Adopted October 2009

BOONE 2030

Land Use Plan | Boone, North Carolina

ACKNOWLEDGMENTS

This Plan was Prepared For:

THE TOWN OF BOONE, NORTH CAROLINA

MAYOR AND TOWN COUNCIL

Mayor Loretta Clawson
Mayor Pro Tem Lynn Mason
Rennie Brantz
Janet Pepin
Stephen Phillips
Liz Aycock

DEVELOPMENT SERVICES STAFF

John Spear
Development Services Director
Greg Young
City Manager
Ricky Hurley
Planning Supervisor
David Graham
Development Coordinator
Jane Shook
Planner
Christy Turner
Planner
David Weakley
Environmental Planner
Brian Johnson
Urban Design Specialist

PROJECT ADVISORY COMMITTEE

Lynne Mason, Town Council
Stephen Philips, Town Council
Bunk Spann, Chair, Planning Commission
Mary Ruth McRae, Vice-Chair, Planning Commission
Rich Crepeau, Chair, Board of Adjustment
Adrian Tate, Chair, Community Appearance Commission
Mike Curcio, Greenway Committee
Betty Bond, Chair, Historic Preservation Commission
Rob Holton, Economic Development Commission
Dan Meyer, President, Chamber of Commerce
Rich Jacobs, President, Downtown Boone Development Association
Greg Lovins, Vice Chancellor for Business Affairs, Appalachian State University
Debra Miller, Board Member, Watauga County Schools
John Cooper, Commissioner, Watauga County

CONSULTANT TEAM

THE LAWRENCE GROUP

Craig Lewis, AICP, LEED AP, Principal in Charge
Dave Malushizky, AIA, LEED AP
David Walters, RIBA, CNU
Tom Harrington, RLA
John Cock, AICP
Chad Hall
Megan Doskocil
Amanda Huggins
Shawn Satterfield

ROSE & ASSOCIATES

Kathleen Rose, CCIM

KUBILINS TRANSPORTATION GROUP

Wade Walker, PE
Tegan Smith
Neil Burke
in association with Walter Kulash

EQUINOX ENVIRONMENTAL CONSULTATION & DESIGN

David Tuch, RLA

LAWRENCE GROUP

PO Box 873
108 South Main Street
Suite B
Davidson, NC 28036
P 704.896.1696
F 704.896.1697
www.thelawrencegroup.com

We would like to thank the Town of Boone and the numerous citizens and stakeholders who participated in this exciting planning process. This effort is a reflection of the community's vision and serves as the foundation for the next stages of Boone's growth. It is intended to guide the leaders of today and the visionaries of tomorrow.

– Craig Lewis, Principal in Charge

© 2009 by Town of Boone, NC, and
The Lawrence Group Architects of the Carolinas, Inc.
Reproduction Permitted with Credit in Print.

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY 1
Summary Recommendations 6

2 INTRODUCTION & ANALYSIS 10
History & Context 11
Land Use Plan Purpose & Process 12
Plan Area 13
Previous Planning Efforts 14
Existing Zoning 16
Market Analysis 17

3 CIVIC DIALOGUE AND PARTICIPATION 22
Public Input & Community Priorities 23
Advisory Committee 24
Community Survey 25
The Charrette 27
Charrette Feedback 31
Charrette Deliverables 33

4 THE FRAMEWORK PLAN 34
Purpose & Philosophy 35
Methodology 36
Environmental Considerations 38
The Framework Plan 39

5 INFRASTRUCTURE & SUSTAINABILITY 47
Green Infrastructure 48
Stormwater Management & Water Quality Protection 51
Watershed Protection/Water and Sewer Infrastructure 53
Sustainable Site Planning 54
Best Practices for Development on Slopes 56
Slope Stability and Landslides 57
Sustainable Building Practices 58
Sustainable Energy 59

6 TRANSPORTATION 60
Issues & Opportunities/Existing Conditions 61
Liveable Transportation Principles 66
Daniel Boone Parkway 68
Downtown Transportation 71
US 421/East King Street 73
US 321 South 74
Other Roadway Recommendations 76
Transit 78
Bicycle & Pedestrian Access & Mobility 81

7 DOWNTOWN BOONE 84
Assessment of Existing Conditions 85
Walking Tour Assessment 86
Downtown Concept Plan 88
Parking in Downtown 92
The Combined Downtown & ASU Vision 93
Urban Design & Retailing Principles for Downtown 94

8 FOCUS AREAS 96
Overview 97
Old High School Site 98
105 & Poplar Grove 99
State Farm Road Infill 100
105 Extension Infill 101
East King Street Gateway 102
421 Redevelopment 103
Park & Ride 104
Mixed Use along the Greenway 105
Kraut Creek/Boone Creek Restoration Concept 106
Kmart Site Redevelopment 109
Hospital District Redevelopment 110

9 IMPLEMENTATION & REGULATORY RECOMMENDATIONS 111
Housing Opportunities & Choices 112
Historic Preservation 114
Design Guidelines 115
Visitability & Universal Design 116
Other Implementation Recommendations 117

1: EXECUTIVE SUMMARY

STATEMENT OF VISION: BOONE 2030

The vision statement for the Boone 2030 Land Use Plan was crafted by the members of the Stakeholder committee. It accurately reflects the broader public input received during the plan process and the Town's Smart Growth aspirations:

1 We will have a vibrant, attractive, walkable, bikable and transit-friendly community that is financially, socially and environmentally sustainable.

2 Our high country heritage is honored through our attention to aesthetic beauty, promotion of our culture, and protection of our natural resources.

3 We are a community of strong (and economically) diverse neighborhoods, successful and beautiful commercial corridors, a vibrant downtown, and high quality educational institutions (all levels).

4 We are a regional center for commerce, health care, and education.

5 Our vibrant downtown and the University is surrounded by strong neighborhoods, successful and beautiful commercial corridors, and an easily accessible University campus.

A PROPOSED VIEW LOOKING WEST ON MAIN STREET WITH NEW INFILL BUILDINGS WITH VERNACULAR ARCHITECTURAL STYLE AND SENSITIVITY ▼

SMART GROWTH PRINCIPLES

1. Mix land uses.
2. Take advantage of compact building design.
3. Create a range of housing opportunities and choices.
4. Create walkable communities.
5. Foster distinctive, attractive communities with a strong sense of place.
6. Preserve open space, farmland, natural beauty, and critical environmental areas.
7. Strengthen and direct development towards existing communities.
8. Provide a variety of transportation choices.
9. Make development decisions fair, predictable, and cost effective.
10. Encourage community and stakeholder collaboration in development decisions.

Smart Growth Network, www.smartgrowth.org

A PROPOSED VIEW ▶ LOOKING SOUTH AT INFILL ALONG US 321 IN THE KMART PARKING LOT

EXECUTIVE SUMMARY

PLAN PURPOSE

The land use master plan works together with the Town's Comprehensive Plan and other plans and programs to provide for the Town of Boone's long range growth. The land use master plan is a three-dimensional framework for the comprehensive plan and will serve as the basis for all the facility and service needs of the town. It serves as the guiding vision and policy basis for determining the appropriateness of any development or redevelopment that is proposed for Boone. This plan is part of broader on-going comprehensive planning efforts that the Town has been engaged in over the last two decades.

MARKET ASSESSMENT

The plan includes a qualitative market assessment. Key findings of the assessment include:

- Boone's population has grown very little since the 2000 census compared to its neighbors, yet it is pressured by the rapid growth within the surrounding communities and at the University.
- Opportunities exist for Boone to expand its economic base beyond tourism, retail and education by recruiting additional jobs to the County's growing roster of white collar and knowledge-based companies. Targeted economic clusters for Boone might include health, technology and knowledge-based industries.
- Boone has the opportunity to maximize its quality of life and create a more sustainable future by diversifying its housing stock while balancing its tax base.
- Review of the data, current plan documents and the existing conditions suggest three priority areas of focus for future development: Downtown and the primary gateway corridors of US 421 and US 321. To a lesser extent, the NC 105 and NC 194 corridors will require attention as well.
- The estimated vacancy rate of 4.5% suggests a healthy/stable market for retail based upon space inventory.
- The estimated supply of office space suggests a two-year inventory currently in the market. The supply of industrial space suggests that there is a five-year inventory currently in the market.
- There is an opportunity in Boone to provide housing stock that is an alternative to either low cost apartments or high cost low density single family with new offerings such as patio homes, bungalows, lofts, townhomes and condominiums both for-lease and for-sale.
- The most important housing issues facing Boone and the region include: affording housing for working residents; affordable housing for low income residents & seniors; infill housing on vacant or underutilized sites; mixed-use buildings (residential over commercial).

SUMMARY OF PUBLIC INPUT: COMMUNITY PRIORITIES

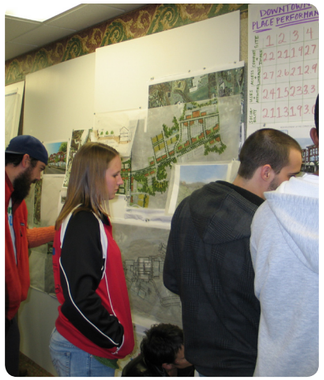
Beginning in the summer of 2008, the consultant team collaborated with staff, elected officials, citizens, and stakeholders to develop a vision for Boone's planning area. Public participation in the plan development included several key elements:

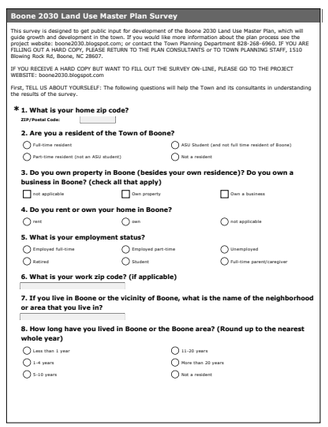
1. An advisory committee
2. A community-wide survey
3. A plan website
4. A five-day public planning and design workshop (also known as a "charrette") held in October, 2008.

All told, there were more than 1,000 individual citizen and stakeholder interactions throughout the plan process using these various input mediums.

The list below summarizes the major points made by the public during the plan process in the various venues for feedback: the kick-off meeting, the community survey, and the public workshop meetings. The list very much reinforces and corroborates the vision statement developed by the Advisory Committee. While almost all of these elements relate to growth and positive change in Boone, there were some comments that reflected a desire to keep things as they are.

1. Encourage growth/maintain small town atmosphere
2. Protect natural resources
3. Provide transportation choices; Make it practical for people to bicycle/walk
4. Relieve traffic congestion
5. Develop a vibrant downtown
6. Create attractive streetscapes and corridors
7. Encourage denser /pedestrian-friendly, mixed-use development
8. Facilitate infill/redevelopment
9. Promote economic development
10. Increase community interaction/cultural resources
11. Provide a broad range of housing opportunities
12. Cultivate bold, visionary leadership
13. Make the development approval process predictable
14. Foster cooperative Town/University development
15. Don't change a thing (except taxes)





MEDIA APPLICATIONS & INPUT FORUMS

The images above and at left portray the various media used during the charrette. They included project posters, community surveys, project website, powerpoint presentations, and video interviews. These various formats were used to raise awareness about the plan, keep the public posted on the latest ideas generated, and will serve as a multi-media record of the proceedings.

THE FRAMEWORK PLAN

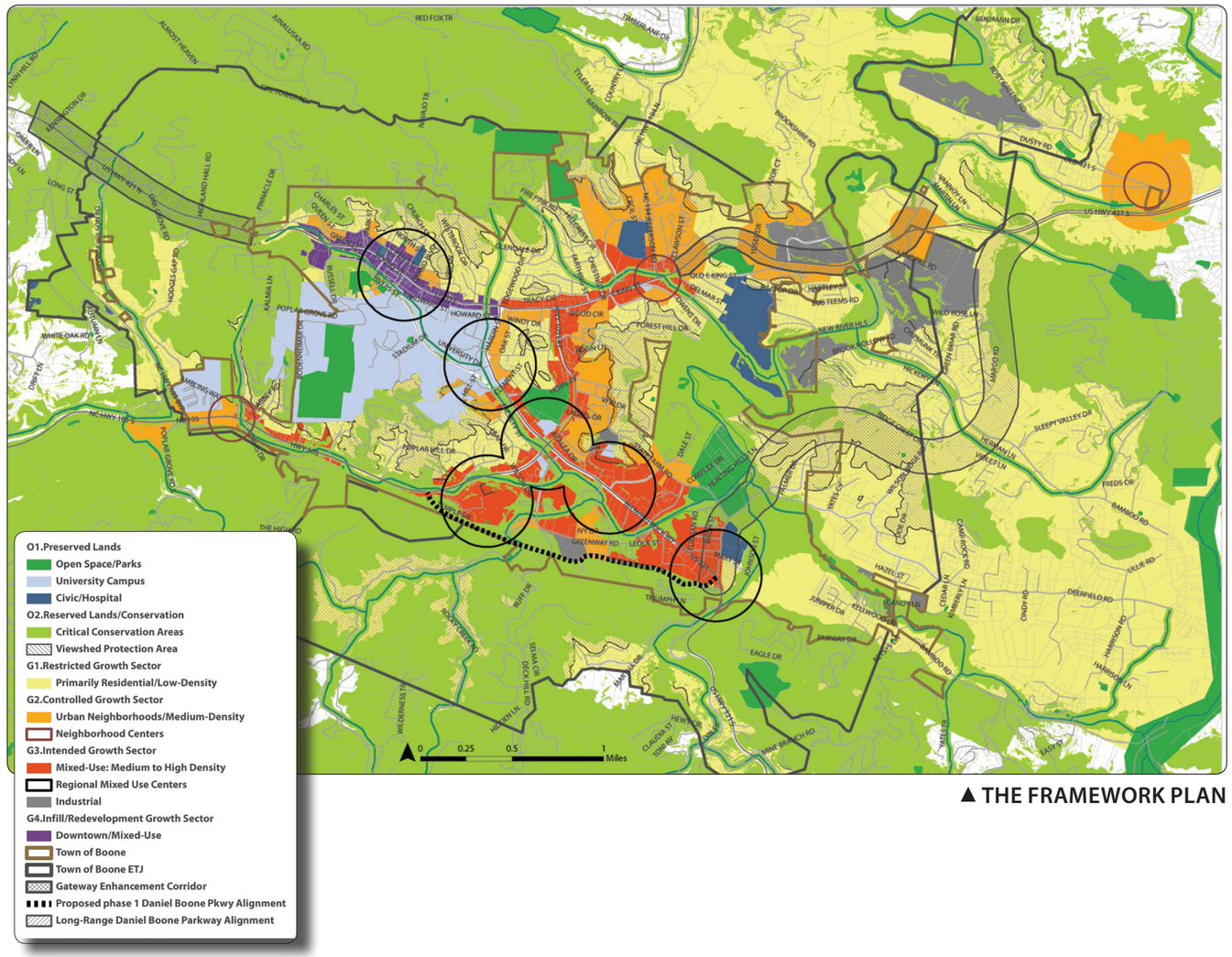
The Framework Plan is a land use policy map intended to provide guidance to Boone's leaders as they make decisions on where and how the community should grow. It provides the overall structure for orchestrating appropriate patterns of growth and environmental conservation throughout the community. As such, it provides the framework for and is the cornerstone of the Land Use Plan. As a policy guide, the land use master plan is not a regulatory document but rather a reflection of the community's vision of its future self.

As land use and transportation are inextricably linked, the Framework Plan incorporates planned and existing roadway facilities. It also is informed by existing development trends and adopted land use policy, including the Town's existing zoning districts, viewshed protection areas, water supply watershed protection areas, and water/sewer service delivery areas. In addition to the methodology described below, the Framework Plan is also based on development concepts that the community articulated and prioritized during the plan process. Community land use priorities include: protecting natural resources; developing a vibrant downtown; encouraging pedestrian-friendly, mixed-use development; facilitating infill/redevelopment; and providing a broad range of housing opportunities.

The Framework Plan methodology divides land within the study area into six separate classifications or "sectors" (labeled as O-1 through G-4 and further described on the pages that follow). These range from the most natural (Preserved Lands) to the most urbanized areas (Downtown/ Mixed-Use), with each sector reflecting the appropriate balance between environmental conservation and development intensity for the area.

The Framework Plan is a macro-level planning tool to properly organize the Boone community. While it is coded to the parcel level, it is not intended to replace the zoning map. Rather, it is an aggregation of a series of zoning categories that combine to form neighborhoods and sectors. Once adopted, the Framework Plan can more easily be adapted to the existing zoning categories in the town's zoning or serve as a basis for a full conversion to a form-based code in the future. The matrix which follows is a cross referencing tool to help guide individual zoning decisions.

The Framework Plan is a land use policy map intended to provide guidance to Boone's leaders as they make decisions on where and how the community should grow. It provides the overall structure for orchestrating appropriate patterns of growth and environmental conservation throughout the community.



▲ THE FRAMEWORK PLAN

IMPLEMENTATION RECOMMENDATIONS

The matrix that follows lists the major implementation recommendations in the report. They are categorized by project type and assigned an implementation time frame based on priority of completion. The matrix suggests the primary implementing agency for each initiative and other organizations/entities that each action step should be coordinated with. The matrix also includes a column indicating "Status" of implementation. This column has been left blank in hopes that it will be used over time to track progress on implementation of the various recommendations.

Page	Project/Task Type	Project/Task	Implementing Agency	Coordinate with (Agency, Organization)	2009-2010	2011-2014	2015-2019	On-going	Status
4: THE FRAMEWORK PLAN									
CH. 4	Policy & Ordinance Amendments	Adopt the framework plan and use it to guide land use decisions.	Town of Boone	Watauga County	X				
36	Policy & Ordinance Amendments	Subdivide regional sectors into transect zones and develop/apply new context-based development standards .	Town of Boone			X			
41	Studies & Plans	Complete a detailed small area plan for the Kellwood/Happy Valley area.	Town of Boone & Watauga County	Area landowners, businesses, NCDOT		X			
5: INFRASTRUCTURE & SUSTAINABILITY									
48	Studies & Plans	Develop a detailed open space/green infrastructure plan.	Town of Boone & Watauga County	ASU & other land owners, local conservancies, environmental organizations		X			
48	Policy & Ordinance Amendments	Enhance minimum open space requirements.	Town of Boone	Local advocacy organizations, developers		X			
48	Studies & Plans	Implement the recommendations of the urban forestry management plan.	Town of Boone	Local advocacy organizations, developers				X	
49	Policy & Ordinance Amendments	Investigate application of a TDR Program for preservation of sensitive environmental/agricultural lands.	Town of Boone & Watauga County	Landowners, local conservancies		X			
50	Policy & Ordinance Amendments	Encourage infill in developed areas with regulations and incentives.	Town of Boone	Landowners, developers	X	X			
51	Policy & Ordinance Amendments	Apply best management practices for water resources/smart growth.	Town of Boone	Environmental organizations & other advocacy orgs; developer groups	X	X	X	X	
51	Studies & Plans/Policy & Ordinance Amendments	Develop a comprehensive storm drainage and flood management plan.	Town of Boone			X			
52	Policy & Ordinance Amendments	Consider increasing minimum riparian buffer widths in certain areas.	Town of Boone	Environmental organizations & other advocacy orgs; developer groups		X			
52	Policy & Ordinance Amendments	Discourage development in the 100-year floodplain.	Town of Boone	Landowners including ASU					
53	Support, Assistance & Coordination	Continue to protect the water supply from encroachment with carefully managed development.	Town of Boone, landowner, developer					X	
53	Support, Assistance, Coordination	Advocate for water conservation techniques in construction practices.	Town of Boone	Town of Boone, ASU, state & local environmental organizations/agencies				X	
53	Studies & Plans	Develop a water and sewer master plan that accommodates the build-out envisioned in this plan.	Town of Boone	ASU		X			
54	Policy & Ordinance Amendments	Adopt the Site Resource Assessment (SRA) Tool for developments in sensitive and low density growth areas.	Town of Boone			X			
54	Support, Assistance, Coordination	Promote the use of the SRA through education, funding, incentives, and sharing of information.	Town of Boone	Local land development consultants, ASU students & faculty, CCCT		X			

Page	Project/Task Type	Project/Task	Implementing Agency	Coordinate with (Agency, Organization)	2009-2010	2011-2014	2015-2019	On-going	Status
56	Policy & Ordinance Amendments	Apply best practices for steep slope development.	Town of Boone			X			
57	Policy & Ordinance Amendments	Require and promote landslide protection recommendations.	Town of Boone			X			
58	Support, Assistance & Coordination	Provide leadership for sustainable building practices.	Town of Boone	ASU Sustainability Program				X	
58	Policy & Ordinance Amendments	Encourage green building standards for private development.	Developers	Town of Boone, ASU, developers		X	X	X	
59	Support, Assistance, Coordination	Establish an energy task force and develop a renewable energy plan.	Town of Boone, power company, ASU,	AIRE and related organizations	X	X			
59	Policy & Ordinance Amendments	Remove regulatory barriers to renewable energy and provide incentives for their use.	Town of Boone, power company, ASU,	AIRE and related organizations	X	X			
6: TRANSPORTATION									
66	Policy & Ordinance Amendments	Adopt and apply liveable transportation principles.	Town of Boone	NCDOT, ASU, High Country RPO	X	X	X	X	
69	Support, Assistance & Coordination	Advocate for the low build alternative to Daniel Boone Parkway.	Town of Boone	NCDOT, High Country RPO, Watauga County	X	X	X	X	
72	Capital Improvements	Consider capital improvements for downtown including: improved pedestrian and intersection safety; consider reverse angle parking, and consider a festival street section for Howard Street.	Town of Boone		X	X			
72	Studies & Plans; Support, Assistance & Coordination	Conduct a parking study for downtown.	Town of Boone	Watauga County, ASU	X	X			
73	Support, Assistance & Coordination	Implement planned pedestrian and bicycle improvements with the US 421 widening.	Town of Boone, High Country RPO	NCDOT	X	X			
75	Support, Assistance & Coordination	Consolidate driveways and develop cross-parcel connections along US 321.	Town of Boone, Land owners/ developers	NCDOT	X	X	X		
75	Studies & Plans	Consider a plan for an urban boulevard for US 321.	Town of Boone, NCDOT	High Country RPO		X			
75	Capital Improvements	Implement pedestrian and bicycle improvements to US 321 corridor.	Town of Boone, NCDOT	High Country RPO, ASU	X	X	X		
76	Capital Improvements	Reallocate space on Rivers and Hardin Streets to other modes of transportation.	Town of Boone, ASU	NCDOT	X	X			
76	Capital Improvements	Provide additional roadway connections and safety upgrades.	NCDOT	Town of Boone, High Country RPO	X	X	X		
78	Capital Improvements	Continue to improve and expand AppalCART services, information, shelters, and bicycle racks.	AppalCART/High Country RPO	Town of Boone, ASU	X	X			
78	Support, Assistance & Coordination	Establish park-and-ride facilities to be introduced at community gateways.	AppalCART/High Country RPO	Town of Boone, ASU		X			
78	Support, Assistance & Coordination	Expand regional bus services to additional locations.	Piedmont Area Regional Transit (PART)	AppalCART, ASU, NCDOT, High Country RPO		X	X		
81	Studies & Plans	Complete a pedestrian master plan.	Town of Boone	ASU, RPO, NCDOT		X			
81	Policy & Ordinance Amendments	Make pedestrian accessibility changes to the unified development ordinance as recommended in the smart growth audit.	Town of Boone		X				
81	Capital Improvements	Prioritize sidewalk construction around identified nodes and key pedestrian routes. Improve pedestrian safety at intersections and crossings.	Town of Boone	NCDOT	X	X	X	X	

