New River Conservancy

Protecting the waters, woodlands and wildlife of the New River Watershed

Improving Water Quality Walking Tour

Boone, NC

Center for Appalachian Studies
APPALACHIAN STATE UNIVERSITY

THE NEW RIVER CONSERVANCY'S AND APPALACHIAN STATE'S COMMITMENT TO HEALTHY WATER

Welcome to the Water Quality Walking Tour!

The purpose of this tour is to educate you, the community, on the conservancy's and university's efforts to implement water quality controls throughout downtown Boone and ASU's campus. Not only do these water quality projects meet the goals of the New River Conservancy, they provide an opportunity for the tour to assist the Appalachian Regional Commission in meeting their goals, mission, and vision as well.

The New River Conservancy

Mission: Protecting the waters, woodlands and wildlife of the New River Watershed

Vision: New River Conservancy believes that clean water, healthy land, and empowered people benefit our communities by creating a watershed where people want to live, work and play. The watershed includes all the streams and brooks that feed the river and all of the forest, fields and communities that surround it.

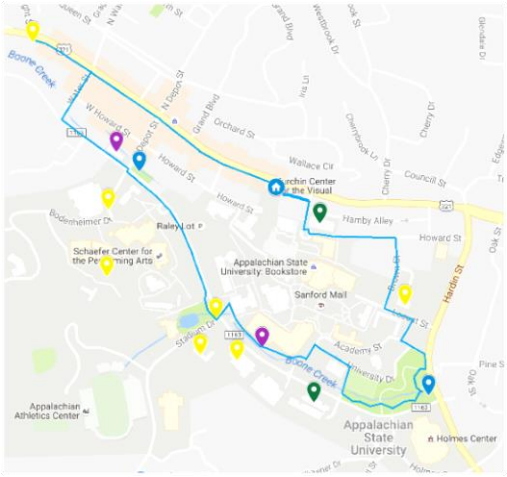
Appalachian Regional Commission (ARC)

Mission: ARC's mission is to innovate, partner, and invest to build community capacity and strengthen economic growth in Appalachia.

Goals:

1. Invest in Economic Opportunities
2. Create a Ready Workforce
3. Invest in Critical Infrastructure
4. Leverage Natural and Cultural Assets
5. Increase Leadership and Community Capacity

The organization of this tour meets ARC goals 1, 3, 4, and 5. Not only are the efforts of the NRC and ASU creating sustainable infrastructure, is also enhances the aesthetics and water quality of Boone Creek, educates the public on the issues (creating future leaders), and increases economic activity in the City of Boone.



Map Description

There are four types of water quality projects that the NRC and ASU have undertaken on campus and in downtown Boone. The green markers represent vegetated rooftops, the yellow permeable pavements, the purple rain gardens, and the blue other creek restorations. The blue line is the recommended walking path. (For full size map, see page 4)

Water Quality Project Types

Four types of water quality control measures are highlighted along your journey through campus and downtown Boone:

1. **Vegetated Rooftops (green marker on map):** Appalachian State University has built two vegetated rooftops on campus which are located at Katherine Harper Hall (1,935 sq. ft.) and at the Reich College of Education (2,608 sq. ft.). Both of these contain several varieties of sedum. Green roofs serve to absorb rainwater, provide habitat for local species, insulate the building, and provide cleaner air for the community.

2. **Permeable Pavements (yellow marker on map):** Appalachian State University and The New River Conservancy have created numerous permeable pavement projects throughout campus and downtown, some which are not highlighted in this tour. These pavements allow for a slower rainwater runoff rate into Boone Creek, not only assisting with the effects of flash flooding, but also water temperatures, water cleanliness, etc.

3. **Rain Gardens (purple marker on map):** There are two raingardens located along Boone Creek. The naturally occurring water dependent vegetation allows rainwater runoff to be captured quickly before entering the creek. Like the permeable pavements located in various places, the gardens decrease the effects of flash flooding, allow water time to cool, and filters the water to create a far cleaner watershed. Additionally, these areas provide shelter and habitat for local wildlife, and diversifies the ecosystem that is dependent upon the quality of water in the watershed.

4. **Stream Bank Improvements (blue marker on map):** These projects can clearly be seen between Durham Park and Jimmy Smith Park. Both the NRC and ASU have assisted in this process. Rock and vegetation replaced either culverted or steep/bare streambanks which allows for decreased bank erosion, lower rainwater runoff rates, and better water quality. This also makes Boone Creek more pleasant to the eye, as well as returns it to its natural state.

The Economic Advantage of Investing In Water Quality

There are numerous advantages of investing in water quality and natural assets. For Boone and ASU in particular, the enhancement of Boone Creek as well as other areas of its watershed prevents damages associated with flash floods, provides cleaner water to the citizens of Boone as well as people downstream in the New River Watershed, and attracts additional students and tourist due to the beauty of the creek. The natural state that the creek appears to be in now stimulates business activity in downtown Boone, as well as engages students in environmental leadership and awareness. Ultimately, this strengthens community, economy, and sustainability for all stakeholders associated with the projects.

