will require a greater quantity of lime to be applied in order to raise the soil pH the same amount as the sandy soil. A reported

Buffer Index of “N/A” means that it was not measured since the soil (water) pH was either neutral or alkaline and not acidic (soil pH \geq 7.0) and therefore requires no lime.

Nutrients that are available for plant uptake are extracted from the soil with a Mehlich 1 solution using a 1:5 vol:vol soil to extractant ratio, and are then analyzed on an ICP-AES instrument. An extractable Mehlich 1 level of phosphorus from 12 to 35 pounds per acre (lb/A) is rated as medium or optimum. A medium level of potassium is from 76 to 175 lb/A. Medium levels of calcium and magnesium are 721 to 1440 and 73 to 144 lb/A, respectively. Calcium and magnesium are normally added to the soil through the application of limestone. It is rare for very high fertility levels of P, K, Ca and Mg to cause a reduction in crop yield or plant growth. Levels of micronutrients (Zn, Mn, Cu, Fe and B) are typically present in the soil at adequate levels for plants if the soil pH is in its proper range. See Soil Test Note 4, at www.soiltest.vt.edu/stnotes, for documented micronutrient deficiencies in Virginia.

Soluble Salts (**S.Salts**) or fertilizer salts are estimated by measuring the electrical conductivity of a 1:2, vol:vol ratio of soil material to distilled water. Injury to plants may start at a soluble salts level above 844 ppm when grown in natural soil, especially under dry conditions and to germinating seeds and seedlings. Established plants will begin to look wilted and show signs related to drought. This test is used primarily for greenhouse, nursery and home garden soils where very high application rates of fertilizer may have led to an excessive buildup of soluble salts.

Soil Organic Matter (SOM) is the percentage by weight of the soil that consist of decomposed plant and animal residues, and is estimated by using either the weight Loss-On-Ignition (LOI method) from 150° to 360°C, or a modified Walkley-Black method. Generally, the greater the organic matter level, the better the overall soil tilth or soil quality, as nutrient and water holding capacities are greater, and improved aeration and soil structure enhance root growth. The percent of organic matter in a soil can affect the application rate of some herbicides. Soil organic matter levels from 0.5% to 2.5% are ordinary for natural, well-drained Virginia soils. A soil organic matter greater than 3% would be considered very high for a cultivated field on a farm, but can be beneficial. Due to relatively large amounts of organic materials being commonly added to gardens, the soil organic matter in garden soils can be raised into the range of 5% to 10%.

EXPLANATION OF SOIL ANALYSIS

The remaining values that are reported under the “Lab Test Results” section are calculated from the previous measured values and are of little use to most growers.

Estimated Cation Exchange Capacity (**Est-CEC**) gives an indication of a soil’s ability to hold some nutrients against leaching. Natural soils in Virginia usually range in CEC from 1 to 12 meq/100g. A very sandy soil will normally have a CEC of 1 to 3 meq/100g. The CEC value will increase as the amount of clay and organic matter in the soil increases. This reported CEC is an estimation because it is calculated by summing the Mehlich 1 extractable cations (Ca + Mg + K), and the acidity estimated from the Buffer Index and converting to units commonly used for CEC. This is also an Effective CEC since it is the CEC at the current soil pH. This value can be erroneously high when the soil pH or soluble salts level is high.

The percent **Acidity** is a ratio of the amount of acid-generating cations (as measured by the Buffer Index) that occupy soil cation exchange sites to the total CEC sites. The higher this percentage, the higher the amount

of reserve acidity in the soil, and the higher the amount of acidity there will be in the soil solution and the lower the soil pH will be. A reported Acidity% of “N/A” means that a buffer index was not determined, and the acidity is probably less than 1 meq/100g and/or 5%, and the soil pH is alkaline (greater than 7.0).

The percent **Base Saturation** is the ratio of the quantity of non-acid generating cations (i.e., the exchangeable bases, Ca, Mg, and K) that occupy the cation exchange (CEC) sites.

The percent **Ca, Mg, or K Saturation** refers to the relative number of CEC sites that are occupied by that particular nutrient and is a way of evaluating for any gross nutrient imbalance.

Additional Information

For questions and more information, contact your local Virginia Cooperative Extension (VCE) office or go to www.ext.vt.edu. Contact information for your local Extension office appears on the upper left of your soil test report.

Conversion Factors

(Some Values are Approximate)

1 acre = 43,560 square feet

1 pound of 5-10-5, 5-10-10 or 10-10-10 fertilizer = 2 cups

1 pound of ground limestone or ground dolomitic limestone = 1.5 cups

1 pound of aluminum sulfate or magnesium sulfate = 2.5 cups

1 pound of sulfur = 3.3 cups

1 quart = 2 pints = 4 cups

1 pint = 2 cups = 32 tablespoons

1 tablespoon = 3 teaspoons

1 bushel = 35.24 liters = 1.25 cubic feet

Pounds per 100 square feet x 0.54 = lbs per cubic yard

100 square feet = 5 feet x 20 feet, 10 feet x 10 feet, or 2 feet x 50 feet

1,000 square feet = 50 feet x 20 feet, 10 feet x 100 feet, or 25 feet x 40 feet

Pounds per 100 square feet x 436 = pounds per acre

Pounds per 1,000 square feet x 43.6 = pounds per acre

Pounds per acre x 0.0023 = pounds per 100 square feet

Pounds per acre x 0.023 = pounds per 1,000 square feet