ACTION ITEMS

Page	Project/Task Type	Project/Task	Implementing Agency	Coordinate with (Agency, Organization)	2009-2010	2011-2014	2015-2019	On-going	Status
81	Capital Improvements	Develop bicycle facilities as part of proposed or planned roadway projects.	NCDOT, Town of Boone	High Country RPO, ASU	X	X	X	X	
81	Studies & Plans	Complete a bicycle master plan.	Town of Boone	ASU, RPO, NCDOT		X			
81	Capital Improvements	Develop and expand greenways.	Town of Boone	Watauga County		X	X	X	
7: DOWNTOWN BOONE									
89	Studies & Plans	Complete a "Comprehensive Downtown Master Plan".	Town of Boone	ASU, Watauga County		X			
89	Capital Improvements	Develop a new signage & wayfinding package.	Town of Boone	CAC, ASU, Watauga County		X			
89	Capital Improvements	Enhance streetscapes and introduce street furnishings.	Town of Boone	CAC, ASU, Watauga County		X	X		
89	Capital Improvements	Daylight the creek south of Howard Street and create a downtown park area.	Town of Boone, ASU	Land owners, developers, Environmental Organizations		X	X		
89	Capital Improvements	Consider extending Appalachian Street as a through street or path.	Town of Boone, ASU			X			
89	Capital Improvements	Develop shared parking structures in partnership with the University.	Town of Boone, ASU			X	X		
89	Capital Improvements	Create a green pedestrian alley/public space between King and Howard Streets.	Town of Boone			X			
92	Policy & Ordinance Amendments; Studies & Plans	Evaluate various strategies to help maximize the use of existing parking facilities and help promote continued infill development downtown.	Town of Boone, ASU	Watauga County	X	X			
93	Support, Assistance, Coordination	Promote mixed use infill along King Street.	Town of Boone	ASU	X	X	X	X	
93	Support, Assistance, Coordination	Continue conversations and cooperation with ASU and other stakeholders.	Town of Boone, ASU	Watauga County	X	X	X	X	
94	Support, Assistance, Coordination	Apply urban design & retailing principles in downtown.	Merchants, Property Owners, DBDA	Town of Boone	X	X	X	X	
8: FOCUS AREAS									
98	Support, Assistance, Coordination	Redevelopment of old high school site.	Watauga County	Town of Boone		X	X		
98-110	Support, Assistance, Coordination	Various development/redevelopment model sites which exemplify the principles of mixed-use, pedestrian-orientation, compact development/ infill, and conservation subdivision.	Landowners, developers	Town of Boone	X	X	X	X	
104	Support, Assistance, Coordination	Establish, expand, enhance potential park-n-ride facility at ASU off-campus parking lot.	ASU	AppalCART, Town of Boone		X			
104	Capital Improvements	Consider a shared use public works facility between the University and the Town.	ASU, Town of Boone			X			
106	Support, Assistance & Coordination	Work with environmental organizations, ASU, and area property owners to implement the recommendations in this plan.	Town of Boone	ASU, state & local environmental organizations/agencies	X	X	X	X	
106	Support, Assistance & Coordination	Look for opportunities for demonstration projects in conjunction with development or redevelopment along creeks.	Environmental Organizations, landowners, developers	Town of Boone, ASU, state & local environmental organizations/agencies	X	X	X	X	
106	Policy & Ordinance Amendments	Incorporate creek restoration and stormwater BMPs into development requirements.	Town of Boone			X			
108	Support, Assistance & Coordination	Showcase redevelopment site along US 321 as a "green" park opportunity.	Town of Boone, landowner, developer	ASU, environmental organizations		X			

Page	Project/Task Type	Project/Task	Implementing Agency	Coordinate with (Agency, Organization)	2009-2010	2011-2014	2015-2019	On-going	Status
9: GENERAL RECOMMENDATIONS									
112	Policy & Ordinance Amendments	Establish location and design criteria for affordable/workforce housing.	Town of Boone	Area housing agencies	X				
113	Policy & Ordinance Amendments	Provide incentives and remove regulatory barriers for affordable/workforce housing.	Town of Boone	Developers, area housing agencies	X	X			
113	Policy & Ordinance Amendments	Work to provide sewer/water allocations and service to a proportional number of affordable housing units.	Town of Boone	Developers		X			
113	Support, Assistance, Coordination	Work with local employers to develop in-town housing options for employees.	Town of Boone	Housing agencies, local employers (Hospital, ASU, etc.)		X	X	X	
113	Support, Assistance, Coordination	Work with ASU to maximize on-campus housing options for students.	ASU	Town of Boone	X	X	X	X	
114	Support, Assistance, Coordination; Studies & Plans	Continue to support the Historic Preservation Commission in their efforts to inventory significant properties and develop a preservation plan.	Town of Boone	Historic Preservation Commission	X	X	X	X	
114	Policy & Ordinance Amendments	Identify High Country-specific historic architectural details and incorporate these into local design guidelines.	Town of Boone	Historic Preservation Commission, local builders, designers		X			
114	Policy & Ordinance Amendments	Work with private developers, property owners and public entities (e.g., ASU, etc.) to protect historic and culturally significant structures and sites as new developments are proposed. Provide incentives for protecting and preserving structures and significant sites.	Town of Boone	Local developers and property owners	X	X	X	X	
115	Policy & Ordinance Amendments	Develop design standards for all buildings.	Town of Boone	Local builders, designers		X			
116	Policy & Ordinance Amendments	Incorporate visitability and universal design standards into local guidelines and requirements.	Town of Boone		X	X			
117	Policy & Ordinance Amendments	Rewrite the UDO and revise the zoning map based on the Framework Plan.	Town of Boone	Developers, landowners, advocacy organizations	X	X			
117	Studies & Plans	Prepare small area plans for neighborhoods and districts.	Town of Boone	Neighborhood and district organizations		X	X	X	
117	Policy & Ordinance Amendments	Designate gateway enhancement corridors.	Town of Boone	Land owners, developers		X			
117	Studies & Plans	Create a capital improvement prioritization plan.	Town of Boone	NCDOT, High Country RPO, ASU, Watauga County	X	X			
117	Support, Assistance, Coordination	Establish a Boone Design Studio.	Town of Boone	ASU		X			
118	Support, Assistance, Coordination	Develop a public/private partnership program for redevelopment.	Town of Boone			X			

2:INTRODUCTION & ANALYSIS

The Town of Boone is located in the Blue Ridge Mountains of western North Carolina, USA. Boone was incorporated in 1872 and is the county seat of Watauga County with a population around 14,000.

Boone acquires its name from the famous pioneer and explorer Daniel Boone, who on several occasions camped at a site generally agreed to be within the present city limits. Boone was served by the narrow gauge East Tennessee and Western North Carolina Railroad (nicknamed "Tweetsie") until the flood of 1940.

Boone is the home of Appalachian State University, a constituent member of the University of North Carolina. Appalachian State is the fifth largest university in the sixteen campus system. Caldwell Community College & Technical Institute also operates a satellite campus in Boone.

Boone has the highest elevation (3,300 feet) of any town of its size (over 10,000 population) east of the Mississippi River. As such, the climate of Boone has between humid continental climate and humid subtropical climate closer to that of Northern New England or the upper Midwest than the South.

Located off the beautiful Blue Ridge Parkway, Boone offers its residents and visitors a four-season playground for sports and outdoor activities. Boone is recognized by travel journalists as an "ultimate outdoor adventure destination" in the Southeast. It is also home to the Appalachian Regional Medical Center, scores of businesses, tourist attractions and a progressive school system consistently ranked for its excellence.

Note: Text in this section has been adapted from http://en.wikipedia.org/wiki/Boone,_North_Carolina and http://www.townofboone.net.

Source: http://www.expressboone.com/images/Boone-Map.jpg

◀ CONTEXT MAP OF BOONE

LAND USE PLAN PURPOSE & PROCESS

PLAN PURPOSE

The land use master plan works together with the Town's Comprehensive Plan and other plans and programs to provide for the Town of Boone's long range growth. The land use master plan is a three-dimensional framework for the comprehensive plan and will serve as the basis for all the facility and service needs of the town. It serves as the guiding vision and policy basis for determining the appropriateness of any development or redevelopment that is proposed for Boone. This is consistent with the *Comprehensive Plan Update*'s recommendation of a "more comprehensive, long range planning process."

The goal of the land use master plan is to provide a general pattern for the location, distribution and character of the future land uses within Boone's growth area. As a policy guide, the land use master plan is not a regulatory document but rather a reflection of the community's vision of its future self.

The land use plan is intended to promote public health, safety and general welfare by providing efficiency and economy in the process of growth. Among other things, the land use plan includes:

- Rural-Urban Transect-based framework plan which will serve as the land development & redevelopment policy map
- Transportation network enhancements & multi-modal concept plan
- Retrofit plan for key suburban corridors
- Conceptual planning in three dimensions for key locations in various contexts
- Downtown & surrounding neighborhoods urban design/urban infill plan
- Strategic initiatives for environmental sustainability, affordable housing, historic preservation, and other community priorities

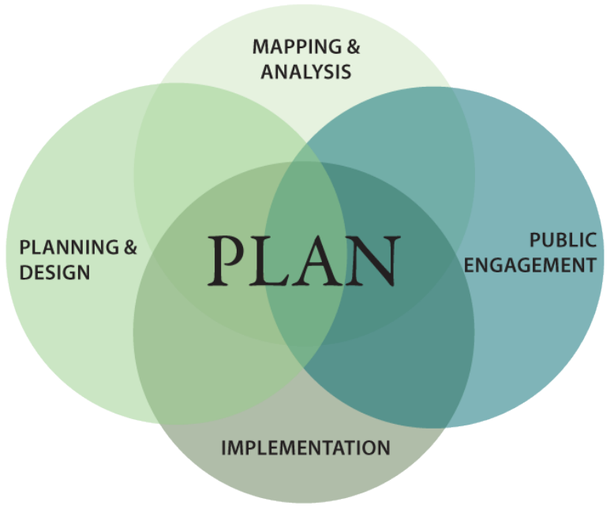
This plan provides Town Council, staff, and citizens with a way to proactively determine if proposed rezonings, annexations, or proposed developments fit with the Town's vision for the area. This plan will ultimately be linked to the development regulations and design standards for various parts of the community and should be used to determine what design standards are appropriate for new development in various parts of Boone. Finally, Boone's plan will continue to be coordinated with the current and future master planning efforts by Appalachian State University and Watauga County.

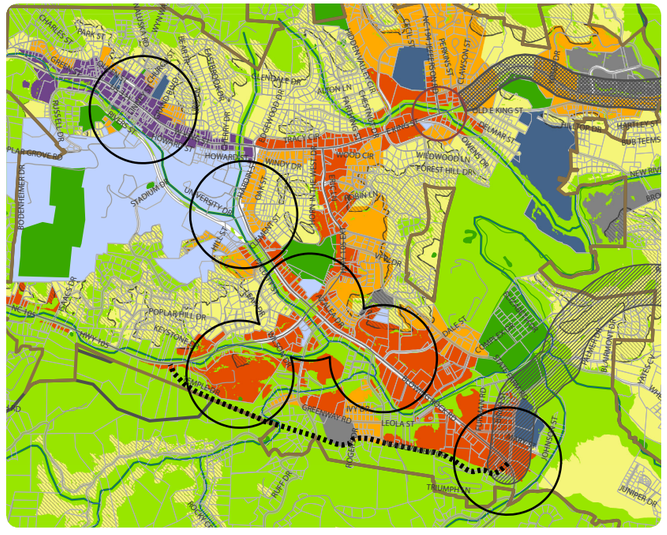
PLAN DEVELOPMENT PROCESS

The master planning process is shaped by the physical, environmental, economic, and social conditions in the Boone community. The plan has to find the right balance between vision, prescription, and flexibility. Through the master planning process, the vision is created.

In order to document this vision, the Town hired a consulting team to provide the planning and design services necessary to assist in the plan's preparation. The consultant team used a public design workshop (or "charrette") as the cornerstone of the master plan effort. This process involved significant community input obtained within a compressed timeframe. The guiding principles of a charrette-based process are:

- Involve everyone from the start to foster a shared vision.
- Manage the process effectively to build trust between the team and the public.
- Work across disciplines to maximize group learning and productivity.
- Work in short feedback loops to test ideas and stimulate public participation.
- Work in detail to test the feasibility of alternative concepts.





▲ BOONE FRAMEWORK PLAN

On either side of the charrette were major elements of mapping and analysis, and planning and design that are described in the sections that follow and contributed to this final product. Additional elements of public input and engagement occurred before and after the charrette as the draft plan was developed.

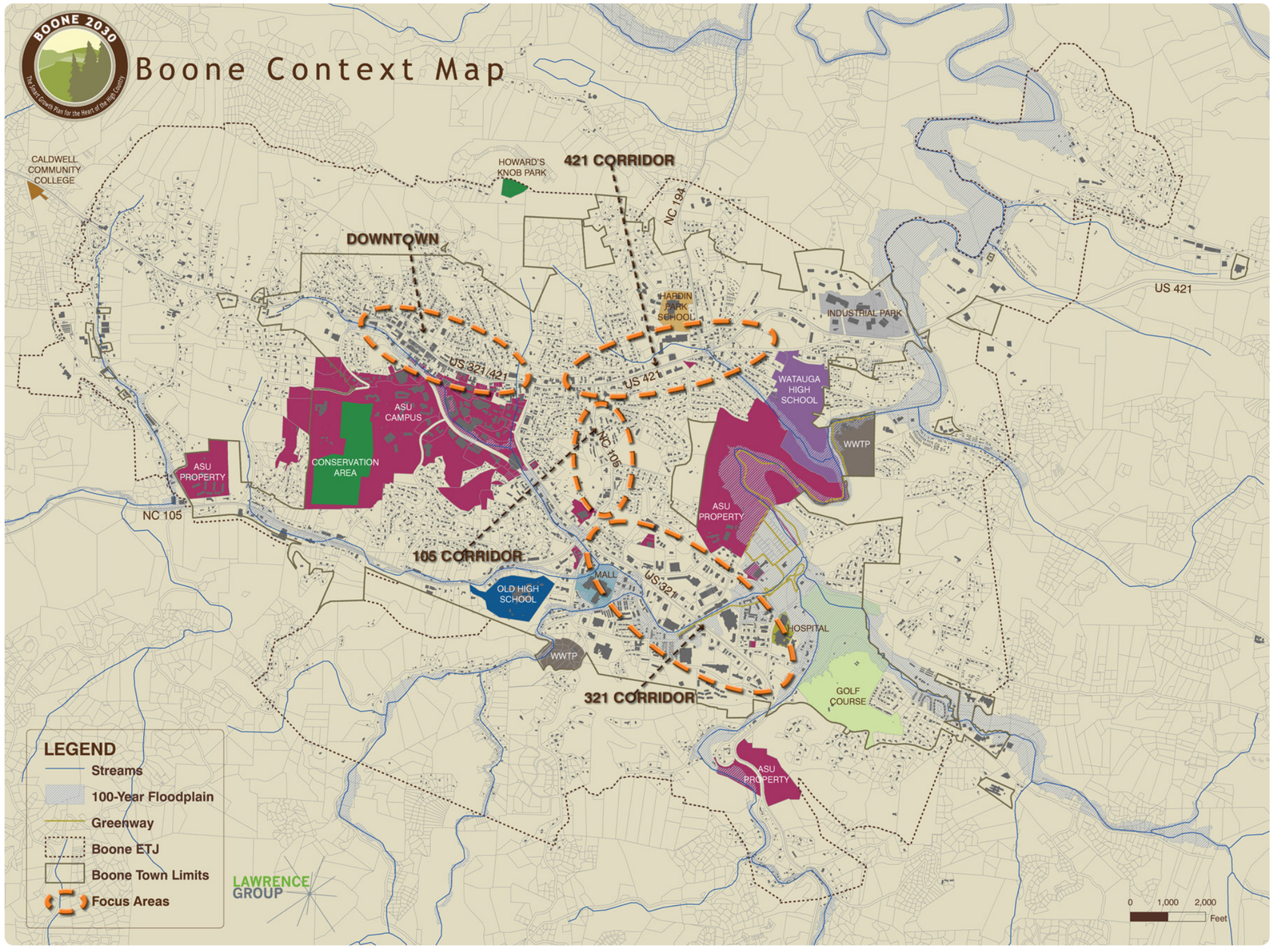
Implementation will begin after plan adoption. One of the top priorities for the Town is revising the UDO to reflect the plan's recommendations.

PLAN AREA

The study area for this plan includes the Town of Boone's municipal boundaries and extraterritorial jurisdiction (ETJ). The plan also considers areas of unincorporated Watauga County that may be areas for Boone's future urban growth.

The plan provides parcel-level conceptual planning for several key areas in the Town, including downtown and the key commercial corridors (US 421, US 321, NC 105) as well as the intersection of US 421 and NC 194.

A separate (although simultaneous) planning process was undertaken by Appalachian State University for its land holdings. Considerable effort was expended by the Town and the University to ensure compatibility and consistency between the Town and University plans. The University-owned land is shown in magenta on the map at right.



▲ **BOONE CONTEXT MAP**

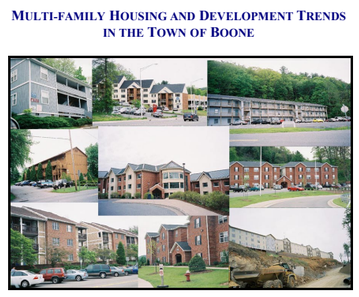
PREVIOUS PLANNING EFFORTS

This plan is part of a larger on-going comprehensive planning effort that the Town has been engaged in over the last two decades. This effort has included the following initiatives and plans, among others:

- Walk Boone report (2007)
- Recommended Changes to the UDO: Memo to the Affordable Housing Task Force (2007)
- Proposed Changes to the UDO (2006)
- Comprehensive Plan Update (2006)
- Downtown Boone Public Art Master Plan (2006)
- Central Business District Analysis & Recommendations (2006)
- Water System Hydraulic Analysis & Master Plan (2004)
- Boone/Blowing Rock Alternative Transportation Plan (1995)
- Thoroughfare Plan Report for the Town of Boone (1991)

These plans and the Town's regulatory documents were thoroughly reviewed by the Town and the Lawrence Group as part of a Smart Growth Audit, which was completed in early 2008. Detailed recommendations for making the town's planning policies and regulations consistent with Smart Growth principles are included in that report and referenced in this plan. This plan builds upon the recommendations and policies in these previous planning initiatives.

◄ BOONE SMART GROWTH AUDIT



MULTI-FAMILY HOUSING AND DEVELOPMENT TRENDS
IN THE TOWN OF BOONE

A Report Prepared for
The Town of Boone, North Carolina

G. DONALD JUD, PH.D.
JUD & ASSOCIATES
722 Rollingwood Drive
Greensboro, NC 27410

Phone: (336) 294-3655
E-mail: gdonaldjud@yahoo.com

July 2005

BOONE
North Carolina

2006
COMPREHENSIVE PLAN UPDATE

PREPARED BY
BOONE AREA PLANNING COMMISSION
BOONE DEVELOPMENT SERVICES DEPARTMENT

March 20, 2006

BOONE
North Carolina

WALK BOONE

A PROGRAM TO PROMOTE
PEDESTRIAN SAFETY AND ACTIVITY.

Prepared By:
TOWN OF BOONE
ALTERNATIVE TRANSPORTATION SUBCOMMITTEE

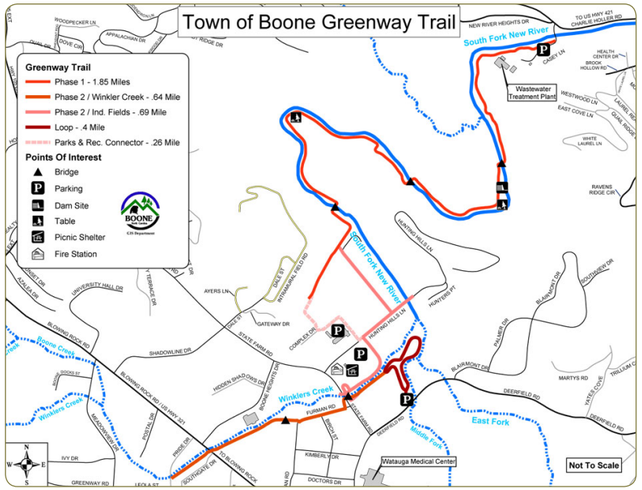
Prepared For:
BOONE TOWN COUNCIL

SEPTEMBER 2007

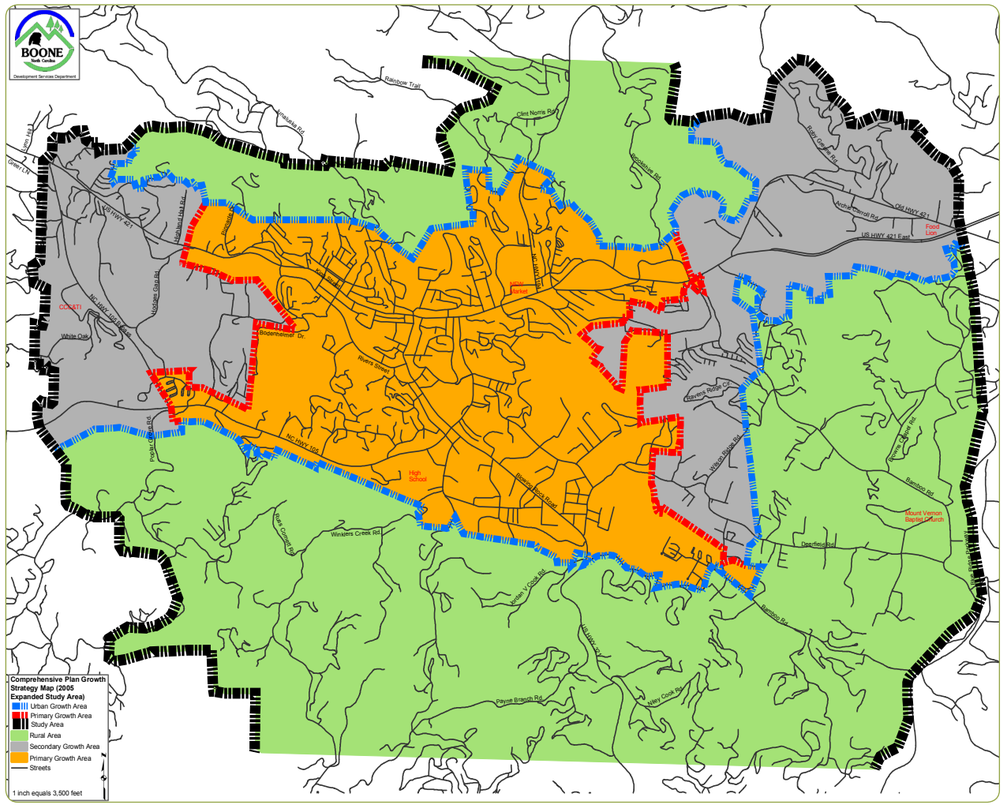
◄ RECENT PLANNING DOCUMENTS: MULTI-FAMILY HOUSING & DEVELOPMENT TRENDS REPORT; 2006 COMPREHENSIVE PLAN UPDATE; WALK BOONE

PREVIOUS PLANNING EFFORTS

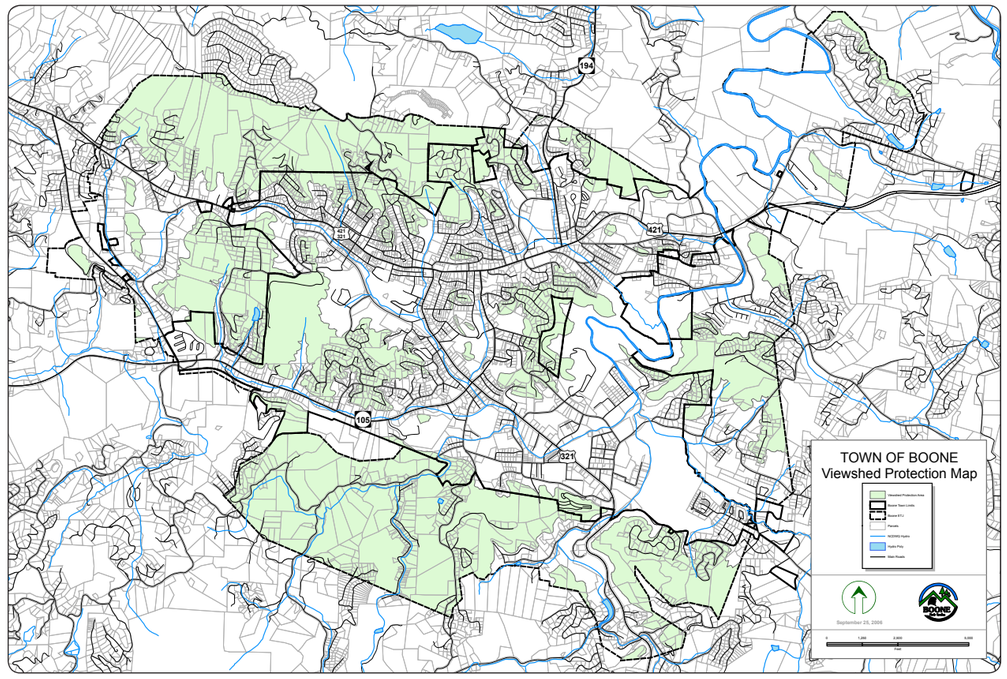
The Town's existing Comprehensive Plan includes a number of policy statements and objectives regarding Smart Growth. Boone has completed planning and implementation work on building and expanding the greenway trail and protecting the community's valuable views. The Town has also developed a very useful Growth Strategy Map (see below), which provides useful guidance as to future growth areas. However, this map and the Comprehensive Plan lack the parcel-level detail needed to define areas that should be protected, redeveloped, or developed as compact, walkable neighborhoods or mixed-use centers. The result is that the Town's land use future is being decided on an ad hoc basis. First, development decisions are being made by the existing Zoning Map (see following page), which is based primarily on the notion of separating uses and lacks the detail to facilitate the Town's Smart Growth goals. Secondly, growth is being decided incrementally by individual developers' intent for various pieces of land rather than by a comprehensive land use vision developed by the Town, its stakeholders, and its citizens.