Highlighted Projects

New River Conservancy:

- Jimmy Smith Park
- Kraut Creek
- Casey and Casey Law Parking Lot

Appalachian State University:

- Vegetated Rooftops:
  - Katherine Harper Hall
  - Reich College of Education
- Permeable Pavements:
  - Entrance Lovill Hall
  - Flexpave near Yosef Statue
  - Flexpave at Frank Hall
  - Flexpave from Justice Hall to Garwood Hall
  - Flexpave at Bodenheimer Bus Stop
  -
- Bioswales:
  - Boone Creek Flowing into Durham Park

IN DEPTH PROJECT PURPOSES

NRC Projects:

THERE ARE 3 PROJECTS OF THE NRC THAT HAVE BEEN FEATURED IN THIS TOUR. TWO OF THESE, DIRECTLY RECONSTRUCTED THE CREEK FOR WATER QUALITY PURPOSES. PARTICULARLY, JIMMY SMITH PARK IMPROVES WATER QUALITY, BUT ALSO PROVIDES AN AREA FOR RECREATION. IN ADDITION TO THOSE TWO PROJECTS, THE CASEY AND CASEY PARKING LOT WAS ONE OF THE FIRST OF ITS KIND. THE PERMEABILITY OF THE LOT WAS INCREASED, ALLOWING MORE TIME FOR RAIN WATER TO PENETRATE THE GROUND RATHER THAN RUNOFF INTO BOONE CREEK.

ASU Projects:

APPALACHIAN STATE UNIVERSITY HAS CREATED BIOSWALES IN BOONE CREEK, DUG RETENTION PONDS, ADDED PERMEABLE PAVEMENTS AROUND CAMPUS, PLACED RAIN GARDENS WITHIN THE CREEK, AND PLACED STORM WATER RETENTION PIPES UNDERGROUND. IN TOTAL, THERE ARE 2 BIOSWALES, 8 RETENTION PONDS, 13 AREAS OF PERMEABLE PAVEMENTS, 2 RAIN GARDENS, AND 4 STORM WATER RETENTION PIPES THROUGHOUT CAMPUS. ALL OF THESE EFFORTS WORK TOGETHER TO IMPROVE WATER QUALITY FOR ASU STUDENTS, CITIZENS OF BOONE, AND THE WILDLIFE OF THE CREEK.

Jimmy Smith Park Before

09/28/2011

Jimmy Smith Park After

09/28/2012

Kraut Creek Before

03/26/2007

Kraut Creek After

06/09/2009

Casey and Casey Lot Before

09/21/2010

Casey and Casey Lot After

06/06/2011

Flexpave Near Yosef

Varsity Gym Rain Garden

Bioswale Durham Park

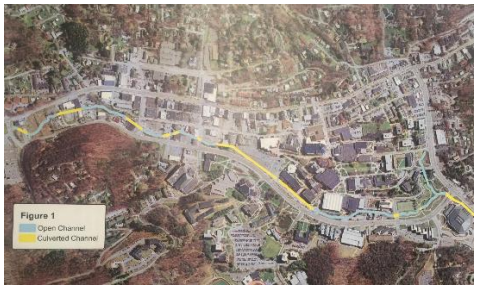
A WORD FROM NRC RIVER BUILDER COORDINATOR CHELSEA BLOUNT

Why does this matter to Chelsea?

"Because of my hobbies and what I want to do in my spare time. It usually involves hiking, fishing, swimming, canoeing, or anything like that, and water is critical to every single one of those. Not to mention, that's where we get our resources. Everything depends on water. So that's our main mission, to protect the water, and it's a very personal mission to me."

What else can be done?

A large portion of Boone Creek remains culverted, underground, and unrestored (see figure below). These culverted areas are not only inhabitable, but also create faster current through the stream with a higher pressure, and do not allow the creek to connect to the groundwater. This affects downstream restorations that have been executed by both ASU and the NRC. Restoration would improve aesthetics, provide habitat for creatures of the ecosystem, and improve the water quality of the creek. Additionally, other issues such as dumping in storm drains, pollution throughout Boone, and other externalities that my affect the watershed should be taken into consideration during everyday activities.



Sustainability and the Arts

Appalachian State University's Center for Appalachian Studies

The Sustainability and the Arts class, a course within the Appalachian Studies Master's Degree Program, is comprised of 11 graduate students. Partnering with the New River Conservancy, the Appalachian Regional Commission, Appalachian State University, and other local nonprofit organizations, the class seeks to educate the public on all of the benefits surrounding the New River. Promoting sustainable use of the river through the arts, the class has taken on four collaborative projects:

1. This Water Quality Walking Tour
2. Educational Presentations at Elk Knob and New River State Parks
3. An Online Historical Timeline of the New River Conservancy
4. An Art Exhibit at the Turchin Center for the Visual Arts

The class encourages the public to continue participating in events about the New, as well as educate themselves and others on how to use the river sustainably. This will create opportunities to inspire upcoming leaders within the watershed, potential jobs, new forms of infrastructure, an enhancement of natural and cultural assets, and will ultimately protect the New River for generations to come.