◀ **TOWN OF BOONE GREENWAY TRAIL PLAN**



▶ **COMPREHENSIVE PLAN GROWTH STRATEGY MAP (2005 EXPANDED STUDY AREA)**



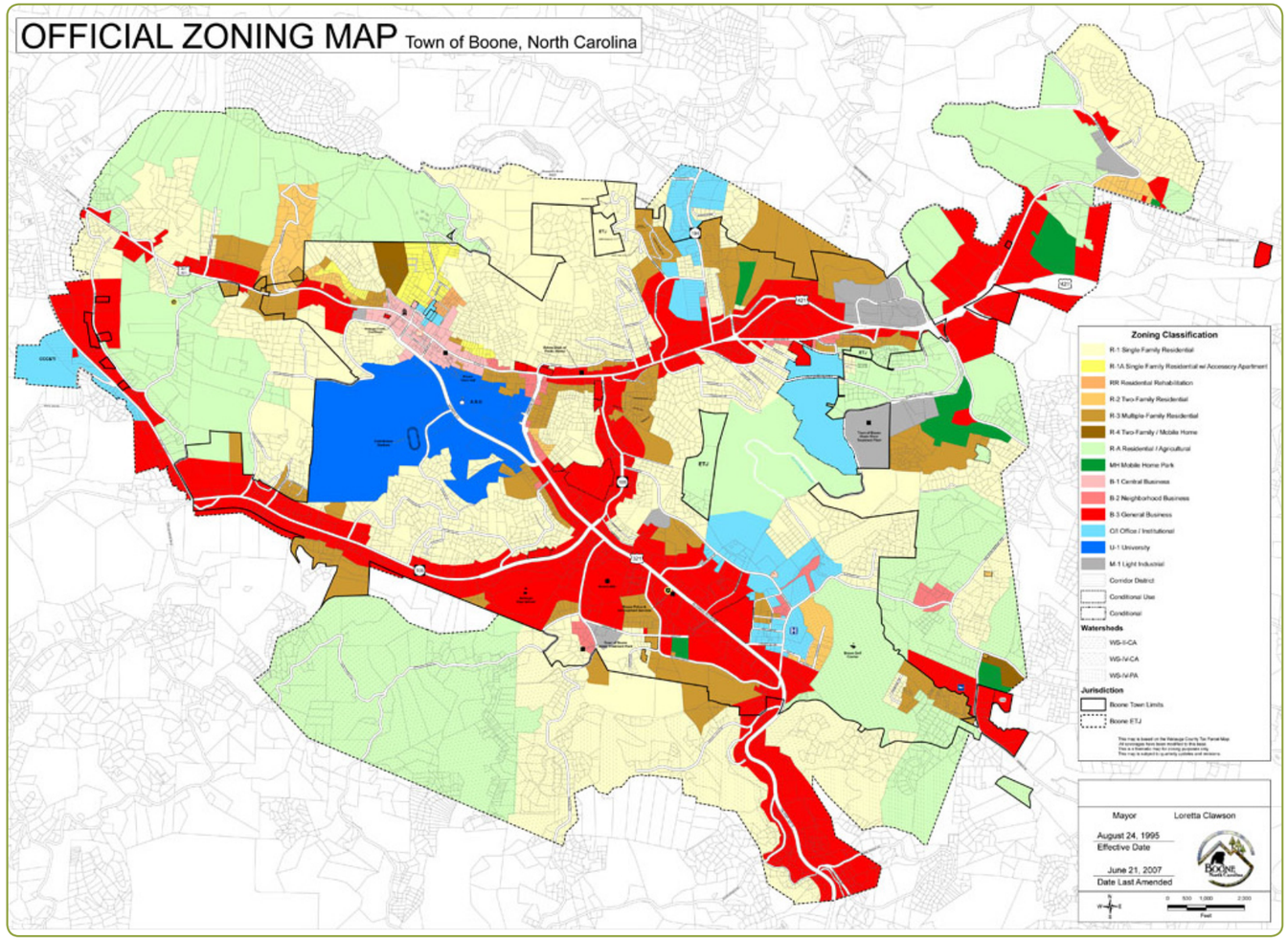
▼ **VIEWSHED PROTECTION MAP**

EXISTING ZONING

In the absence of a detailed land use strategy plan, the current Zoning Map represents the Town's de facto plan for land development. Unfortunately, as detailed in the *Smart Growth Audit,* the Zoning Map is contrary to many planning goals of the Town and its citizens. For example, most of the Town's zoning districts are based primarily on a separation of uses, so a mixture of residential and non-residential uses is only allowed in very limited areas. This puts convenience retail and services out of walking distance of many office and residential districts, especially the higher density residential districts and precludes a true mix of uses. The typical Smart Growth approach to regulating uses is to allow a broader range of uses across various zones, but to limit the amount and intensity of such uses depending on the zone.

Furthermore, contrary to stated policies against "strip development" in the Town's 2006 *Comprehensive Plan Update*, business district zoning is stretched out along all major roadways, promoting strip commercial land use patterns and providing more commercially zoned land than is likely to be absorbed by the local market for commercial uses. Commercial development along arterials is oriented primarily towards automobile access: strung for miles, one lot deep, along major corridors to provide maximum visibility to passing cars. In contrast, the downtown, which developed in the pre-automobile era, is a multi-block node consisting of multiple uses in an area designed to be covered on foot. Compact nodes of commercial development that can be covered in a 5- to 10-minute walk from one end to the other are more conducive to pedestrian access.

Much of the land zoned for higher density residential development is located at the Town's edges, some in hard to access locations, and too distant from existing centers of commerce, employment/eduction to promote walkability or even efficient transit access. In contrast (and due in part to historical development patterns), the Town's *least* dense residential districts are located closest to downtown, the University, and other concentrations of commercial activity. This results in more cars traveling further distances to access services and employment/ education opportunities. This imbalance in residential density also extends resources (such as emergency response, police, sewer/water, etc.) disproportionately from the center of town making their delivery, maintenance, and expansion less efficient and, therefore, more expensive. Furthermore, while some people can still walk from the lower density areas to the downtown area and other commercial nodes, there are significantly fewer potential patrons that can take advantage of the services and destinations in these areas.



▲ EXISTING ZONING MAP

This section and the sections that follow are excerpted from the "Market Assessment: Master Land Use Plan, Boone, NC" prepared for the Town of Boone by Rose and Associates, and submitted separately from this report.

Boone's population [approximately 14,000] has grown very little since the 2000 census compared to its neighbors, yet it is pressured by the rapid growth within the surrounding communities and at the University. The area is characterized by a somewhat transient population that includes tourists, visitors and students. The local populace is dominated by youth, with Boone's median age being 24 years old, compared to surrounding communities whose median age ranges in the late 40's.

To understand how Boone compares to its neighbors, comparisons in data were reviewed at the county and regional level. Of the four counties in the northwestern mountains that surround Watauga County (including Ashe, Avery, Caldwell & Wilkes), Watauga County ranks the highest in the following areas: Median Household Income; Average Household Income; White Collar Occupations; Educational Attainment; and Home Values.

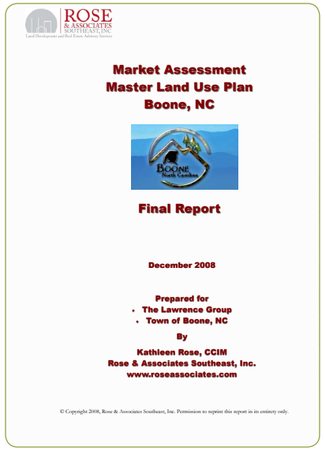
While Boone is the largest among the Watauga County towns (Boone, Blowing Rock, Beech Mountain, & Seven Devils), it has experienced the least amount of growth and ranks lower in household income, per capita income and home values. The difference in household income is attributable to the large population of students and service-related employment in and around Boone versus neighboring communities. Also notable is the high percentage of renter occupied housing units (student housing) and low percentage of vacancy in Boone compared to the other towns. The high vacancy in surrounding communities is attributable to the fact that much of the housing inventory includes vacation/second homes.

Population estimates in the table below highlight the disparity between Census information and state/local estimates for population and growth. Assuming the 2008 population in Watauga County continues to grow at an annual rate of approximately .80%, then population would grow by 358 people annually.

Demographic Area	2008	2010	2013
Boone			
Regional Estimates	14,717	n/a	n/a
Census Bureau	13,791	n/a	13,967
Watauga County			
Regional Estimates	44,696	45,876	n/a
Census Bureau	45,374	n/a	46,614

ESRI 2008 Demograpic Profile prepared by Rose & Associates Southeast, Inc.	Places: Seven Devils, NC	Places: Blowing Rock, NC	Places: Beech Mountain, NC	Places: Boone, NC
Population				
2000 Total Population	129	1,418	310	13,472
2008 Total Population	193	1,503	349	**13,791**
2013 Total Population	199	1,562	359	**13,967**
2000 - 2008 Annual Growth Rate	5.00%	0.71%	1.45%	**0.28%**
2008 - 2013 Annual Growth Rate	0.61%	0.77%	0.57%	**0.25%**
Households				
2008 Households	101	723	166	4,657
2013 Households	106	758	172	4,792
2008 - 2013 Annual Growth Rate	0.97%	0.95%	0.71%	0.57%
2008 Average Household Size	1.90	1.99	2.08	1.93
2013 Average Household Size	1.87	1.98	2.06	1.91
2008 Housing Units	424	1,564	1,747	5,119
Owner Occupied Housing Units	17.50%	32.20%	8.00%	31.70%
Renter Occupied Housing Units	6.40%	14.10%	1.50%	**59.30%**
Vacant Housing Units	76.20%	53.80%	90.50%	**9.00%**
Median Household Income				
2008	$39,077	**$56,551**	$55,561	$28,123
2013	$42,775	**$61,882**	$61,772	$31,530
2008 - 2013 Annual Growth Rate	1.83%	1.82%	2.14%	2.31%
Median Home Value				
2008	$152,500	**$254,245**	$157,955	$174,413
2013	$177,083	**$276,515**	$175,000	$193,864
Per Capita Income				
2008	$20,716	**$37,204**	$28,857	$18,623
2013	$23,021	**$40,492**	$31,347	$21,090
2008 - 2013 Annual Growth Rate	2.13%	1.71%	1.67%	2.52%
Median Age				
2008	46.00	49.90	48.40	**24.20**
2013	49.40	52.40	51.30	**24.20**
Households by Income				
2008 Average Household Income	$45,667	**$78,079**	$63,746	$42,038
2013 Average Household Income	$49,870	**$84,184**	$68,755	$47,170
2008 - 2013 Annual Growth Rate	1.78%	1.52%	1.52%	2.33%
2008 Population by Race/Ethnicity				
Total	192	1,504	349	13,792
White Alone	97.40%	97.10%	96.30%	86.00%
Black Alone	0.50%	0.70%	0.30%	9.30%
American Indian Alone	0.00%	0.50%	0.30%	0.50%
Asian or Pacific Islander Alone	0.50%	0.60%	0.00%	1.60%
Some Other Race Alone	0.00%	0.30%	0.00%	1.60%
Two or More Races	1.60%	0.90%	3.20%	1.00%
Hispanic Origin	1.00%	0.90%	1.10%	3.20%
Diversity Index	8.00	7.20	9.40	**29.80**
2008 Population 25+ by Educational Attainment				
Total	148	1,223	276	6,193
Less than 9th Grade	6.10%	5.00%	1.40%	4.70%
9-12th Grade/No Diploma	8.80%	6.40%	4.00%	4.90%
High School Graduate	27.70%	19.40%	16.70%	17.60%
Some College/No Degree	19.60%	21.10%	37.00%	14.90%
Associate Degree	10.10%	5.70%	9.10%	9.20%
Bachelor's Degree	18.90%	**28.40%**	17.80%	22.60%
Grad/Professional Degree	8.80%	14.10%	14.10%	**26.00%**
2008 Employed Population 16+ by Occupation				
Total	107	791	162	5,710
White Collar	55.10%	63.70%	**71.00%**	62.70%
Management/Business/Financial	13.10%	15.00%	16.70%	8.70%
Professional	20.60%	26.20%	20.40%	26.80%
Sales	10.30%	15.90%	22.20%	13.90%
Administrative Support	11.20%	6.60%	11.70%	13.30%
Services	25.20%	16.30%	12.30%	28.00%

Note: Between the impact on employment, tourism and rapid growth in the region, many census estimates for current and projected population may vary between local, state and national figures. Rose & Associates utilizes demographic data from ESRI/STDB a known and respected source of data in the US. Building on US and NC State Census data collected from 2000, projections are necessarily derived from current events and past trends that are captured in annual updates. ESRI revises its projections annually to draw upon the most recent estimates and projections of local trends. A stable rate of growth is easier to anticipate than rapid growth or decline. therefore it is important to incorporate as much qualitative state and local information as possible, especially areas experiencing "boom-bust" cycles or those influenced by other factors.


ROSE & ASSOCIATES SOUTHEAST, INC.

Market Assessment
Master Land Use Plan
Boone, NC

Final Report

December 2008

Prepared for
- The Lawrence Group
- Town of Boone, NC

By

Kathleen Rose, CCIM
Rose & Associates Southeast, Inc.
www.roseassociates.com

© Copyright 2008, Rose & Associates Southeast, Inc. Permission to reprint this report in its entirety only.

The purpose of the market study is to identify the dynamics of the economy and real estate market for consideration for future land use. Further, it will assist in determining the appropriate market for a variety of land uses in accordance with the vision, goals and limits of the Town.

KEY FINDINGS/RECOMMENDATIONS

ECONOMIC DEVELOPMENT/JOB GROWTH

Opportunities exist for Boone to expand its economic base beyond tourism, retail and education by recruiting additional jobs to the County's growing roster of white collar and knowledge-based companies. Tourism revenues for the region have grown consistently since 2001 to a record $179,140,000 in 2006. However, data from the US Department of Transportation indicates that travel on North Carolina roads dropped by 4% in May of 2008, with similar national declines resulting in the third largest decline in the 66 years that the government has collected such data. The energy issues facing the nation will continue to impact tourism-dependent economies. Alternatively, targeted economic development efforts in Boone could assist in raising the projected employment, population and income growth that would drive future demand for higher quality (Class A) commercial space, together with the existing retail. Collaboration with neighboring county economic development and educational institutions on cluster-based initiatives is encouraged. Targeted clusters for Boone might include health, technology and knowledge-based industries, benefiting from proximity to the Watauga Medical Center (centerpiece of the Appalachian Regional Healthcare System), Appalachian State University and surrounding community technical colleges and educational institutions.

QUALITY OF LIFE

Boone is the regional hub for education and commerce, characterized by low density housing and apartments within small town culture with rural character. Boone has the opportunity to maximize its quality of life and create a more sustainable future by diversifying its housing stock while balancing its tax base. Projected growth throughout the entire region will continue to create development pressures, therefore the competitive advantages of Boone become critical. Chief among them are community design, public amenities (e.g., parks/greenways) and transportation. The goal of the Town should include a strategy that supports economic development and diversity, by identifying those things that differentiate Boone individually, while anchoring it regionally, thus providing a central place for work, shopping/entertainment and recreation, but also for living.

Source: Watauga County Economic Development Commission

▲ **THE KEY TRANSPORTATION CORRIDORS AND COMMUNITIES IN THE AREA**

SITE CONSTRAINTS/OPPORTUNITIES

Boone's physical constraints include steep mountain slopes and creeks/watercourses, which in the primary central places can be transformed into a community amenity. These creeks/watercourses may provide for a more interesting and attractive green landscape, providing park/open space for either passive or active recreation as part of the downtown/campus environment. This may include re-opening these currently piped streams to expand walking trails, encouraging environmentally conscious users an opportunity for locations that support their values. Additionally, this park space can provide recreation for the "public good" of the community as a whole and contribute further to Boone's core values of improving its quality of life.

PRIORITY AREAS OF FOCUS

Review of the data, current plan documents and the existing conditions suggest two priority areas of focus:

Central Place #1: Downtown

Benchmark the quality of assets in the downtown to the University, enabling the two to blend together as a "Downtown University" —separate and distinct, yet integrated as a central place for social interaction between the students, faculty/staff and citizens.

Central Place #2: Midtown (US321 Corridor)

Focus re-development and infill along the US 321 corridor from Rivers Street south to the Hospital (Deerfield Rd.) to include a mix of uses that integrate office and workforce housing (town-homes, row-houses, 2nd story condos/flats/lofts) with the existing retail uses. This corridor includes three key intersections: the Rivers Street entrance to the University; the US 321 and NC105 Extension intersection; and the US 321 and Deerfield Road entrance to the Hospital.

LAND USE CONTEXT

Based upon preliminary analysis, charrette focus groups, survey results and additional data gathering, there is a strong opportunity for mixed use development in the area's primary transportation corridors.

RETAIL MARKET CONCLUSIONS

The estimated total inventory for retail space in Boone is close to one million square feet. There is currently a supply of 33,600 available square feet ranging in price from $8.00 to $30.00 per square feet. The estimated vacancy rate of 4.5% suggests a healthy/stable market for retail based upon space inventory. But what type of space should be built in the future?

The measure of supply (sales) and demand (potential) demonstrates a gap as either positive (leakage) or negative (surplus) by industry category. The overall retail gap is negative, suggesting oversupply and/or a surplus of sales where customers may be drawn in from outside the trade area (e.g. tourists, students). However, in certain categories, there are opportunities for new stores, such as electronics/appliance stores, general merchandise stores and drinking places (e.g. bars) totaling $53,257,709 in sales within the primary trade area (30 minute drive-time). Additional retail should be clustered near existing venues and interconnect in an effort to create synergy for other uses such as housing or work space and minimize impacts (e.g. traffic, police/fire, environmental) to the community. The addition of other demand generators such as housing and educational and medical facilities will increase the potential for retail expenditures. Retail will continue to expand as additional demand is created as a result of growth in the resident and daytime (workers, students, visitors) populations.

MARKET POTENTIAL FOR OFFICE & INDUSTRIAL USES

Note: Economic Base Analysis is utilized to evaluate real estate demand. This type of analysis suggests that jobs drive demand for real estate. There are two types of jobs: those which export their goods and services outside the community (basic employment), and those which service the local community (service or non-basic employment).

The data for total office and industrial space was not readily available or inventoried for this report. While the data suggests that the current supply exceeds demand by 30,000 square feet of office and 135,000 square feet of industrial space. The estimated supply of office space suggests a two-year inventory currently in the market. The supply of industrial space suggests that there is a five-year inventory currently in the market. Boone should position itself for diversification of employment sectors beyond shopping and tourism (27% of the County's employees are in retail; 14% in hotels/lodging) with land uses to support new business.

The focus for economic development suggests future opportunity for medical office space and commercial space for entrepreneurial/cluster-based business. This includes office and low-impact industrial incubator space to support efforts by the university and technical education facilities. Universities and colleges are making an increasing impact on regional economies. As economic drivers, they attract other industries that depend on the availability of highly educated talent and the research of leading academic and medical institutions, in addition to becoming cultural and social hubs for the broader community. The higher education institutions in Boone have partnered with local and regional medical institutions and economic development interests to create health science programs, cluster-based initiatives and entrepreneurial networks to attract business and support these commercial uses.

Year	Labor	Employed	Unemployed	Unemployment Rate
2008 (July)	26455	25165	1290	4.9%
2007	25637	24814	823	3.2%
2006	23921	23036	885	3.7%
2005	23293	25165	922	4.0%

Boone Micropolitan (Watauga County) - *Bureau of Labor Statistics*

The primary target market for the Study Area is within the region, as companies seeking to locate here will draw from the region for employees and consumer dollars. While some will visit or relocate from other regions of the state or areas of the country, the underlying demand comes first from within the regional market.

The market potential for commercial real estate, including office and industrial uses, relies upon a number of factors, including but not limited to; local economic cycles, a business friendly environment, workforce dynamics (wage, employment and job training), and central places (i.e. colleges, hospitals or large employers) that are demand generators for ancillary uses, such as retail. For office uses, demand indicators include estimated job growth in non-manufacturing sectors while industrial uses rely on job growth in manufacturing sectors. Watauga County has enjoyed strong employment since 2004. The labor force has grown steadily over the past 3 years, growing by 665 jobs in 2006, 1778 jobs in 2007, and 351 jobs through July of 2008.

OFFICE & INDUSTRIAL DEMAND POTENTIAL

The successful recruitment for jobs results in demand in the form of either office or industrial uses. Given Boone's position as a desirable location within the county with a perceived high quality of life, a capture rate of 70% of job growth is estimated. The chart below demonstrates how projected job growth within these employment sectors in Watauga County translates into square footage demand for Boone:

ANNUAL OFFICE & INDUSTRIAL DEMAND ESTIMATE (WATAUGA COUNTY, NC)		
Factor	**% of Total Employment**	**Inputs/Results**
New Basic Employees (per year)		440 employees
Economic Base Multiplier		x1.47
New Total Employees		647 employees
Avg. Office Employees	30%	136 employees
Office Space/Employee		x 206 sq ft
Boone New Office Space Demand		***27,981 sq ft***
Avg. Industrial Employees	13%	364 employees
Avg. Industrial Space/Employee		365 sq ft
New Industrial Space Demand		***21,483 sq ft***

Note: The balance of space demand in other sectors include medical, retail, tourism, education, government, and other uses.

Boone could support additional professional and medical office uses in and around the two Central Places identified, due to its proximity to medical and research facilities and a diverse skilled workforce. Nationally the office market has performed well in past years, particularly in selected southeastern cities, as the current economic cycle will continue to drive companies to the southeast in search of lower operating costs, skilled labor, affordable housing and quality of life characteristics found in this region. Watauga County could emerge as a viable office market, with a current limited supply of new Class A office development. Accessibility to skilled labor, land, affordable space and other incentives, in addition to quality of life and transportation access are competitive factors when attracting companies for relocation to Boone.

RESIDENTIAL MARKET

Boone's greatest opportunity and greatest challenge lies within the housing sector. The housing market is juxtaposed between the affluent second/retirement home market and student rental housing, leaving a large gap in workforce housing for employees in education, medical and retail sectors. This is impacting recruitment efforts in some sectors, limiting employment growth. Rising land and construction costs suggest diversification of Boone's housing stock to include a variety of styles, sizes and price ranges in both for-sale and for-rent housing. This suggests mixed-use development with housing as the primary component to support commercial uses.

HOUSING DEMAND

The economic growth of a region results in growth in population and households. The recent national news of the sub-prime meltdown and housing market crisis has left homes sales weakened in most markets in the United States. Census estimates the U.S. will add 11.6 million new households from 2007-2015. It is estimated that 75% of these consumers will rent rather than purchase their homes. (Note: 40% of apartment residents chose to rent for lifestyle reasons, and nearly one-quarter of renters earn $50,000 per year or more. For home buyers, a recent national survey by Smart Growth America and the National Association of Realtors cited that 6 out of 10 prospective buyers chose a higher density, mixed-use community over traditional low density subdivisions.)

Families moving to the region driven by the job market, retirement or lifestyle changes provide opportunities for new housing in areas where amenities and quality of life characteristics meet changing needs. These are both tangible and non-tangible components of what defines and drives a market. This includes a variety of socio-economic factors including lifestyle, income, affordability and age.

AFFORDABILITY & WORKFORCE HOUSING

The for-sale housing market has been challenged by rising home prices targeted at second homes, limiting product in price ranges considered affordable to accommodate the regional workforce. Efforts by the regional workforce development board to diversify employment have intersected with housing challenges to meet this demand for appropriate for-sale and for-rent housing options. Given the physical constraints in the region, this could be addressed by using more compact residential design standards.

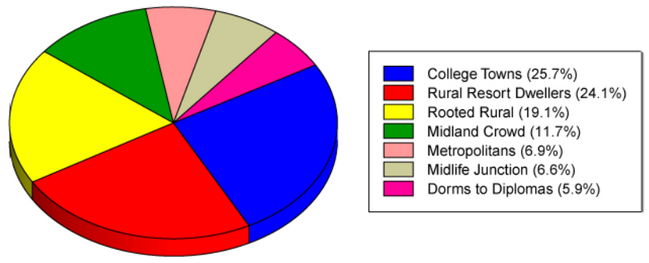
PRELIMINARY FINDING:

There is an opportunity in Boone to provide housing stock that is an alternative to either low cost apartments or high cost low density single family with new offerings such as patio homes, bungalows, lofts, townhomes and condominiums both for-lease and for-sale. With the transition to a broader variety of new housing product offerings in both traditional and neo-traditional (TND) planned communities, it is expected that new housing in these lifestyle configurations should be absorbed at a reasonable pace consistent with the market. The challenge for Boone will be to position itself to address a mix of incomes, styles and types of housing choices to provide variety and meet the needs of all its citizens including students, employees at all levels, retirees, executives, and low income residents.

TARGETED BUYER SEGMENTS

Determining the depth and breadth of the housing market based on household growth projections is limiting. Therefore, geo-demographic segmentation, or lifestyle/tapestry clustering understands that demographic variables exist not only region to region but by neighborhoods and in sub-communities within each neighborhood as well. This type of modeling is based on the premise that people tend to gravitate towards communities and neighborhoods of relative homogeneity. Factors that go into clustering include age, income, education, ethnicity, occupation, housing type and family status. While basic differences in behavior patterns between rural and urban dwellers still exist today, the market has become increasingly complex.

Tapestry Segmentation™ identifies those households with a preference for living in rural areas versus urban neighborhoods. Of 65 total potential segments in Urban or Life Mode groups, the top four segments within Watauga County were considered. The top tapestry segments include College Towns, Rural Resort Dwellers, Rooted Rural and Midland Crowd, which together comprise 81% of the total households in the County.

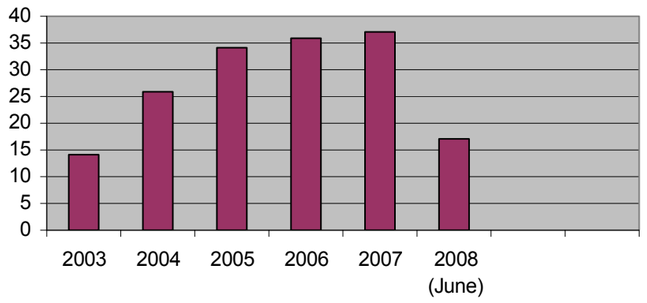


Tapestry Segments for Watauga County, NC

The balance of these segments include 19% of transitional households which favor more suburban and urban dwellings. Together these segments include a diversity of young professionals, families and retirees who have a preference for a variety of housing types, shopping and entertainment choices. These assist in framing not only consumer preferences for retail, but also land use and product type regarding residential choice.

HOUSING SUPPLY

Data regarding new single family subdivisions was made available by the Western Piedmont Council of Governments. There are an estimated 15,125 lots averaging 2.09 acres in subdivisions throughout the larger multi-county Western Piedmont region. In Watauga County, there have been approximately 2,718 lots approved since 2006. However, actual permit activity in Boone at less than 40 homes per year suggests that much of the new home construction occurs in other areas. This supply does not include available existing home inventory through the local/ regional multiple listing service/realtors.



Annual Single Family Building Permits in Boone (Source: Town of Boone)

Boone is a very desirable area in the southeast given the socioeconomic factors and quality of life contributing to its location. Therefore, demand for new housing is expected to continue, albeit at a slow pace.

Based upon the estimates for housing demand and the limited supply of new housing units, an annual capture of the potential market based upon the tapestry segments within the county and housing type is shown in the table above right. Given Boone's position in the region, its access to education, employment, shopping and recreation, a 60% capture rate of residential units is assumed.

POTENTIAL RESIDENTIAL MARKET CAPTURE– WATAUGA COUNTY, NC & BOONE, NC

Tapestry Group*	Housing Type	% of Households (Watauga)	Potential New Units** (Watauga)	Capture Rate (Boone)	Potential New Units (Boone)
Rural Resort	single-family homes/ seasonal	24.1%	39	60%	23
Rooted Rural		19.1%	31	60%	19
Midland Crowd		11.7%	19	60%	11
Midlife Junction		6.6%	11	60%	6
College Towns	multifamily (condos, apartments, etc.)	25.7%	42	60%	25
Metropolitans		6.9%	11	60%	7
Dorms to Diploma		5.9%	10	60%	6
TOTAL			**162**		**97**

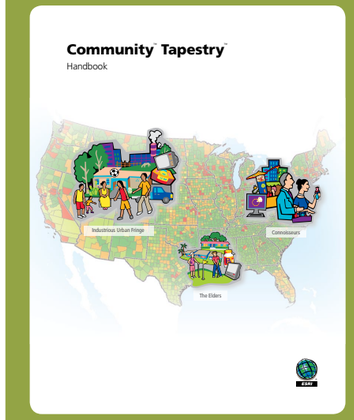
** Predominant regional socio-demographic groups; see text box on the following page.*

*** Assumes 2008 household figures adding 0.80% population for a total of 162 new households*

A review of previous housing studies for the area, together with recent surveys from residents and input from area realtors and stakeholders during the charrette concluded that the most important housing issues facing Boone and the region include:

- Affording housing for working residents
- Affordable housing for low income residents & seniors
- Infill housing on vacant or underutilized sites
- Mixed-use buildings (residential over commercial)

To meet these challenges, a number of concept plans to include single family/senior housing on small lots, mixed-use development and other alternative housing choices were developed during the charrette and are detailed in later sections.



WHAT IS COMMUNITY TAPESTRY?

Community Tapestry™ represents the fourth generation of market segmentation systems that began 30 years ago. The 65-segment Community Tapestry system classifies U.S. neighborhoods based on their socioeconomic and demographic composition.

Community Tapestry's 65 distinct market segments profile the diversity of the American population and also provide two ways to summarize and simplify these differences—LifeMode summary groups and Urbanization summary groups. Segments within a LifeMode summary group share an experience such as being born in the same time period or a trait such as affluence.

Predominant Tapestry Segment groups for Watauga County, as listed on the previous page, are described below:

COLLEGE TOWNS

Education is the key focus for College Towns residents. College and graduate school enrollment is 41 percent. The median age for this market is 24.4 years, with a high concentration of 18 to 24-year-olds. One out of eight residents lives in a dorm on campus. Students in off-campus housing rent low-income apartments. Twenty-nine percent of the households are occupied by owners, who are typically town residents living in single-family dwellings. The median home value is $148,030. Convenience is the primary consideration for food purchases; residents frequently eat out, order in, or eat easy-to-prepare food. Many own a laptop computer. In their leisure time, they jog, go horseback riding, practice yoga, play tennis, rent videos, play chess or pool, attend concerts, attend college football or basketball games, and go to bars. They listen to classical music and public radio programs.

RURAL RESORT DWELLERS

Favoring milder climates and pastoral settings, Rural Resort Dwellers residents live in rural, nonfarm areas. These small, growing communities mainly consist of single-family and mobile homes, with a significant inventory of seasonal housing. This somewhat older market has a median age of 47.1 years. Most households consist of married couples with no children living at home or singles who live alone. A higher-than-average proportion of residents are self employed and work from home. The median household income is $47,908. Modest living and simple consumer tastes describe this market. The rural setting calls for more riding lawn mowers and satellite dishes. Lawn maintenance and gardening is a priority, and households own a plethora of tools and equipment. Many households own or lease a truck. Residents enjoy boating, hunting, fishing, snorkeling, canoeing, and listening to country music.

ROOTED RURAL

Rooted Rural neighborhoods are located in rural areas throughout the country; however, more than three-fifths of the households are located in the South. Households are dominated by married-couple families. One-third of the households receive Social Security benefits. The median age is 42.2 years. Housing is predominantly single-family dwellings, with a strong presence of mobile homes and some seasonal housing. The median home value is $101,198. Stable and settled, residents tend to move infrequently. They are do-it-yourselfers, constantly working on their homes, gardens, and vehicles. Many families have pets. Residents enjoy hunting, fishing, target shooting, boating, attending country music concerts, and listening to country music on the radio. Many households have a satellite dish; favorite stations include Outdoor Life Network and CMT.

MIDLAND CROWD

Approximately 11.9 million people represent Midland Crowd, Community Tapestry's largest market. The median age of 37 is similar to the US Median. Most households are composed of married-couple families, half with children and half without. The median household income is $50,462. Housing developments are generally in rural areas throughout the United States (more village or town than farm), mainly in the South. Home ownership is at 83 percent. Two-thirds of households are single-family structures; 28 percent are mobile homes. This is a somewhat conservative market politically. These do-it-yourselfers take pride in their homes, lawns, and vehicles. Hunting, fishing, and woodworking are favorite pursuits. Pet ownership, especially birds or dogs, is common. Many households have a satellite dish, and TV viewing includes various news programs as well as shows on CMT and Outdoor Life Network.

METROPOLITANS

Metropolitans residents favor city living in older neighborhoods. Approximately half of the households are composed of singles who live alone or with others. However, married-couple families comprise 40 percent of the households. The median age is 37.7 years. Over half of employed persons hold professional or management positions. These neighborhoods are an eclectic mix of single-family homes and multiunit structures, with a median home value of $215,587. The median household income is $62,812. Residents lead busy, active lifestyles. They travel frequently and participate in numerous civic activities. They enjoy going to museums and zoos and listening to classical music and jazz on the radio. Refinishing furniture and playing a musical instrument are favorite hobbies. Exercise includes yoga, using Rollerblades, and hiking/backpacking.

MIDLIFE JUNCTION

Midlife Junction communities are found in suburbs across the country. Residents are phasing out of their child-rearing years. Approximately half of the households are composed of married-couple families; 31 percent are singles who live alone. The median age is 41.2 years; the median household income is $49,031. One-third of the households receive Social Security benefits. Nearly two-thirds of the households are single-family structures; most of the remaining dwellings are apartments in multiunit buildings. These residents live quiet, settled lives. They spend their money prudently and do not succumb to fads. They prefer to shop by mail or phone from catalogs such as J.C. Penney, L.L. Bean, and Lands' End. They enjoy yoga, attending country music concerts and auto races, refinishing furniture, and reading romance novels.

Excerpted from Community™ Tapestry™—The Fabric of America's Neighborhoods *An ESRI® White Paper, March 2006; and,* Community™ Tapestry™ Handbook, *http://www.esri.com/library/brochures/pdfs/community-tapestry-handbook.pdf*

3: CIVIC DIALOGUE & PARTICIPATION

Boone has a rich history of civic dialogue and public participation. Community leaders in Boone intended that the development of this plan follow in that tradition. In fact, public participation and input were the cornerstones of this planning effort and are the basis for the plan's recommendations.

The Town sought to insure that public input on the plan was garnered from as wide a spectrum of community members and stakeholders as possible. To that end, public participation in the plan included several key elements:

1. An advisory committee including a wide range of community perspectives from business owners to the University to neighborhood residents (see Acknowledgements page).
2. A community-wide survey that was distributed during the plan process.
3. A plan website that included up to date information on the plan process and supplementary information for education and public comment (www.boone2030.blogspot.com).
4. Finally, a five-day public planning and design workshop (also known as a "charrette") was the centerpiece public involvement event.

All told, there were more than 1,000 individual citizen and stakeholder interactions throughout the plan process using these various input mediums.

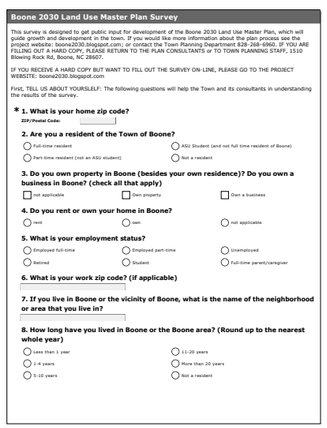
Town of Boone staff, area non-profit organizations, local media groups, and the consultant team went to great lengths to publicize the charrette process and schedule. Town staff and Advisory Committee members distributed posters and plan information throughout the community. These bulletins served notice to the public of the approaching charrette, inviting all interested persons to attend and participate in the workshop activities. In addition, Town staff placed signs and banners at key locations around town. This outreach was well-received and helped citizens become active participants in the exciting design work and visioning for Boone's future. Citizens were also alerted through internet applications, and by postings listed on the project website.

The public's participation in each of the public input venues and events shaped the plan's final recommendations. The public comments, along with information gained from stakeholders, public officials and other representatives, guided the consultant team in their work and were key determinants of the plan's outcomes.

SUMMARY OF PUBLIC INPUT: COMMUNITY PRIORITIES

The list below summarizes the major points made by the public during the process in the various venues for feedback: the kick-off meeting, the community survey, and the charrette. The list very much reinforces and corroborates the vision statement developed by the Advisory Committee. While almost all of these elements relate to growth and positive change in Boone, there were some comments that reflected a desire to keep things as they are.

1. Encourage growth/maintain small town atmosphere
2. Protect natural resources
3. Provide transportation choices; Make it practical for people to bicycle/walk
4. Relieve traffic congestion
5. Develop a vibrant downtown
6. Create attractive streetscapes and corridors
7. Encourage denser /pedestrian-friendly, mixed-use development
8. Facilitate infill/redevelopment
9. Promote economic development
10. Increase community interaction/cultural resources
11. Provide a broad range of housing opportunities
12. Cultivate bold, visionary leadership
13. Make the development approval process predictable
14. Foster cooperative Town/University development
15. Don't change a thing (except taxes)



MEDIA APPLICATIONS & INPUT FORUMS

The images above and at left portray the various media used during the charrette. They included project posters, community surveys, project website, powerpoint presentations, and video interviews. These various formats were used to raise awareness about the plan, keep the public posted on the latest ideas generated, and will serve as a multi-media record of the proceedings.

The Town Council appointed a 14-member Advisory Committee to provide oversight and guidance to the plan process. The responsibilities of the Committee were fourfold:

1. To serve as a resource for the consultant team and the Town.
2. To provide feedback regarding growth and development issues facing the community.
3. To create a set of guiding principles for the master plan process.
4. To help spread the word and engage the greater community.

The Committee included representatives from Town Council, Planning Commission, the Board of Adjustment, the Community Appearance Commission, the Greenway Committee, Historic Preservation Commission, the Economic Development Commission, the Chamber of Commerce, Downtown Boone Development Association, Appalachian State University, Watauga County Schools, and Watauga County. (See Acknowledgements page for complete list and names.)

The Committee met throughout the planning process. One of their initial tasks was development of a vision statement for the plan, which is incorporated in Chapter 1. The Committee also provided invaluable feedback on plan logistics and outreach, including recommendations of key stakeholders for in depth interviews. The Committee continued to meet after the charrette to provide feedback on preliminary recommendations and the initial draft of the plan document.

PRELIMINARY INPUT FROM ADVISORY COMMITTEE

1. 5 FAVORITE THINGS ABOUT BOONE.

- Great community (in all senses of the word)
- Sense of community
- Friendliness of the people and the diversity of the people
- Welcoming of newcomers (hospitality)
- Mountain culture
- Big city convenience/small town feel
- Regional economic center
- Opportunities for public interaction
- Cooperative planning for progress
- Independent nature of individuals to get things done
- Homegrown businesses
- Natural resources (mtns trees and streams)
- King Street
- Quality of educational resources – all levels
- The University and their cultural/community resources
- Football season
- The greenway
- National and state parks
- Sign ordinance

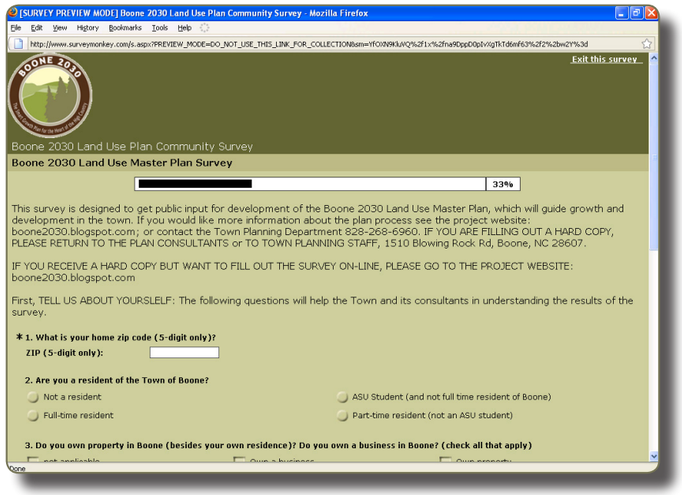
2. 5 LEAST FAVORITE THINGS ABOUT BOONE.

- Traffic
- Lack of bikeways and sidewalks
- [lack of] Bikability
- Lack of places to walk or bike – improve safety
- Parking and transportation infrastructure
- Too much parking in certain areas – not enough in others
- Service delivery /shipping coordination in downtown and at ASU
- Hodgepodge of signs, utility poles, and mish mash of ugly things
- 321 Commercial District – visual clutter
- Lack of cohesiveness of the commercial districts
- Buildings that are not responsive to the terrain and context (natural materials, wood, stone)
- Above ground utilities
- Not enough assistance (financial) to support the downtown area
- View that if we fix up downtown the students will destroy it (fatalist view)
- No specific funding streams for downtown
- Too much focus on downtown
- Stormwater management – no plans (yet)
- Flood control and protecting the resources
- Litter
- Pet waste
- Little affordable housing
- Town and gown relationships
- Weak relationships with DOT
- Physical challenges due to the geography
- Not enough mutual respect in public forums
- Resistance to change and some distrust

3. IN 10 YEARS BOONE WILL BE/HAVE …

- Financial sustainability
- Job opportunities for all educational levels
- Job opportunities for all ages
- Attractive locations for businesses
- Hospital/regional medical, educational center, retail, recreation - connectivity for visitors as well as people who live here
- University and physicians attracting employees
- Better retail environment – downtown
- We will have a vibrant, walkable and bikable downtown
- Howard Street to be a pedestrian safe walking area
- Transportation system that allows mobility, roadways that will allow all types of transportation
- Completed greenway that do not have to drive to (every neighborhood has access - connectivity)
- Extended greenway from Todd
- We will have a beautiful community that embraces the rich aesthetic of the mountain context
- Buildings: mountain design
- System of identifiable neighborhoods and places
- Top recreation area, be a center/hub for outdoor recreation
- High quality water – protected resources
- Variety of housing options, including affordability for all ages
- Student housing improved with high-quality options located well, off-campus opportunities
- State taking responsibility for the addition of students and lack of additional housing opportunities
- Homestead Exemption so families can keep property
- How can we make this work better for all?

Town staff, the Advisory Committee, and the consultants developed and distributed a survey to elicit feedback on community priorities. The survey was available on the project website and in hard copy form for three weeks prior to, during, and subsequent to the planning charrette. 132 surveys were completed. While the numbers of respondents is not large enough to create a valid sample size for statistical purposes, the responses do provide a reflection of the community's character and of the opinions of the community's active citizenry and stakeholders. The responses also confirm and further define community priorities articulated through this and previous planning processes.



A full copy of the survey and the survey summary results are provided in the Appendix.

SURVEY RESPONDENT DEMOGRAPHIC SUMMARY

Number of survey respondents:	132
Full-time residents of Boone:	60%
Non-residents:	20%
ASU students:	19%
Home zip code:	85% listed 28607 or 28608
Work zip code:	89% listed 28607 or 28608
Own their residence in Boone:	45%
Employed Full-time:	60%
Students:	26%
Retired:	6%
Length of residence in Boone:	66% 5+ years (27% 20+ years)
Annual household income:	61% below $75,000/year

RANKING OF COMMUNITY PRIORITIES

TOP 10 COMMUNITY OBJECTIVES

The survey asked respondents to rank by importance 22 community objectives identified by the public in the Town's 1992 and 2006 comprehensive planning efforts. While all of these objectives have been articulated as important to Boone residents, the survey revealed that respondents view some issues as more important and deserving of more attention and resources. The table below lists the top 10 objectives for Boone as ranked by survey respondents.

Community Objectives	*Average Score (out of 10)*	*Rank*
Acknowledge the area's natural beauty, university, and medical center presence as the Town's greatest assets. . .	7.23	1
Blend the built environment with the natural, scenic, and historic character of a High Country small town.	7.13	2
Implement the planned system of bikeways. Unify with greenways and other pedestrian facilities.	6.81	3
Discourage commercial strip development, cluttered signage, and "cheap" apartment buildings.	6.36	4
A system of sidewalks, paths, crosswalks and compact development patterns which make it easy to get around Boone on foot.	6.13	5
Preserve the countryside by discouraging suburban sprawl.	6.04	6
Support and enhance the cultural and historic significance of downtown Boone.	5.83	7
Ensure the livability of neighborhoods, especially through land use and traffic planning.	5.79	8
Avoid development in floodplains, on ridgetops, and on steep slopes.	5.66	9
Work to reduce auto dependency, use, and congestion.	5.61	10

TOP 5 ECONOMIC DEVELOPMENT PRIORITIES

The survey asked respondents to prioritize various strategies for economic (job) growth in Boone. The table below lists the top five strategies as ranked by survey respondents.

Economic Development Priorities	*Average Score (out of 3)*	*Rank*
Improving the downtown area	2.38	1
Encouraging the growth of small businesses	2.27	2
Retaining existing businesses	2.18	3
Preserving historic and architectural resources	2.16	4
Increasing arts and cultural facilities	1.87	5

TOP 5 TRANSPORTATION PRIORITIES

The survey asked respondents to prioritize various strategies for transportation in Boone. The table below lists the top five strategies as ranked by survey respondents.