How can you get involved?

- Volunteer
- Fundraise
- Educate Yourself and Others
- Act Sustainably

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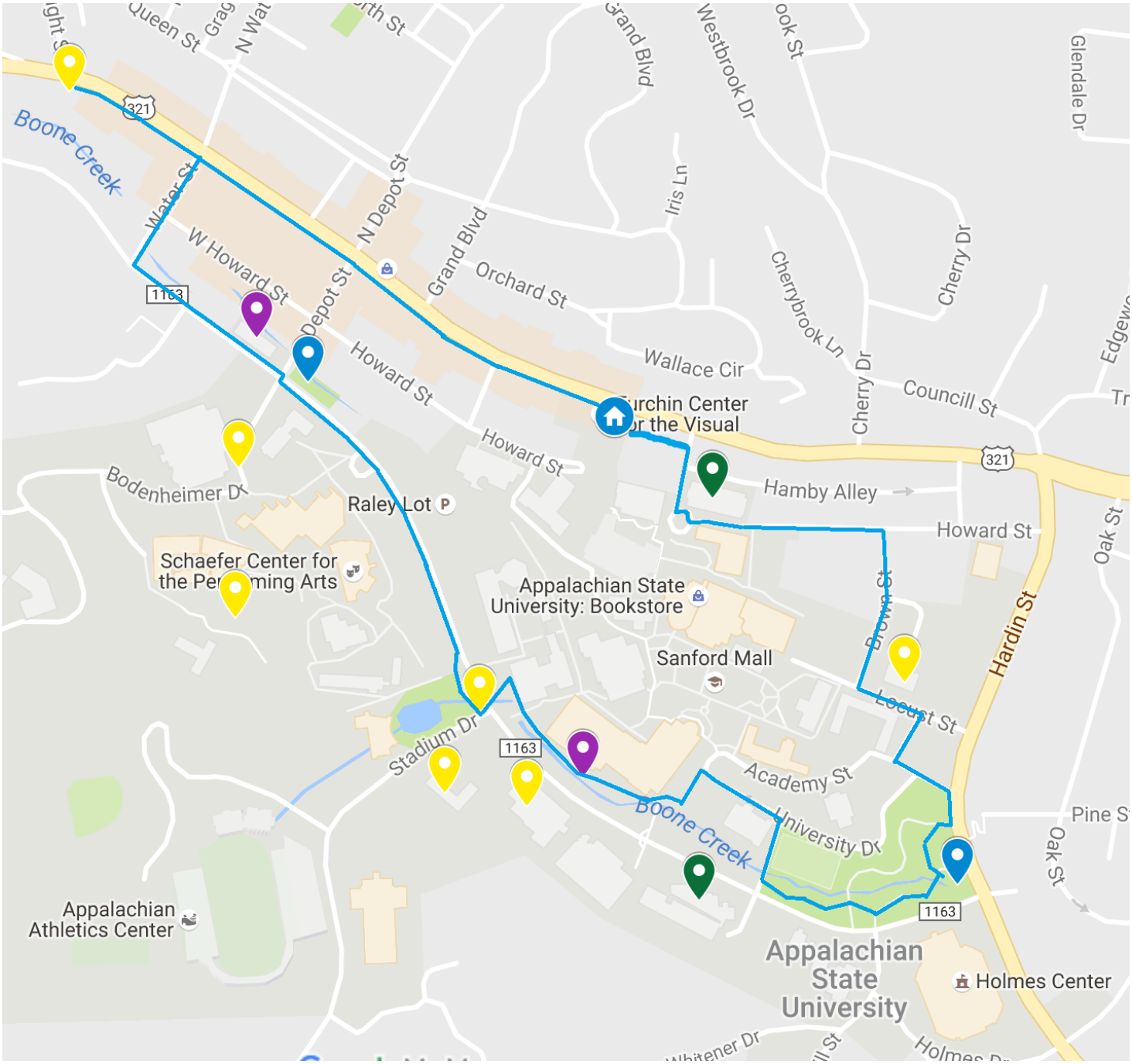
Boone Creek
321
Water St
W Howard St
1163
Depot St
N Depot St
Grand Blvd
Orchard St
Howard St
Wallace Cir
Iris Ln
Westbrook Dr
Cherrybrook Ln
Cherry Dr
Councill St
Glendale Dr
Hamby Alley
Howard St
Oak St
Hardin St
Bodenheimer Dr
Raley Lot
Schaefer Center for the Performing Arts
Appalachian State University: Bookstore
Sanford Mall
Brown St
Locust St
Stadium Dr
Academy St
University Dr
Pine St
Appalachian Athletics Center
Appalachian State University
Holmes Center