Transportation Priorities	*Average Score (out of 3)*	*Rank*
Walkable, mixed-use development that reduces need for driving	2.70	1
Improve and expand the pedestrian network	2.58	2
Provide on-street bicycle facilities and network	2.39	3
Provide off-street bicycle facilities and network	2.35	4
Expanded local &regional transit service	2.19	5

Options for building new roads or expanding existing roads to serve additional motor vehicles were at the bottom of the ranking list of 12 listed strategies and ranked below maintaining existing roads.

Single family home

Townhomes

Senior Apartments

Residences over retail

TOP 5 HOUSING PRIORITIES

The survey asked respondents to prioritize various types of residential development in Boone. The table below lists the top five strategies as ranked by survey respondents.

Housing Priorities	*Average Score (out of 3)*	*Rank*
Affordable housing for working residents	2.39	1
Mixed-use buildings (residential over commercial)	2.36	2
Affordable housing for low income residents (including seniors)	2.16	3
Neighborhoods with a mixture of housing types	1.92	4
Infill housing on vacant or underutilized sites	1.84	5

CAPITAL SPENDING PRIORITIES

The survey asked respondents to rank 12 potential community capital projects for which they would be willing to pay additional taxes. Respondents did not have to rank projects for which they would not be willing to pay additional taxes.

Community Objectives	*Average Score (1 = highest priority)*	*Rank*
Bicycle facilities (bike lanes, paths)	4.93	1
Sidewalks	5.35	2
Greenways	5.53	3
Stream restoration	5.67	4
Affordable housing	5.91	5
Open space/conservation areas	5.93	6
Downtown streetscape improvements	6.00	7
Increased transit service	6.07	8
Active parks	6.12	9
Streetscape improvements for corridors (321, 421, 105)	7.12	10
Public parking areas/decks	7.86	11
New street connections/intersection improvements	8.05	12

WRITTEN SURVEY COMMENTS SUMMARY

RELIEVE TRAFFIC CONGESTION

- Bypass around Boone
- Improve circulation and connectivity to avoid bypass
- Decrease # of student vehicles
- More off-campus ASU student parking
- Get university to support carpooling, telecommuting, etc.
- Encourage school children to ride the bus
- Downtown: include shuttles to off-site parking
- Better bus system
- Small non-road-dependent mass transit
- Tram that runs in a loop around downtown

MAKE IT PRACTICAL FOR PEOPLE TO BICYCLE/WALK

- Connecting bike lanes, greenways, sidewalks, and parks
- Pedestrian and bike bridges (e.g., 105 at Faculty St)
- Local businesses to sponsor a bike rack
- Reduce dependence on fossil fuels!

FIX UP DOWNTOWN

- Upscale hotel in the downtown area.
- Eliminate parking requirements for downtown businesses.
- Build two large parking garages on either end of downtown.
- Make King St. And River St. One continuous ONE WAY loop
- Eliminate cars on Howard St.
- Incentives for mixed use buildings downtown
- Eliminate setback and height restrictions in the downtown area

ENVIRONMENT SHOULD BE A TOP CONCERN

- Emphasize the interdependence between environmental and social/ cultural sustainability.
- Encourage local sustainable agriculture/ food economy
- Expand recycling to ETJ
- Permanent recycling bins near dumpsters.
- Heated sidewalks and other options which reduce salt brine
- Green building incentives
- Survey of critical environmental habitats
- Develop windmills with ASU and power companies
- Sustainable building materials and permaculture design!

PROVIDE BROAD RANGE OF HOUSING OPPORTUNITIES

- Accessory apartments in current in-town R1 areas
- Give incentives to create workforce housing.
- Keep trailer parks.
- Housing for the disabled/group homes.
- Build developments a little further out for lower income and students; make sure mass transit available
- More on-campus housing,
- Student housing with mixed uses along major corridors
- Limit off-campus student housing
- Fraternity row

ENCOURAGE DENSER /PEDESTRIAN-FRIENDLY DEVELOPMENT

- Create smart developments along Boone (Kraut) creek
- Infill close to campus, e.g. Grand Blvd and Hill street
- Multigenerational, mixed use, and mixed pricing communities.
- Development needs to be smarter
- Extend city services and roads; allow increased density.

INCREASE ARTS/AMENITIES

- Community arts center
- Public art
- Utilize local artists to provide town amenities such as bike racks.
- YMCA for the youth especially

FOCUS ON AESTHETICS

- Vegetative buffers between commercial and residential areas
- Consistently applying architectural and landscaping standards
- Wherever you cut old growth trees you must plant two more
- Improve appearance of student housing

ENCOURAGE GROWTH/MAINTAIN SMALL TOWN ATMOSPHERE

- Encourage new job markets to the area.
- Develop another industrial park
- More large retail options: REI, Trader Joes, Target, Best Buy, etc.
- Protection of small local businesses against large corporations.
- A major mixed-use retail attraction
- Allow home-based businesses in ETJ and rural/agriculture areas.
- Don't use Town funds for Chamber of Commerce objectives
- Extending the airport runway to enhance economic development

LEADERSHIP INITIATIVES

- We need forward thinkers making decisions for Boone
- Comprehensive vision so that citizens AND developers buy into it
- Encourage active participation of all residents in planning
- Town: stop giving into the demands of slumlords and Walmart. Cooperation between the ASU, town, and county
- Keep the university from growing in Boone
- Development ordinances streamlined and made entirely predictable

DON'T CHANGE A THING (EXCEPT TAXES)

- Our town is perfect and needs no improvements.
- We pay enough taxes now! Cut spending!
- We don't need lots of new development.

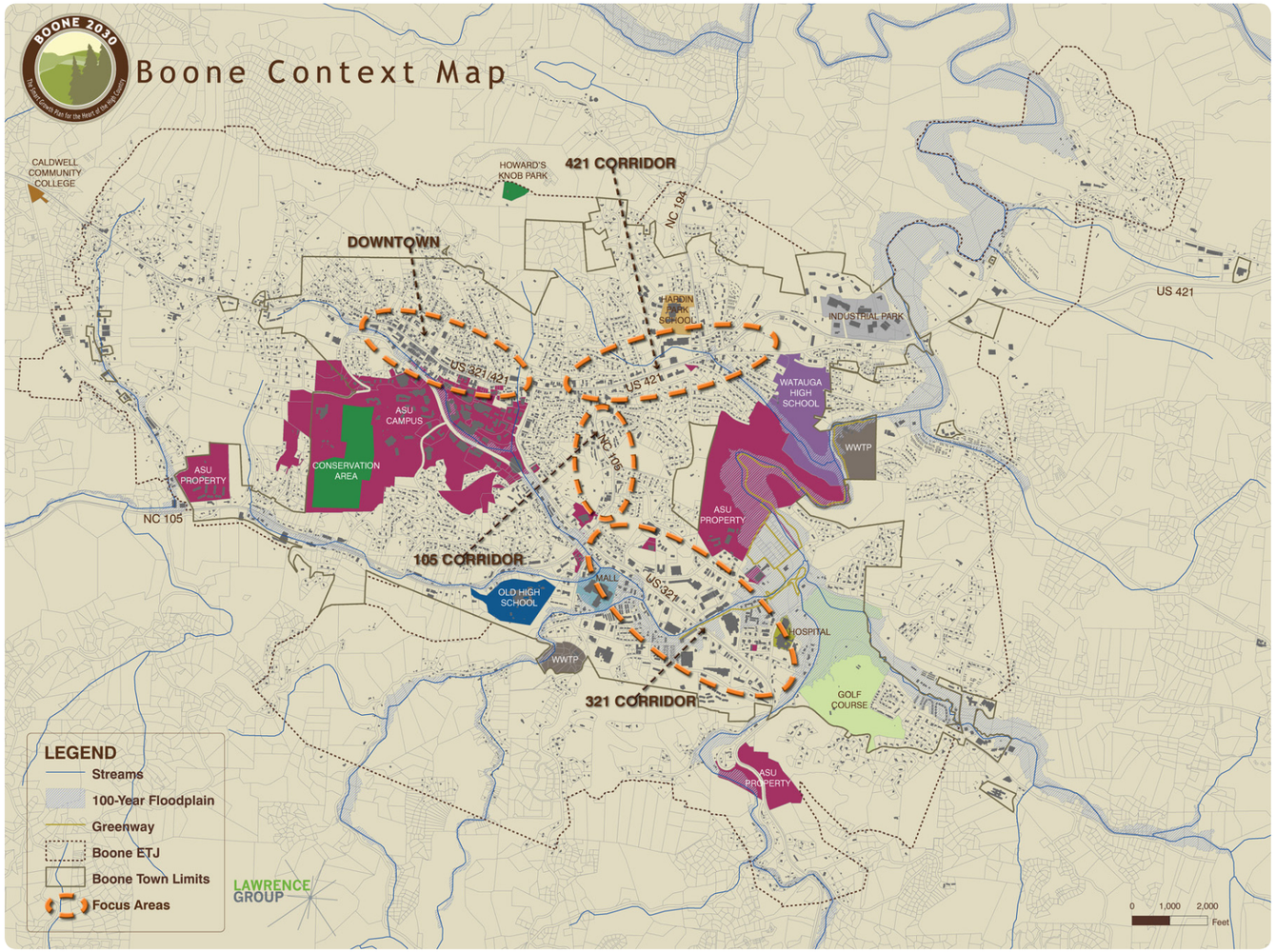
CHARRETTE PREPARATION

Preparation for the week-long charrette began several months ahead of the official kick-off. In the weeks leading up to the charrette, the design team traveled to Boone several times to conduct stakeholder interviews, coordinate workshop efforts and perform preliminary site analysis.

The stakeholder interviews consisted of consultant-led sessions in which local officials, agency representatives and interest groups described the pressing issues facing Boone. These meetings provided the consultant with insight into the local successes achieved and the challenges remaining as the Town prepares to re-assess its development future.

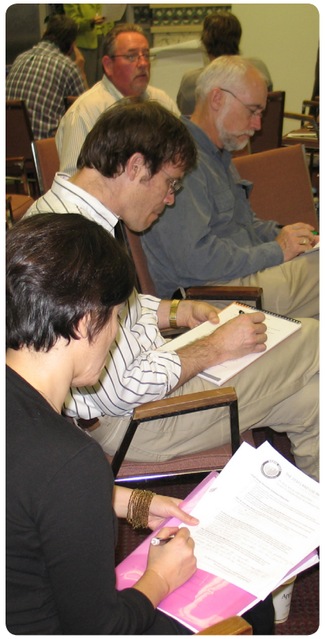
In addition, the design team took to the streets and gathered first-hand evidence of the community's existing conditions. Team members documented examples of both good and bad planning and design elements in Boone, noting how each contributed to the overall environment.

This effort was supplemented with review of Boone's previous planning efforts, as documented in the 2007 *Smart Growth Audit*. Together, each of these exercises supplied critical background information, preparing the consultant team for the public design charrette.



▲ **CONTEXT MAP HIGHLIGHTING KEY FEATURES & OPPORTUNITIES FOR THE COMMUNITY**

CHARRETTE KICKOFF WORKSHOP



On Wednesday, October 15th, 2008, approximately 80 citizens and stakeholders attended an overview presentation of the charrette process, general planning principles and a brief review of Boone's planning history. Afterwards, the consultant team and staff facilitated small group discussions to continue articulating the vision for Boone's future growth. The exercise generated dialogue, ideas and insight into Boone's mountain landscape and set the direction for the charrette discussions and designs.

VISION FOR BOONE IN 2030

The following items represent things to be included in the vision of Boone 2030 by those present during the workshop:

TRANSPORTATION CHOICES

More bicycling and walking throughout town and surrounding areas (Blowing Rock)
Working transportation systems
Fewer vehicles on roads, roadways that will enable downtown movement
Daniel Boone Parkway
Small airport

ATTRACTIVE STREETSCAPES

Buried power lines
Well cared for and aesthetically attractive town
Consistent architectural standards/buildings that reflect mountain architecture
Design standards

VIBRANT DOWNTOWN

Urban neighborhood/downtown living, historic core that is surrounded by density
Vibrant, pedestrian-friendly downtown with adequate parking (wider, brick sidewalks, streetscape furnishings)
Downtown park and amphitheater
Reuse historic structures downtown

INFILL/REDEVELOPMENT

Planning infill
Old buildings redeveloped or torn down

TOWN/UNIVERSITY DEVELOPMENT

Town/ASU are compatible
Safe and well-built student housing in close proximity to campus that can co-exist with the surrounding community
Limit on ASU enrollment (on-campus)

OTHER

Model mountain community
Kraut creek alive and well and open
Jobs with livable wages
More civic engagement
Preserving Boone's heritage
Abundance of retail opportunities in town
Ability to see Howard's Knob
High quality of life, healthy
Density/limit sprawl: grow vertically vs. horizontally
Multi-use structures
Incentives
Larger geographic area
More parks, green, trees

ELEMENTS TO BE PRESERVED/ENHANCED

The following items represent things to be preserved/ enhanced as listed by those present during the workshop:

NATURAL RESOURCES/BEAUTY

Creeks/streams
Beauty and mountain views
Creeks and water features
Natural setting
Climate/seasons
Quiet/lack of (jet) noise
Clean air and water

SENSE OF COMMUNITY

Sense of community – friendly people
Sense of belonging (almost to fault)
Social and economic diversity
Small town atmosphere
Diversity of cultures
Celebrating attitude – life

HISTORIC/CULTURAL RESOURCES

Historic preservation opportunities and stories
Historic buildings (including old post office and library)
Cultural opportunities
Value of arts
Horn in the West

DOWNTOWN

Eclectic mix of architecture downtown
Walkability/biking in/near downtown

HEALTH CARE/COMMUNITY FACILITIES

Swim complex and wellness center
Senior center
Hospital/health care systems

EDUCATIONAL INSTITUTIONS

ASU
Education/schools

LOCAL BUSINESSES

Ability to shop locally
Local businesses – meeting places

OTHER

Neighborhoods
Transit-friendly (Appalcart)
Personal safety
Proximity to outdoors/recreational opportunities (including parks and greenway)

RECOMMENDED ACTIONS/STRATEGIES

The following items represent recommended actions listed by those present during the workshop:

PROVIDE TRANSPORTATION CHOICES

More efficient transportation patterns and parking opportunities
Daniel Boone Parkway
Greenway systems: pedestrian and bikes and creeks
More multi-modal route options

PREDICTABLE DEVELOPMENT APPROVAL

Sensible and fair rules for development
Incorporate common sense
Predictable development planning and process
Smart Growth incentive package by-right

PROTECT NATURAL RESOURCES

Protecting and enhancing environment for appropriate use
Watershed and stormwater management

ENHANCE COMMUNITY INTERACTION/ CULTURAL RESOURCES

Developing more opportunities for community interactions such as Farmer's Market, cultural center, neighborhood associations

ENCOURAGE HOUSING OPTIONS

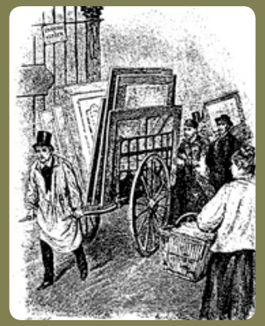
Safe, affordable housing opportunities for ALL
Variety of housing

PROMOTE MIXED USE DEVELOPMENT

Responsible mixed-use development
Extend mixed use/stop sprawl

ECONOMIC DEVELOPMENT

Economic opportunities
Attract new high/green tech jobs
Design guidelines--color, materials, art, aesthetics



Charrette is "little cart" in French. In 19th century Paris, design professors circulated carts to collect final drawings from students. Students jumped on the carts to finish their work as they were pulled through the streets in public view. The term charrette has evolved to mean an open public design process.

To guide the master-planning process, the Town of Boone and the consultant team hosted a five-day public design charrette. This endeavor began with the opening presentation on Wednesday, October 15, 2008, at the Broyhill Conference Center.

On Monday, October 20, the consultant team set up a temporary design studio in the Best Western's Conference Room. The space served as the design team's "home base" for the charrette's duration, October 20-24. The studio, complete with design tables, maps, pin-up boards and graphic work stations, provided an open space in which both formal and informal meetings occurred, as well as room for designers to craft the plan's details with the public's help.

Throughout the week nearly 600 citizens, property and business owners, public officials and agency representatives met to discuss the Town's future. The program featured both formal meetings led by the consultant and open to the public, as well as informal sessions that emerged out of these meetings and other design-related activities. Topics discussed ranged from transportation and pedestrian-mobility to commercial corridors, neighborhoods, utilities, environmental protection, affordable housing, and downtown Boone. At the end of each day, the design team facilitated an informal review and public critique of the day's progress.

One of the unique aspects of this charrette was the fact that a simultaneous public design workshop was conducted for the ASU campus master plan. Since the same consultant firms were working on both projects, and many local stakeholders attended both events there was a great deal of overlap in terms of participation and input on the two efforts. A special Town-Gown meeting during the Town's charrette was held to discuss issues of mutual interest to Boone and the University.

On Tuesday, October 28, 2008, the charrette closed with a final presentation highlighting the week's achievements and the plan's preliminary recommendations. Nearly 200 people were in attendance for the presentation on a cold, snowy evening. This plan represents the consensus opinion gained through a week of collaboration between the Town's residents, staff and the design team. It embodies the vision to be carried forth by Boone's citizens and officials in the years to come.

THE 2030 LAND USE MASTER PLAN

The Smart Growth Plan for the Heart of the High Country

PLANNING & DESIGN WORKSHOP SCHEDULE

Kickoff Presentation and Public Workshop
The event will feature a "food for thought" presentation to educate participants on best practices in traditional urban design, transportation, redevelopment, zoning, and preserving community character. It will be followed by a hands-on design session where community residents, stakeholders, and Town officials work together to create a vision for Boone.

October 15th at 5:30 pm
Location: Broyhill Conference Center

Public Planning and Design Charrette
The design team will work on-site creating the plan and invite the community to offer continual input and monitor the work-in-progress. Members of the community and all those interested in the future of Boone are invited to stop-by the design studio throughout the week. The design team will be working on-site and will be available to meet with residents, answer questions, and further refine ideas.

October 20th – 24th
Location: Best Western Hotel
840 East King Street

Monday, October 20th
1:00 pm Environmental Protection & Sustainability
2:30 pm Utility Infrastructure & Alternative Energy
4:00 pm River Street/Highway 321 Creeks Property Owners
6:30 pm Rejuvenating the NC 105 and US 321 Commercial Corridors

Tuesday, October 21st
9:00 am until Noon Downtown Placemaking Workshop (Meet in front of ArtWalk)
1:00 pm Transportation & Circulation
2:30 pm Pedestrian, Bicycle & Transit Planning
4:00 pm Open Space, Parks & Greenways
5:30 pm Daily Project Update/Design Pin-Up
7:00 pm Town and Gown Land Use Discussion

Wednesday, October 22nd
9:00 am Workforce Housing
10:30 am Advisory Committee Meeting
1:00 pm Realtors, Builders & Developers
2:30 pm Student Housing
5:30 pm Daily Project Update/Design Pin-Up
6:30 pm Meeting of the Neighborhoods (All neighborhood leaders and interested residents are invited)

Thursday, October 23rd
9:00 am until 5:00 pm Open Design Studio
5:30 pm Daily Project Update/Design Pin-Up

Friday, October 24th
9:00 am until 5:00 pm Open Design Studio
5:30 pm Daily Project Update/Design Pin-Up

Closing Presentation
The design team will present its set of preliminary recommendations for guiding growth, development and redevelopment over the next twenty years.

October 28th at 5:30 pm
Location: Broyhill Conference Center

THE CHARRETTE

▲ CHARRETTE IMAGES

The images above reflect the varying aspects of the charrette process--public tours, stakeholder meetings, input sessions, design work. The experience gave the citizens of Boone a chance to be heard. The resulting plan truly reflects the vision of everyone that participated.

CHARRETTE PUBLIC FEEDBACK

Eighteen formal meetings on various topics were held during the charrette (including daily pin up meetings). Dozens of informal meetings were held with individuals who dropped in on the charrette studio. All told, nearly 500 community residents and stakeholders attended various meetings during the charrette. Below is a summary of charrette participant comments.

STRATEGIES RECOMMENDED BY PUBLIC

The following list represents specific strategies for Boone's growth recommended by charrette participants. The list has been grouped by topic area and edited for brevity.

PROTECT WATER QUALITY

- Implement/require/creative incentives for stormwater management best management practices
- Address pollution issues in streams: pharmaceuticals, junk cars/propane tanks, road salt, etc.

CONSERVE WATER

- Rain barrels/cisterns should be encouraged in new construction
- Need to incentivize rainwater catchment and allow greywater reuse

MAKE WATER AVAILABLE

- Water allotments versus use/impact fees: allocations used up until 2010
- High density will strain existing water and sewer lines

CONSERVE LAND

- Identify and purchase lands that have high environmental sensitivity: Coleman property; property across from Walgreens; farmland preservation properties, eg. Claude Austin property next to hospital; areas for greenhouses
- Town needs mechanism to receive conservation lands
- Need to coordinate with Town and High Country Conservancy
- Public funding incentives

DEVELOP PARKS/RECREATION AMENITIES

- Centrally located park in downtown: "like Blowing Rock"
- Park in Town Hall parking lot
- Need to be kid-friendly w/ playground equipment
- Need park in Stadium Drive/Dogwood area
- Add benches next to streams

PROMOTE GREEN ENERGY/DEVELOPMENT

- Consider wind generation: be first town on East Coast using totally renewable energy
- Need portion of UDO to address alternative energies
- Incentivize green development/redevelopment of inefficient buildings
- Consider waste-to-energy opportunities
- Emphasize local energy production to promote local economy
- Energy conservation needs to be stressed: need education
- Town wastewater generation power to sell back to grid
- Growing vegetables at landfill using methane gas

PROMOTE RESOURCE CONSERVATION

- Need incentivized conservation: charge per use vs. flat fee for waste collection
- Restrict plastic bags, bottles, styrofoam
- Wood burning is going to increase air quality issues; some CO communities require catalytic converter on houses (gets more heat into house)
- Think about localization of food production

AREAS FOR FUTURE GROWTH

- Commercial growth moving to 421 (towards Bamboo Road)
- State Farm Rd + Greenway Rd
- Downtown services for full-time residents
- Area behind the hospital and Boone Golf Course known as Kellwood/Happy Valley.

REDEVELOPMENT/HIGH DENSITY AREAS

- Context-sensitive heights; appropriate location for higher buildings: 5-6 stories, concentrated in/around: B1 & B3 districts; Howard St; ASU; Hardin Street; Blowing Rock Road; NC 105
- Density, density, density !!!! Especially close to downtown & university
- King St: keep same scale as it is today
- Give incentives for redevelopment/height
- No more mega apartment complexes
- Concern re: restricting views with tall buildings
- Try not to make things so large and modern; no skyscrapers – 4, 5, 6 story [max?]
- Concerned about 6-7 story buildings on Howard destroying character of downtown

PROVIDE TRANSPORTATION OPTIONS

- Create an environment where other transport options viable
- More connectivity to greenway and sidewalks
- Safe street crossings
- Adequate space for bikes
- Emphasize upgrading of existing roadways
- Poplar Grove: informal path; can it be formalized and improved?
- Improve Safety of 105 (and all corridors/intersections)
- Maintain access into commercial properties, but make it safer for all users
- Continuous center left turn lanes: landscaped medians
- Improve connectivity around town and between corridors
- Run Daniel Boone Parkway from Wilson Ridge Rd directly to 321.
- 2nd road parallel to 421/King (neighborhood network ala Tracey Circle)
- Expand transit service; extend transit into neighborhoods
- Access to new high school: no drop-off zone; reconnect to greenway; need crosswalks to north side of 421; bike access is a challenge

(continued on the following page)

CHARRETTE PUBLIC FEEDBACK

EXPAND TRAILS/GREENWAYS
- Need beginning and intermediate mountain bike trails
- Winkler's Creek Estates Dr. : mountain bike trails
- Use rights of ways (utilities) for trails/greenways
- Property along Middle Fork, along Jordan Cook Ridge
- Trail between Meadowview Drive alongside Catholic Church

IMPROVE APPEARANCE OF CORRIDORS
- Aesthetics of corridors: landscaping and buildings have a major impact on visitors
- Need beauty and practical solutions: don't just look at tourist point of view
- Preserve views
- Need more trees/landscaping along roads
- Improved streetscapes (seating, lighting, etc.)
- Uniformity throughout the town (architectural details)
- Need style of buildings that suits the mountains: bark, stone, wood
- Underground utilities
- Preserve night views with directed down lights!

PROTECT NEIGHBORHOOD CHARACTER
- Process for involvement of neighborhood associations in development process
- Not enough residential neighborhoods for professionals
- Be able to protect new housing for [from?] student purchase
- Neighborhood Trust
- Sensitive infill (re: Floor Area Ratio compatibility) – maintain character
- Litter, drugs, speeding issues on Junaluska Rd
- Transitions between single-family residential and commercial (lighting, buffers, etc.)
- Need retroactive lighting standards
- Noise at night: garbage trucks, etc.

REVISE THE UDO
- Current UDO not development/redevelopment friendly
- Driveway access & permits - especially on NCDOT roads
- Staff great but can only abide by UDO which isn't feasible to build in most cases
- How to deal with parking requirements? Concern about eliminating parking requirements downtown without deck or decks
- Setbacks, parking requirements, height requirements make interconnectivity an issue along corridors
- Special zoning district for higher density/mixed-use (i.e., Old High School site)
- Until UDO is overhauled, very little can happen; Make UDO change recommendations ASAP
- Prioritize parcels for form improvement (form-based codes)

CREATE PREDICTABLE APPROVAL PROCESS
- Approval process - most go through special permit / board of adjustments—subjective
- Approval process takes 12-18 months
- Approvals expire in 1 year
- Spot zoning?

PROMOTE LOCAL INVESTMENT
- Highlight tax revenue benefits associated with denser development (ASU is tax-exempt!)
- Property tax assessments and revaluation will further drive costs higher
- Costs are pricing space out of the market. . .new space is $25+ per square foot
- Space issue for major retailers/restaurants
- Impact fees not transferable
- Little incentive for development - reduce risks, costs and unknowns. . .
- Cheaper to develop out of town than in town

DEVELOP WORKFORCE/AFFORDABLE HOUSING
- Customers: professionals; service workers; small business owners, working poor,
- Types of units: 500 - 1,400 +/- square feet; high quality, energy efficient; not mobile homes;
- Alternative Construction: container homes, kits (Katrina houses), modular, lofts for artists
- Price Ranges: $70-250K
- Location: in town (closer to public transit, utilities, jobs)
- Affordability: size, energy efficiency; keeping it affordable after built/sold/leased
- Make sure affordable/workforce housing is an integral component.
- Use carrots instead of sticks (incentives for density tied to affordability)
- Establish Purchase Parameters - to be sure it gets to the target customer (not students or their parents).
- Land Trust/Land Lease - to lower land costs to establish/maintain affordability
- Restrictive covenants - to establish/maintain affordability
- Staff person to facilitate effort: should be a partnership or joint venture with town, county, ASU and hospital.
- Coalition group : also include non-profits and other groups focused on this issue, such as the Housing Opportunities Group (county), Affordable Housing Task Force, Housing Authority, etc.

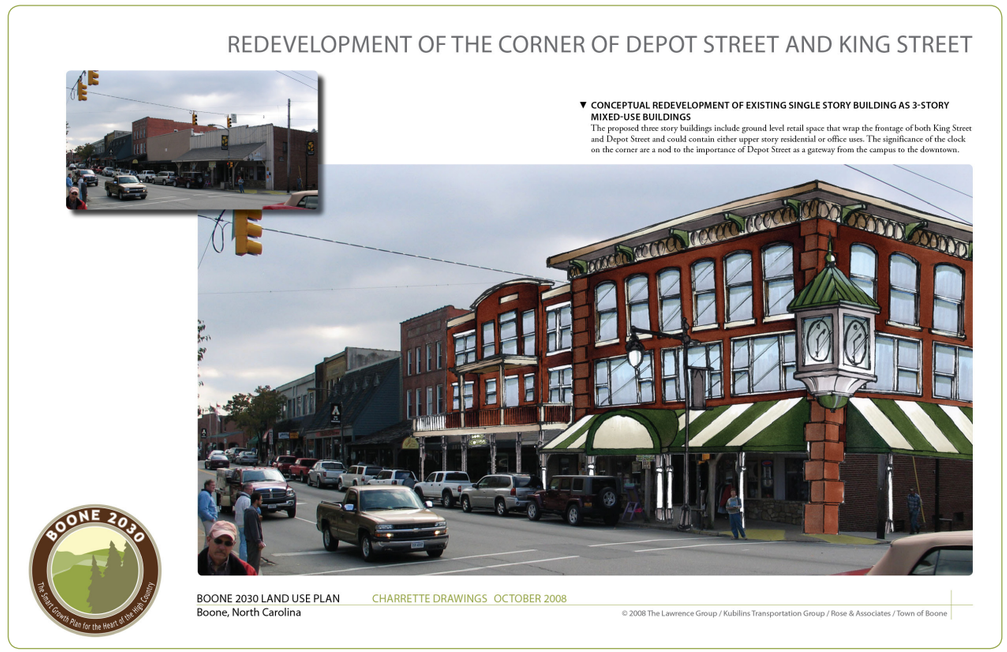
STUDENT HOUSING
- can't build fast enough based on regulatory issues;
- Parking; esp. downtown—in town versus out of town and access to transit
- Mold
- Partying and noise
- Kiddy Condos: parents buying and holding some for generations (grandparents for students)
- Taxes: revenue loss from on campus housing
- Water connection and construction time line
- Cost of land
- Density - incentives for density near campus
- Mix the housing - generations, ages
- Equitable distribution of infrastructure: ASU versus Town
- Private versus institutional ownership/taxes; Public Private Partnership?!
- Buffer and transition single family to apartments

CHARRETTE DELIVERABLES

By week's end, the charrette's comprehensive scope had enabled the design team to provide detailed recommendations for the Town of Boone. The on-site design studio and graphic work stations allowed the team to produce detailed, two & three-dimensional illustrations depicting the area's potential build-out and redevelopment of buildings, streets and open spaces.

The progress made through the intensive charrette process culminated in a final presentation featuring a digital portrayal of the vision. In this session, the design team set forth the specific recommendations generated by the week's publicly-driven efforts. The proposals highlighted the necessary changes required to improve Boone's landscape. Upon leaving, the design team presented the Town of Boone with a published package of materials, including a high-quality PowerPoint presentation and Drawings Booklet containing the design team's completed renderings.

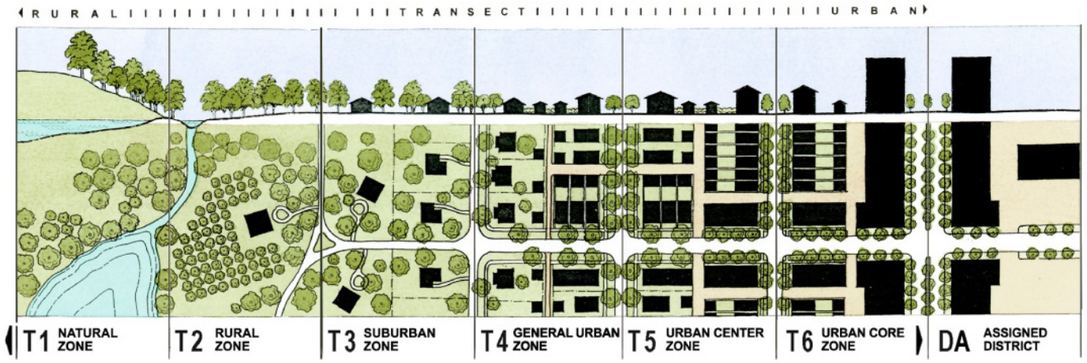
PAGE FROM THE CHARRETTE DRAWINGS BOOKLET ▶



CHARRETTE DRAWINGS ▶
The images to the right were produced during the five day charrette held in Boone. Hand drawings were scanned into the computer so they could be overlayed with aerials of the Town. This technique gives the citizens a better vision of how the ideas discussed fit into the fabric of their community.

4: THE FRAMEWORK PLAN

FRAMEWORK PLAN: PURPOSE AND PHILOSOPHY



Graphic by Duany Plater-Zyberk and Company

PRIVATE	Less Density	More Density
	Primarily Residential	Primarily Mixed-Use
	Smaller Buildings	Larger Buildings
	More Greenspace	More Hardscape
	Detached Buildings	Attached Buildings
	Rotated Frontages	Aligned Frontages
	Yards & Porches	Stoops & Shopfronts
	Deep Setbacks	Shallow Setbacks
	Articulated Massing	Simple Massing
	Wooden Buildings	Masonry Buildings
	Generally Pitched Roofs	Generally Flat Roofs
	Small Yard Signs	Building Mounted Signage
	Livestock	Domestic Animals
PUBLIC	Roads & Lanes	Streets & Alleys
	Narrow Paths	Wide Sidewalks
	High L.O.S. Standards	Low L.O.S. Standards
	Opportunistic Parking	Dedicated Parking
	Larger Curb Radii	Smaller Curb Radii
	Open Swales	Raised Curbs
	Starlight	Street Lighting
	Mixed Tree Clusters	Aligned Street Trees
CIVIC	Local Gathering Places	Regional Institutions
	Parks & Greens	Plazas & Squares

Table by Duany Plater-Zyberk and Company

The graphic above and the accompanying table show the various land use conditions and the typical design elements that characterize the Transect's rural-urban continuum. The graphic shows a bird's-eye view of types of development with buildings shown in black.

The Framework Plan is a land use policy map intended to provide guidance to Boone's leaders as they make decisions on where and how the community should grow. It provides the overall structure for orchestrating appropriate patterns of growth and environmental conservation throughout the community. As such, it provides the framework for and is the cornerstone of the Land Use Plan.

As land use and transportation are inextricably linked, the Framework Plan incorporates planned and existing roadway facilities. It also is informed by existing development trends and adopted land use policy, including the Town's existing zoning districts, viewshed protection areas, watershed protection areas, and water/sewer service delivery areas. In addition to the methodology described below, the Framework Plan is also based on development concepts that the community articulated and prioritized during the plan process. Community land use priorities include: protecting natural resources; developing a vibrant downtown; encouraging pedestrian-friendly, mixed-use development; facilitating infill/redevelopment; and providing a broad range of housing opportunities.

The Framework Plan methodology divides land within the study area into six separate classifications or "sectors" (labeled as O-1 through G-4 and further described on the pages that follow). These range from the most natural (Preserved Lands) to the most urbanized areas (Downtown/ Mixed-Use), with each sector reflecting the appropriate balance between environmental conservation and development intensity for the area.

Within the broad sector classifications, detailed development specifications should be created through the use of "transect zones" (conceptually illustrated on the right and further detailed in the graphic on the left as T-1 through T-6), which subdivide each sector and set out the specific intensity and development details for each condition along the rural-urban spectrum. On this scale, the Natural Zone (T-1) comprises the most natural, undeveloped land. The Urban Zone (T-6) equates to the most urban, high density type of environment in a community, such as is found in downtown Boone.

This form of mapping and classification is known as "transect mapping," and is based on the history of human settlement patterns. The Rural-Urban Transect is a conceptual "slice" through the landscape from rural conditions to urban core, and relates development potential to the ecological conditions and settlement patterns of the land. The transect creates a hierarchy of and provides the primary classification for the environmental and/or built character of the various parts of the Town.

The American Transect. Drawing by James Wassell

FRAMEWORK PLAN: METHODOLOGY

The Framework Plan presented here was created using a methodology based on the TransectMap model developed by Criterion Planners. TransectMap is a method designed to apply the transect concept to the specific conditions of a particular place.

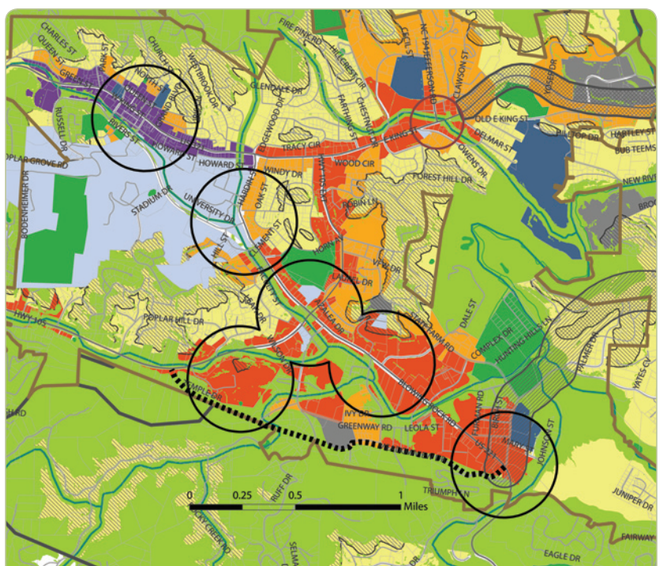
Step 1-Transect Map Process: The methodology begins by identifying the lands that should not be developed based on environmental, agricultural, recreational, or historical significance. These lands comprise the Preserved and Reserved Open Space sectors. Then areas that are already urbanized and are appropriate for infill and redevelopment are identified. The land that remains is land that is appropriate for new development and is subdivided into Restricted, Controlled, and Intended Growth sectors based on appropriate development densities and land use types based on proximity to transportation networks and availability of urban services.

Step 2-Subdivision of Sectors into Transect-Based Zones: The next step in the process is to subdivide the regional sector zones of the Framework Map into Transect zones (See the graphics on the next page for additional discussion). As a means of enacting the appropriate level of zoning and design controls on new development, each of the regional planning "sectors," O-l through G-4, should be subdivided into more detailed "transect zones" ranging from T-l - Natural, to T-6 - Town Center (Step 2). Transect zones take the same concept of mapping regional transect sectors (from rural to urban) and subdivide the sectors into zoning categories which integrate detailed planning and urban design concepts into the community's zoning and subdivision requirements.

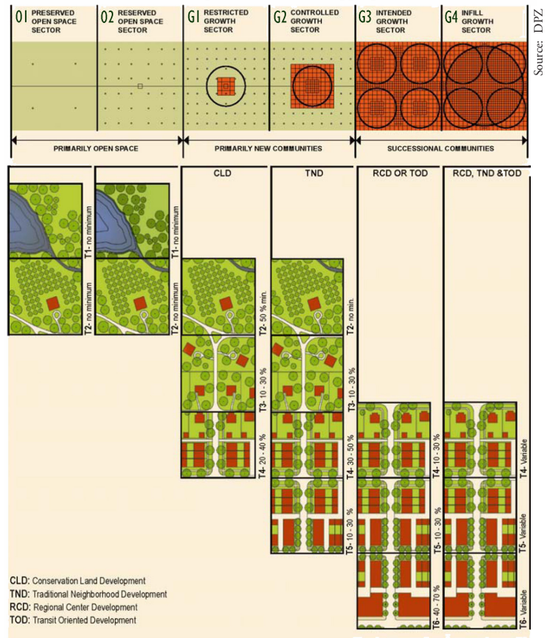
Step 3-New Transect-Based Codes: One of the fundamental assumptions of this plan is that Boone's existing development standards must be changed to allow and require the type of development that the community envisions for its future growth. Rewriting the Town's UDO is one of the first and most critical steps towards implementation of this plan. This plan accomplishes the first step in this process, which is to recommend the appropriate land use types and intensities for the community through the Framework Plan. The next step is to develop regulatory standards that are appropriate for each land use category in the Framework Plan. (Step 3)

Step 4-New Transect-Based Zoning Map: Within each overall sector classification, the transect zones operate from the scale of a whole community, to a neighborhood, an individual lot, and a building, right down to the detail of appropriate architectural elements. The transect zones will then need to be applied through zoning changes.

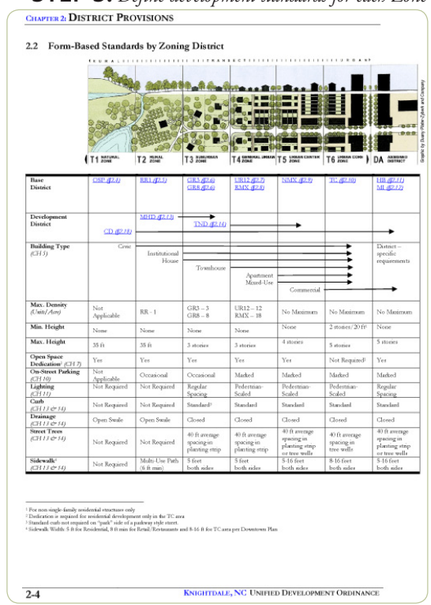
▼ **STEP 1:** *Classify area by regional land use context*



▼ **STEP 2:** *Subdivide regional sectors into appropriate Transect Zones*



▼ **STEP 3:** *Define development standards for each Zone*



CHAPTER 2: DISTRICT PROVISIONS

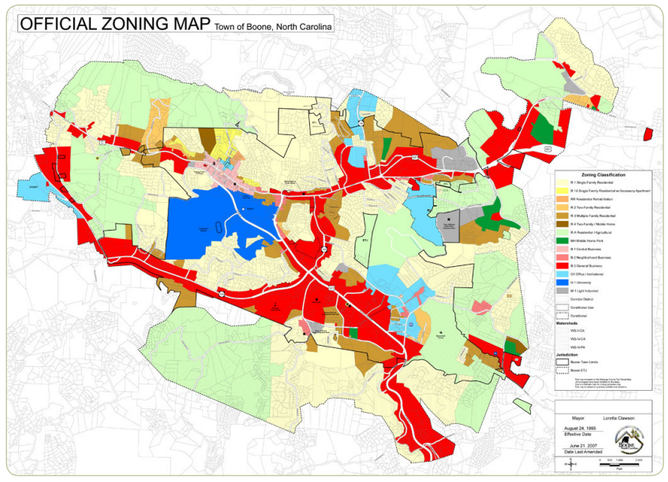
2.2 Form-Based Standards by Zoning District

	T1	T2	T3	T4	T5	T6	DA
Base District	CSD (§2.4)	RR-1 (§2.5)	GR3 (§2.6) GR8 (§2.6)	UR12 (§2.7) RMX (§2.8)	NMX (§2.9)	TC (§2.10)	HR (§2.11) SR (§2.12)
Development District	CD (§2.13)		MHD (§2.13)	TND (§2.14)			
Building Type (§3.1)	Civic	Institutional House	Townhouse	Apartment Mixed-Use	Commercial		District – specific requirements
Max. Density (Unit/Acre)	Not Applicable	RR - 1	GR3 – 3 GR8 – 8	UR12 – 12 RMX – 18	No Maximum	No Maximum	No Maximum
Min. Height	None	None	None	None	None	2 stories/ 20'[1]	None
Max. Height	35 ft	35 ft	3 stories	3 stories	4 stories	5 stories	5 stories
Open Space Dedication[2] (§3.2)	Yes	Yes	Yes	Yes	Yes	Not Required[3]	Yes
On-Street Parking (§3.10)	Not Applicable	Occasional	Occasional	Marked	Marked	Marked	Marked
Lighting (§3.11)	Not Required	Not Required	Regular Spacing	Pedestrian-Scaled	Pedestrian-Scaled	Pedestrian-Scaled	Regular Spacing
Curb (§3.11 & 3.14)	Not Required	Not Required	Standard[3]	Standard	Standard	Standard	Standard
Drainage (§3.11 & 3.14)	Open Swale	Open Swale	Closed	Closed	Closed	Closed	Closed
Street Trees (§3.11 & 3.14)	Not Required	Not Required	40 ft average spacing in planting strip	40 ft average spacing in planting strip	40 ft average spacing in planting strip or tree wells	40 ft average spacing in planting strip or tree wells	40 ft average spacing in planting strip or tree wells
Sidewalk[4] (§3.11 & 3.14)	Not Required	Multi-Use Path (8 ft min)	5 feet both sides	5 feet both sides	5 feet both sides	8-16 feet both sides	5-16 feet both sides

[1] For non-single-family residential structures only
[2] Dedication is required for residential development only in the TC area
[3] Standard curb not required on "park" side of a parkway style street.
[4] Sidewalk Width: 5 ft for Residential, 8 ft min for Retail/Restaurants and 8-16 ft for TC area per Downtown Plan

2-4 KNIGHTDALE, NC UNIFIED DEVELOPMENT ORDINANCE

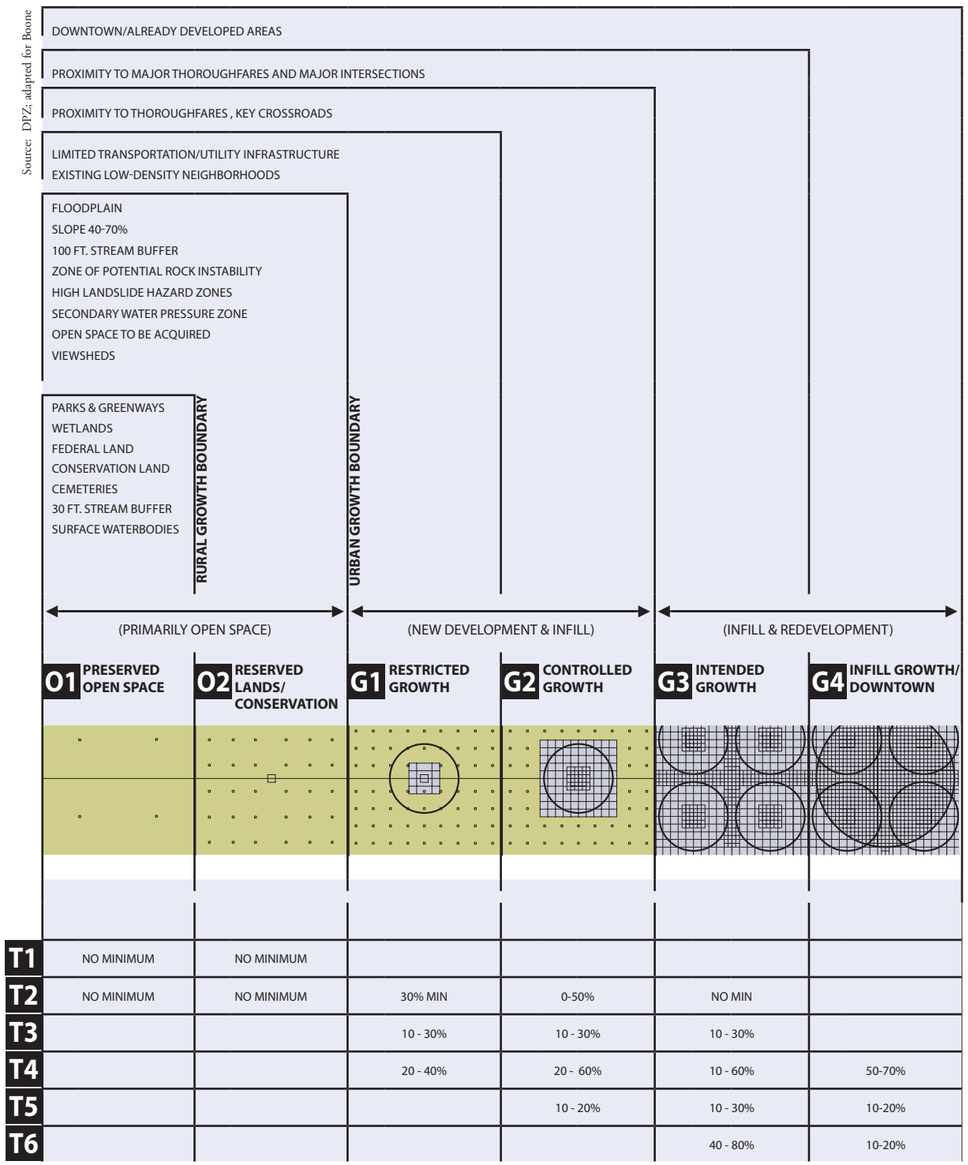
▼ **STEP 4:** *Apply the Transect Zones through Zoning Map*



FRAMEWORK PLAN: METHODOLOGY

Sector/Transect Zone Allocation for Boone: *The table below defines the natural and infrastructural elements that determine the areas suitable for the regional sectors specified in the Framework Plan. This table also suggests the appropriate proportions of Transect Zones within each larger regional sector. The Transect Zone application should be further refined as the Town creates new development regulations.*

Source: DPZ; adapted for Boone



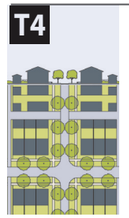
T1	NO MINIMUM	NO MINIMUM				
T2	NO MINIMUM	NO MINIMUM	30% MIN	0-50%	NO MIN	
T3			10 - 30%	10 - 30%	10 - 30%	
T4			20 - 40%	20 - 60%	10 - 60%	50-70%
T5				10 - 20%	10 - 30%	10-20%
T6					40 - 80%	10-20%

Source: DPZ; adapted for Boone

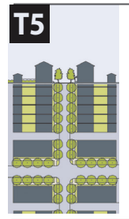
T-1 NATURAL
General Character: Natural landscape with some agricultural use
Building Placement: Not applicable
Frontage Types: Not applicable
Typical Building Height: Not applicable
Type of Civic Space: Parks, Greenways

T-2 RURAL
General Character: Primarily agricultural with woodland & wetland and scattered buildings
Building Placement: Variable Setbacks
Frontage Types: Not applicable
Typical Building Height: 1- to 2-Story
Type of Civic Space: Parks, Greenways

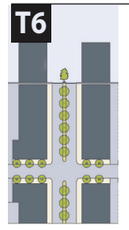
T-3 SUB-URBAN
General Character: Lawns, and landscaped yards surrounding detached single-family houses;
Building Placement: Large and variable front and side yard Setbacks
Frontage Types: Porches, fences, naturalistic tree planting
Typical Building Height: 1- to 2-story with some 3-Story
Type of Civic Space: Parks, Greenways, Median Landscaping



T-4 GENERAL URBAN
General Character: Mix of houses, townhouses & small apartment buildings, with scattered commercial activity; balance between landscape and buildings; presence of pedestrians
Building Placement: Shallow to medium front and side yard Setbacks
Frontage Types: Porches, fences,
Typical Building Height: 2- to 4-story with a few taller mixed use buildings
Type of Civic Space: Squares, Greens, Median Landscaping



T-5 URBAN CENTER
General Character: Shops mixed with townhouses, larger apartment houses, offices, workplace, and civic buildings; predominantly attached buildings; trees within the public right-of-way; substantial pedestrian activity
Building Placement: Shallow setbacks or none; buildings oriented to street defining a street wall
Frontage Types: Stoops, shopfronts, arcades
Typical Building Height: 2- to 6-story with some variation
Type of Civic Space: Parks, Plazas and Squares, Median Landscaping



T-6 URBAN CORE
General Character: Medium to high-density mixed use buildings, entertainment, civic and cultural uses. Attached buildings forming a continuous street wall; trees within the public right-of-way; highest pedestrian and transit activity
Building Placement: Shallow setbacks or none; buildings oriented to street, defining a street wall
Frontage Types: Stoops, shopfronts, and arcades
Typical Building Height: 2- to 4-story with a few taller buildings
Type of Civic Space: Parks, Plazas and Squares, Median Landscaping

The American Transect. Drawing by James Wassell

Transect Zone Descriptions: *The table at left provides descriptions of the appropriate character of Transect zones for Boone. These standards should be further detailed as the Town rewrites its development regulations.*

FRAMEWORK PLAN: ENVIRONMENTAL CONSIDERATIONS

The Framework Plan illustrates the practical result of applying the TransectMap methodology to Boone's planning area. Particular attention has been paid to conserving critical wetlands, floodplains and other environmentally sensitive areas while acknowledging the demands of development in key locations in the Town.

The six geographic regional sectors of the transect mapping system create the principal framework of environmental and developmental classification for this new plan. Sectors O-1 and O-2, the most restrictive environmental classifications, are closely based on requirements and categories established by various North Carolina state authorities, including the *North Carolina Wildlife Commission's Guidance Memorandum to Address and Mitigate. . .Impacts to . . .Wildlife Resources and Water Quality* (2002).

In their report, the North Carolina Wildlife Resources Commission (NCWRC) notes that "riparian" areas, that is, land areas along and adjacent to rivers, creeks and streams:

> ". . .perform many functions that are essential to maintaining water quality, aquatic species survival, and biological productivity. . .The use of wooded riparian buffers is an important tool in reducing damage to streams (Waters 1995) [and convey] critical benefits to society."

In addition to maintaining appropriate stream buffers, this Plan seeks to maintain key wooded areas as wildlife corridors and, where compatible, to utilize these areas for active and passive recreation for the citizens of Boone.

Recommendations for implementing open space and natural resource protection strategies for Boone are detailed in Section 5, Environmental Sustainability, of this report.

O-1 PRESERVED OPEN SPACE

Streams and wetlands are typical O-1 sector features

Creekside greenway trail, a typical O-1 sector land use

Source: Kimley-Horn & Associates

The O-1 sector represents the basic "green infrastructure" of the community providing critical habitat for wildlife; protection of water quality and protection from flooding and erosion; and needed recreation and greenspace for the human habitat. This category, indicated in dark green on the Framework Map, comprises lands that are already non-developable, such as wetlands, required stream buffers, and parks.

For Boone, this sector specifically consists of:

- existing parks & greenways
- wetlands and streams
- 25 ft stream buffer - standard
- 30 ft stream buffer - watershed area
- 35 ft stream buffer - steep slopes
- federal or state lands
- conservation easements
- cemeteries

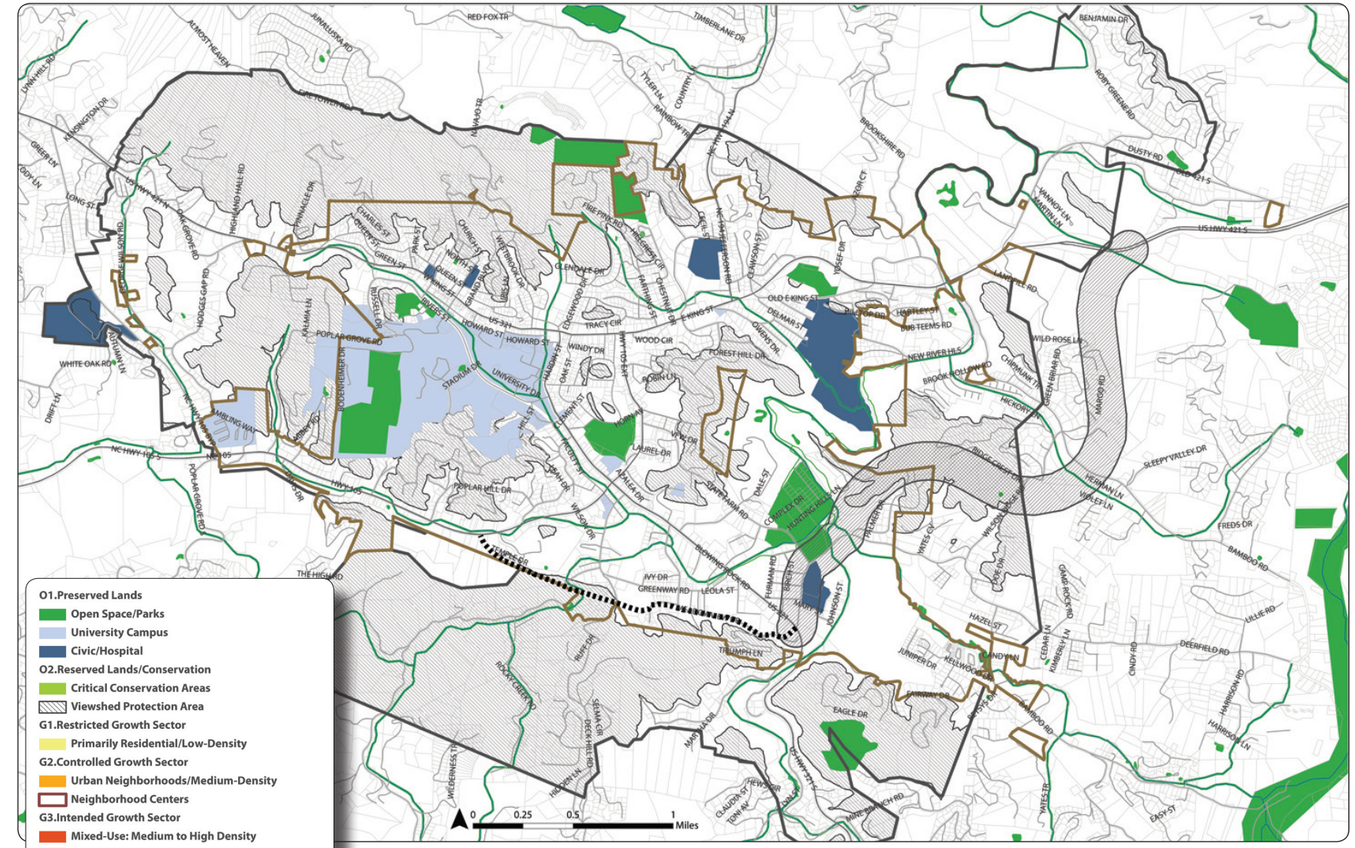
APPROPRIATE LAND USES/DEVELOPMENT TYPES:

- conservation areas
- parks & greenways
- limited agricultural/forestry uses
- water access areas
- limited civic uses such as schools

CIVIC & INSTITUTIONAL USES:

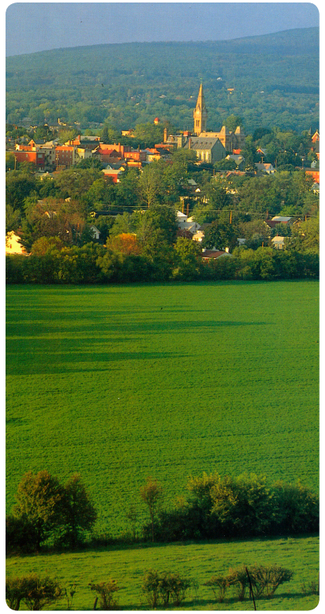
In addition to the geographic sectors, the Framework Plan indicates two related special land uses: the existing schools and other civic sites such as the hospital, the community college, and the library. The ASU's main campus property is shown in light blue. These civic and institutional uses properties are related to the community's permanent green infrastructure since large pieces of land on many these properties will continue be undeveloped open space.

Recommended details of the ASU campus/downtown Boone interface are laid out in Section 7, Downtown Boone. Additional recommendations for Town/Campus coordination are included in Section 6, Transportation and Section 8, Focus Areas, and in the implementation matrix in the Executive Summary.



O-2 RESERVED/CONSERVATION LANDS

Source: Thomas Hylton



Rural area outside of a historic Pennsylvania town center

O-2 sector lands represent areas that are prime candidates for moving into the O-1 sector through conservation easements or other open space acquisition/protection measures such as Transfer of Development Rights. This sector, shown in medium green on the Framework Map, consists of lands that should be off-limits to development except occasional residential/rural buildings at very low densities. These areas may be legally developable based on current federal, state, and local regulations. However, they are areas that based on environmental and urban service factors (difficulty of providing of sewer/water service and roadways, for example) should be lightly developed or undeveloped, remaining in a rural or natural state.

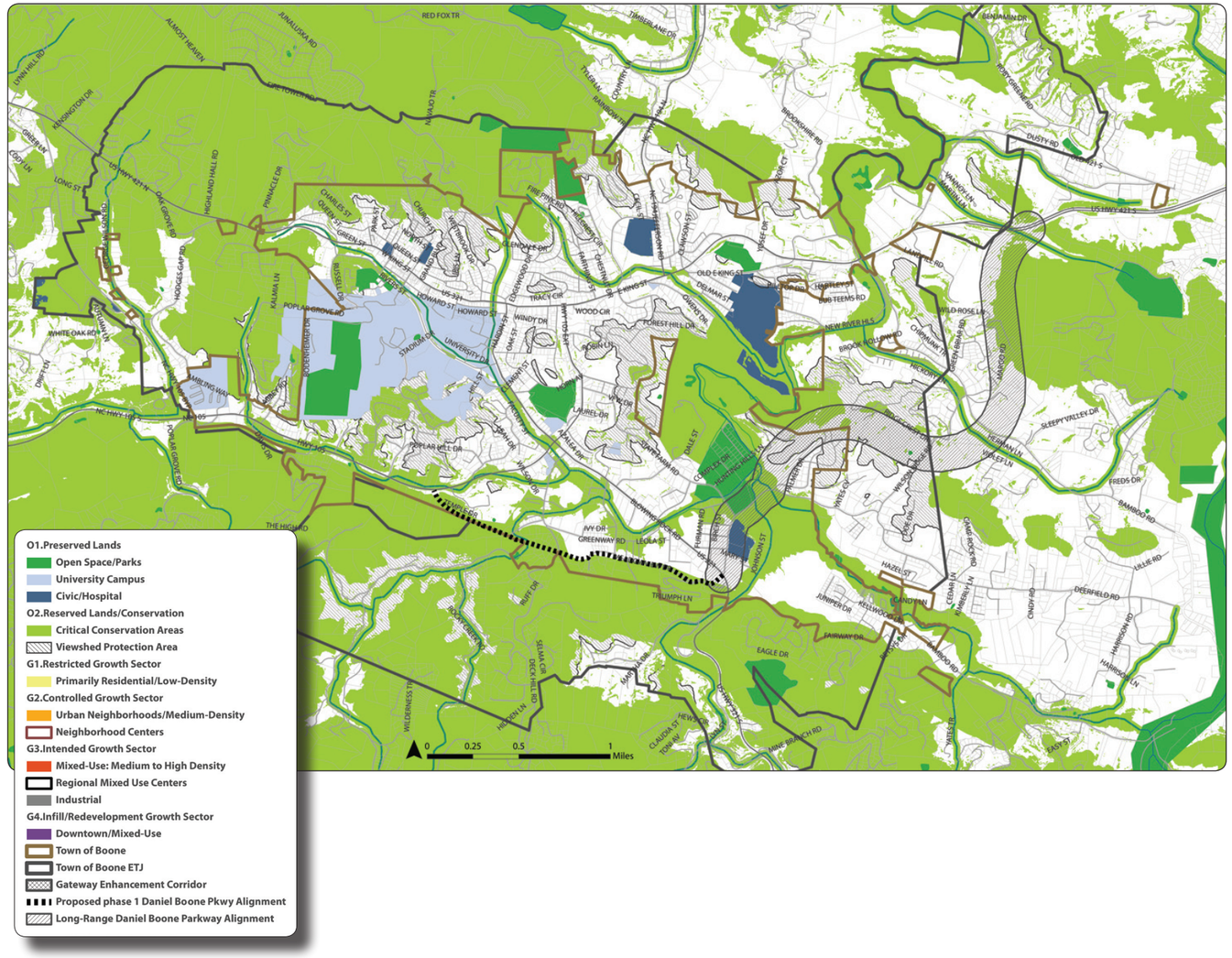
In large part, these areas correspond with locations identified for viewshed protection in the Town's current regulations. This zone also corresponds with areas in the Secondary Water Pressure Zone, defined as elevations above 3400 feet, which are difficult to efficiently serve with adequate public water pressure.

For Boone, this sector also consists of:

- 100 year floodplain
- Slopes of 30-70%
- 100 ft. riparian stream buffer
- Zone of potential rock instability
- High landslide hazard zones

APPROPRIATE LAND USES/DEVELOPMENT TYPES:

- Conservation areas
- Parks & greenways
- Agricultural and forestry uses
- Limited civic uses such as schools
- Very low-density residential development and clustered development (approximate net density: 1 dwelling unit per 10 gross acres)



G-1 LOW DENSITY/PRIMARILY RESIDENTIAL

Source: Rundall Arendt

Conceptual view of hamlet-type development: buildings clustered around a cross-roads

The G-1 sector, indicated by the light yellow on the Framework Map, is intended for relatively low density residential development. This sector includes existing low-density residential neighborhoods that are not appropriate for redevelopment. It also includes lands that are not proximate to thoroughfares and are not projected to be high growth areas due to limited access to transportation networks and utilities.

Appropriate development typically consists of cluster developments such as conservation subdivisions, or low-density residential development on relatively large lots. For Boone, this sector is generally located away from planned neighborhood or regional centers and close to heavily encumbered O-1 or O-2 land.

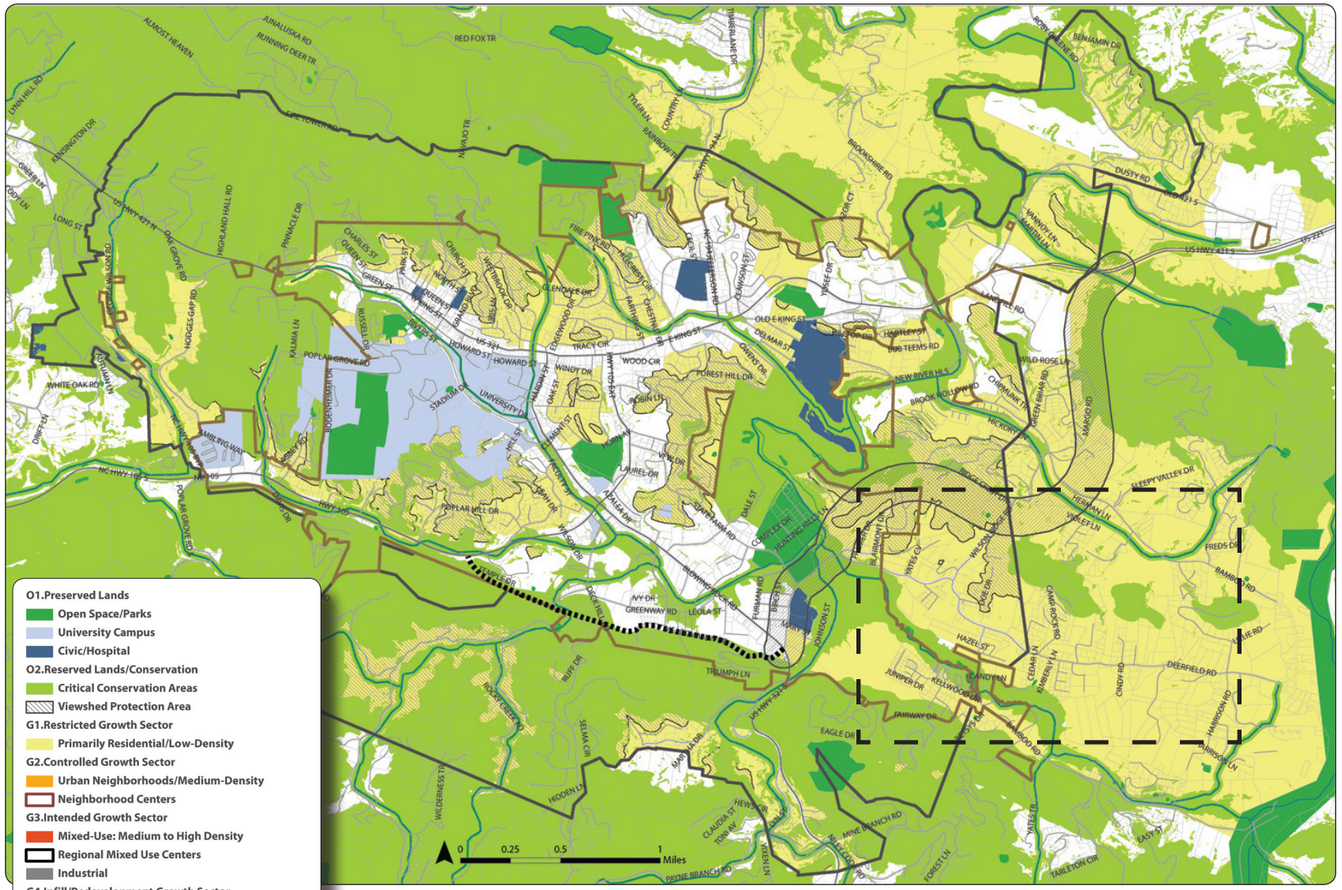
APPROPRIATE LAND USES/DEVELOPMENT TYPES:

The community types and land uses appropriate for this sector are:

- low density cluster developments or hamlets (a clustering of buildings around a rural crossroad)
- low-density residential development comprised predominately single-family detached structures and small scale multiple family units (e.g. duplexes, triplexes) - (up to 5 units per acre - except where limited by watershed rules to 1single family unit per two acres (WS-II) or 2 single family units per acre (WS-IV))
- limited convenience retail uses
- civic uses (parks, schools, religious and government uses)

KELLWOOD/HAPPY VALLEY AREA:

Complete a Detailed Small Area Plan for this Area. The G-1 sector also includes the Kellwood/Happy Valley area, which is currently outside the Town's ETJ (shown in dashed box on map at right). Because of its relatively accommodating terrain and environmental features and the prospect of Town water service, this area is likely to be under pressure for additional urbanization in the near future. Yet, this area also lies within a WS-IV Watershed which limits the overall density in the area to 2 units/acre or 24% built-upon area. Because of these competing issues, this plan recommends that additional study of this area be undertaken with area property owners, Watauga County, and the Town of Boone to determine appropriate and feasible future road network and development patterns.

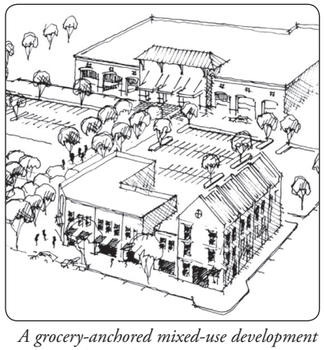


G-2 URBAN NEIGHBORHOODS

Mix of housing types in a new neighborhood

Neighborhood-scaled mixed-use building

Housing and civic uses in a neighborhood



A grocery-anchored mixed-use development is a typical neighborhood center, which may include retail, office, civic/institutional and residential uses.

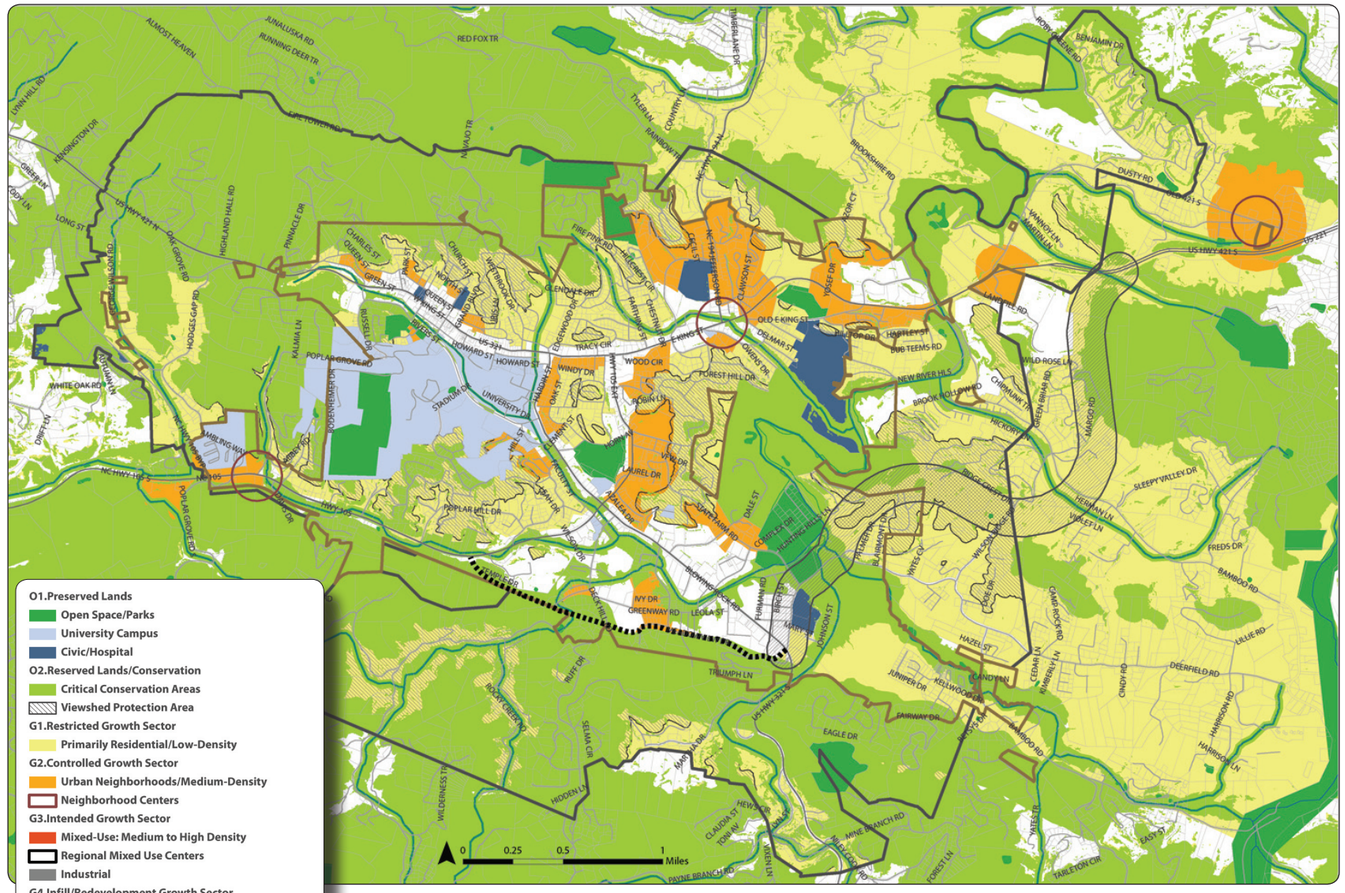
The G-2 sector contains denser, mixed-use development at the scale of neighborhood centers, indicated by 1/4 mile circles (equivalent to a 5-minute walk), and suburban, residential development at the scale of walkable "traditional neighborhoods" shown in orange. This type of residential development creates an identifiable center organized around a small public square or green, often with some civic facilities or a building such as a church or a small store. Local, slow-speed streets form a connected network, with larger collector streets. Paths form pedestrian connections linking sidewalks to internal parks and preserved open space along the boundaries of the neighborhood. This pattern of development can be more environmentally sensitive to its context and can provide improved public health benefits for citizens through its capacity for safe walking and cycling.

G-2 lands are typically close to thoroughfares and at key cross-road locations. For Boone, the G-2 sector specifically includes areas that are already developed with neighborhood-serving retail and service uses or at key cross-roads where future development of this type is likely to occur, such as around the intersection of NC 105 and Poplar Grove Road, or the intersection of Boone Heights Drive and State Farm Road. The G-2 designation is also used in areas where a mixture of higher density residential types (e.g., small lot single family houses, townhomes, apartment or condominium buildings, or mixed-use buildings) are already occurring or would be appropriate to transition between higher intensity commercial uses and existing lower density neighborhoods, and take advantage of proximity to existing centers of commerce, education, or employment such as the university, downtown, the hospital, the industrial park, and the Hardin Park Elementary School/NC 194 corridor.

APPROPRIATE LAND USES/DEVELOPMENT TYPES:

The following community types and uses are appropriate in the G-2 sector:

- traditional neighborhood developments
- single-family and multifamily residential
- neighborhood mixed-use centers
- neighborhood-scale commercial uses (retail and office)
- civic uses
- light industrial uses



NEIGHBORHOOD CENTERS

Neighborhood Centers, shown on the framework plan in the brown circles, are based on a 1/4 mile radius (a typical 5-minute walk) from a key intersection. They are intended to be mixed-use activity centers serving surrounding neighborhoods with retail, services, civic uses, and higher density housing. A neighborhood center should not typically contain more than 80,000 to 120,000 square feet of commercial uses. A grocery-anchored mixed-use development is a typical use for a neighborhood center. A conceptual mixed-use neighborhood center for NC 105 and Poplar Grove Road was designed at the charrette and is detailed in the Focus Areas section.

G-3 MIXED-USE CENTERS/CORRIDORS

Mixed-use town center development

Mixed-use building in a regional center with residential above retail

Regional centers contain a mixture of higher density commercial and residential uses

Industrial, warehouse, or distribution-type building

Sector G-3, indicated in dark orange/red, is intended to apply along high-capacity regional thoroughfares at major transportation nodes, or along portions of highly-traveled corridors. G-3 land generally falls within areas for higher-intensity regional-serving development.

Care should be taken to limit the length of G-3 corridor developments to avoid the creation of lengthy, undifferentiated linear strip development. Attention to local geography and environmental conditions can assist in this definition, with special attention given to areas in O-1 and O-2 sectors along water courses.

APPROPRIATE LAND USES/DEVELOPMENT TYPES:

The full-range of community types and uses are appropriate in the G-3 sector, including:

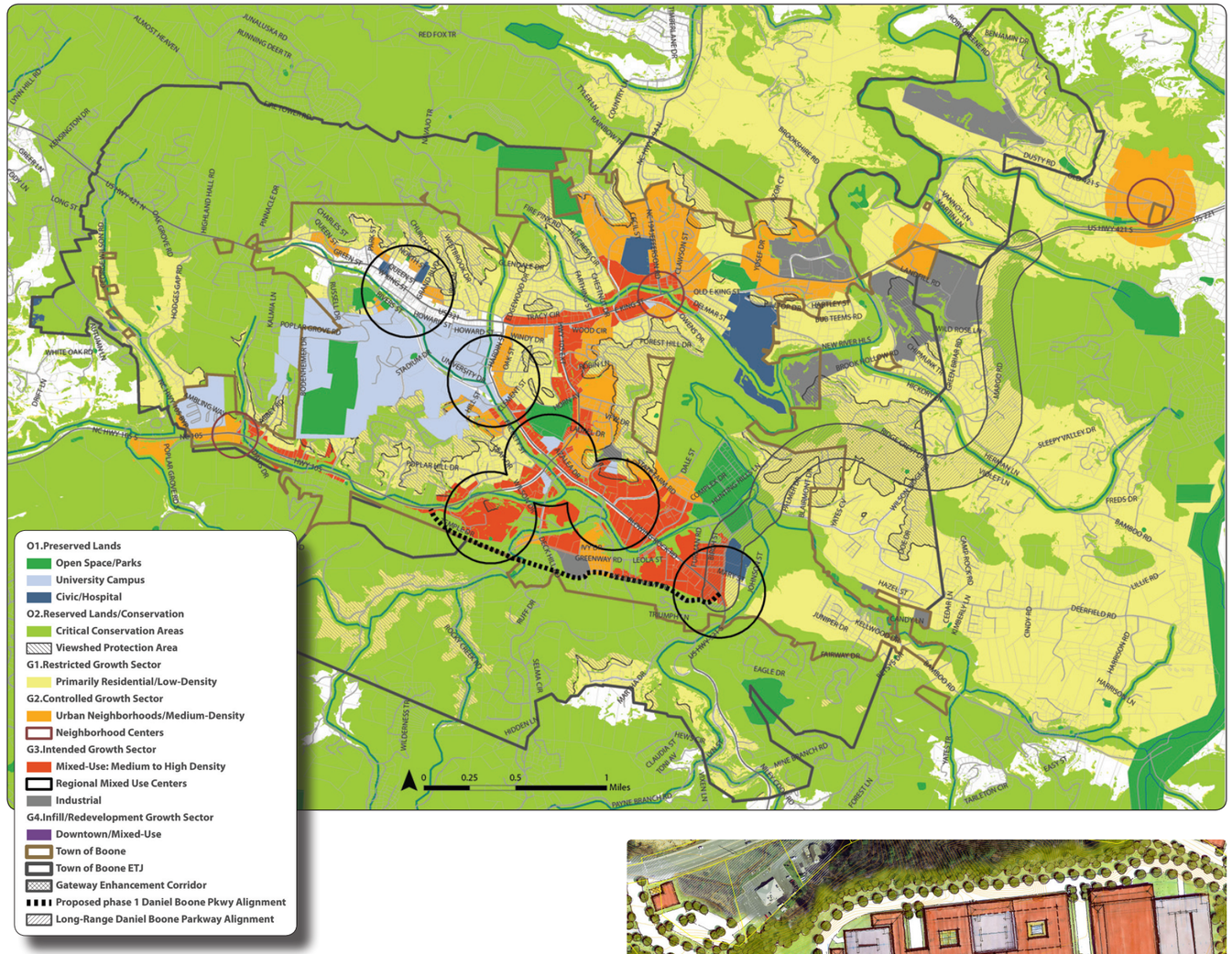
- single-family and multifamily residential
- neighborhood-serving commercial uses (retail and office)
- civic uses
- traditional neighborhood developments
- neighborhood centers
- regional centers
- industrial districts

REGIONAL CENTERS

Regional Centers are mixed-use activity centers with employment and commercial uses that attract people from beyond the immediate neighborhoods and from surrounding communities. These centers are appropriate for commercial and employment development as well as the area's highest density housing. The area of these centers is based on a 1/2 mile radius (a typical 10-minute walk)—the larger black circles on the map. Regional centers are envisioned for downtown Boone and the historic university core; around the hospital and the current high school site; and at the intersection of US 321 and NC 105; and around the intersection of US321 and Shadowline Drive. These centers will provide the highest concentrations of residential and employment in the Plan area.

INDUSTRIAL DISTRICTS

As regional employment centers, industrial districts also fall into the G-3 sector. Industrial development is shown around the existing Boone Industrial Park and in areas where industrial and distribution facilities are currently located.



Town and County stakeholders envision a high-density, regional mixed-use center as the best redevelopment option for the current Watauga High School property near the intersection of NC 105 and US 321.

G-4 DOWNTOWN BOONE

New town center buildings in Fort Mill, SC

Downtown building concept for Howard Street

Source: Michael Ronkin

New, urban townhomes and condos

Sector G-4 is comprised of areas with existing development, with a relatively dense street grid, and which are appropriate for redevelopment or additional development. These areas are shown in the purple color on the Framework Map. This includes the historic downtown and the King Street corridor as far east as Hardin Street.

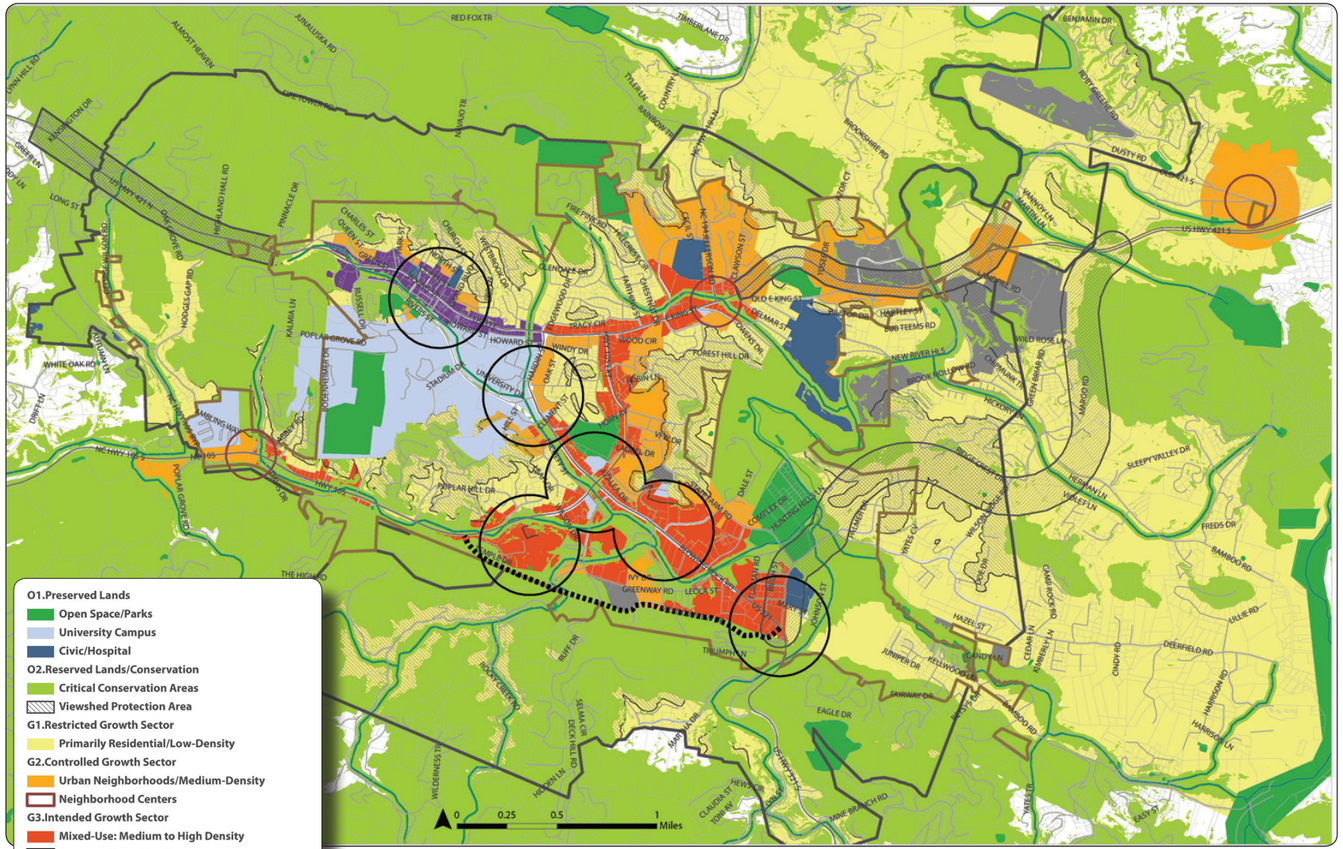
This area is, in large respect, appropriate for redevelopment and new infill development and well served with infrastructure (roads, utilities, etc.), and access to services and amenities. Because this area is already well provided for in terms of urban services, it is one of the most efficient and most attractive area for redevelopment of underutilized land or development of vacant parcels. It is also one of the best areas for development in terms of minimizing new environmental impacts to natural areas since the area has been built upon since Boone's founding.

APPROPRIATE LAND USES/DEVELOPMENT TYPES:

In-depth discussion of concepts for downtown development, redevelopment and infill neighborhood development is included in the Downtown Boone section. In general, however, the following development types and uses are appropriate in the G-4 sector, continuing in the historic pattern of mixed-use downtown development in Boone.

- single-family and multifamily residential
- commercial uses (retail and office)
- mixed-use development
- civic uses
- light industrial uses

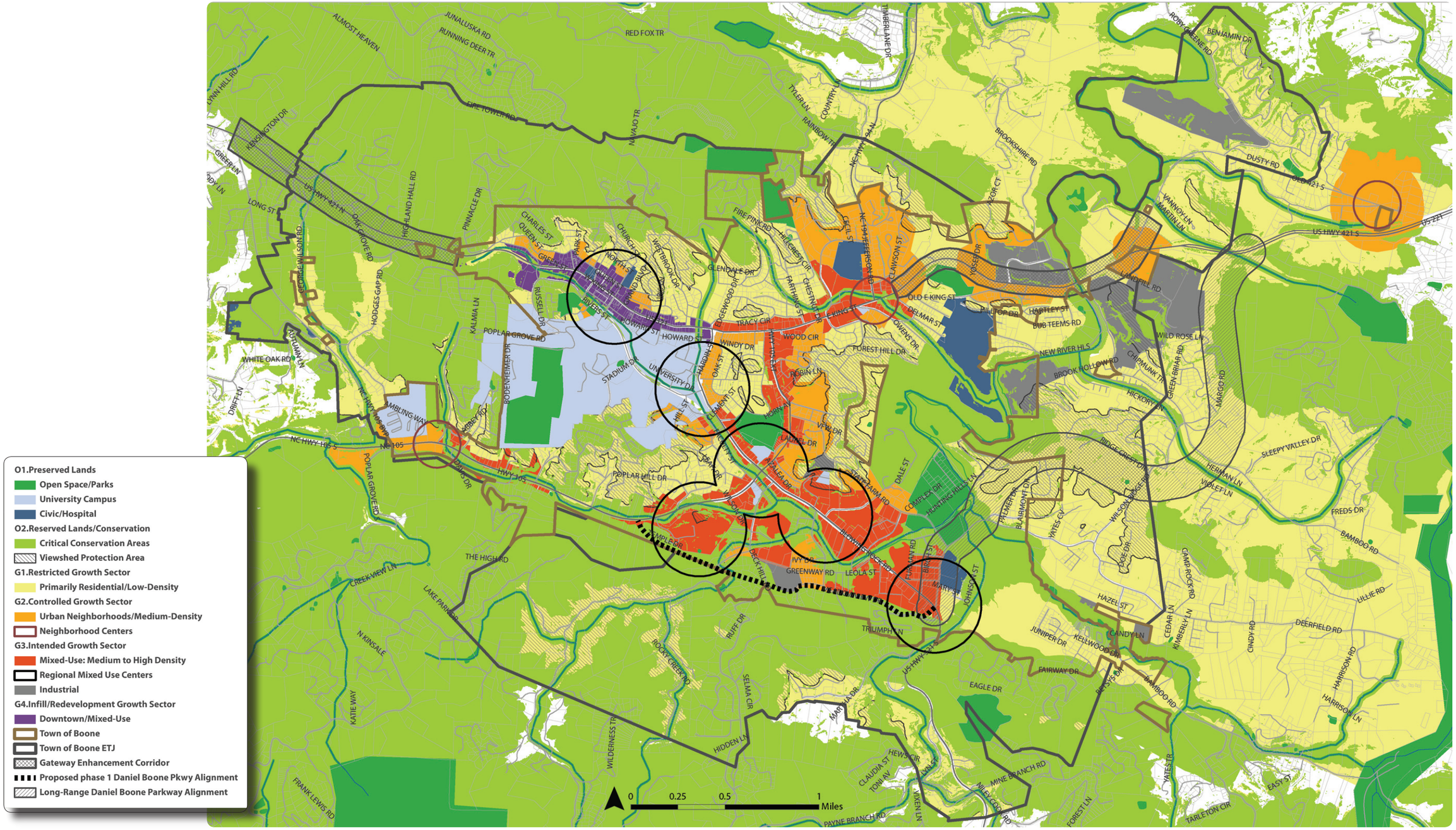
Downtown redevelopment concept from charrette



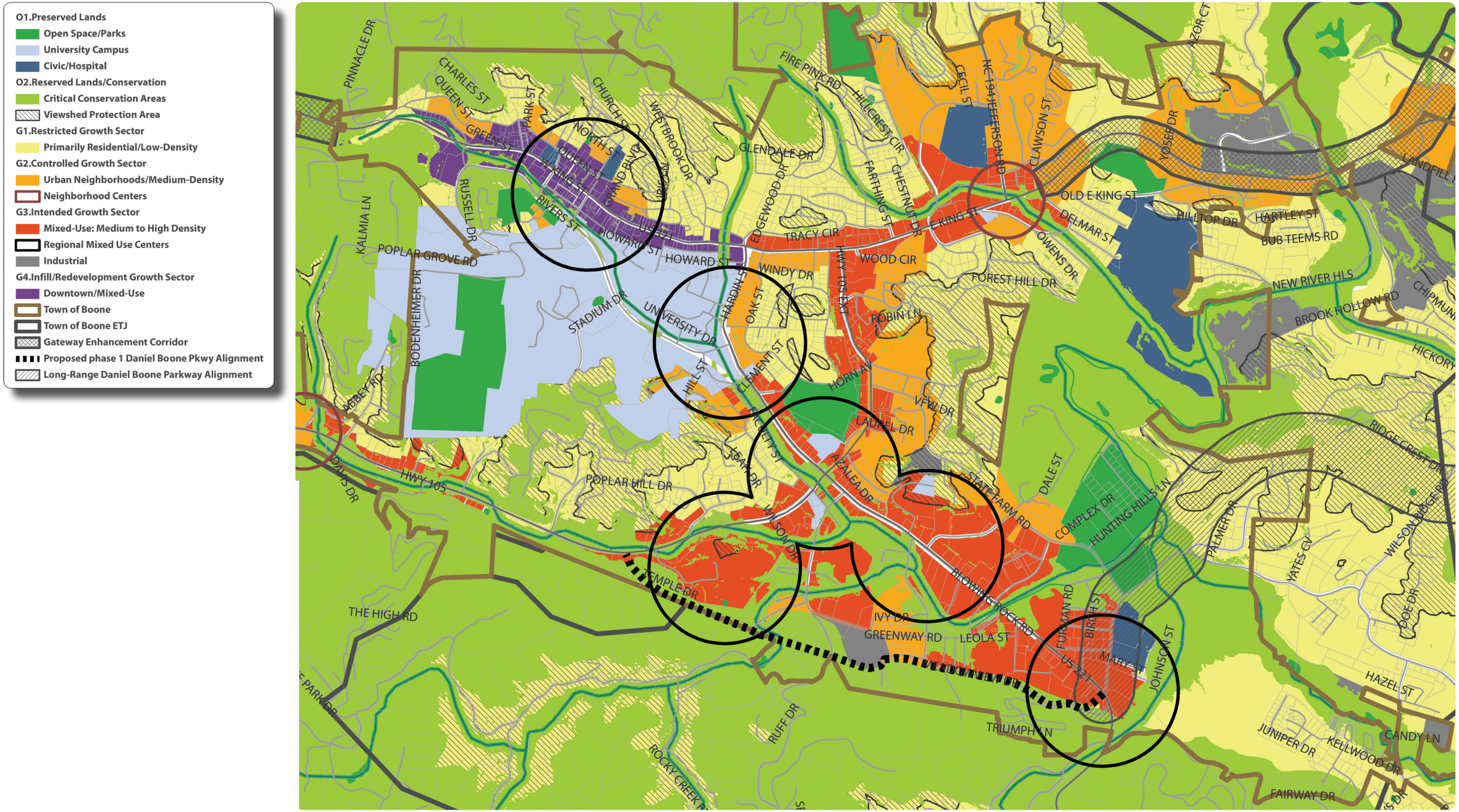
GATEWAY ENHANCEMENT CORRIDORS

Shaded areas are indicated along the 421 corridor at the eastern and western entrances to the Town's jurisdiction. These areas are recommended for enhanced public and private investment to improve the appearance of these corridors for the public traveling into and through Boone. Additional information on this concept is provided in the General Recommendations section of this report.

THE FRAMEWORK PLAN



THE FRAMEWORK PLAN: TOWN LIMITS



5: INFRASTRUCTURE & SUSTAINABILITY

Develop A Detailed Open Space/Green Infrastructure Plan

One of the outcomes of this strategic land use master plan is a preliminary indication of the areas of the town that should be preserved as natural or undeveloped areas for green space, agriculture, or recreation. These areas are shown in green as the Preserved Lands (O-1) and Reserved/Conservation Lands (O-2) in the Framework Plan. These could be areas that the Town and/or the County would target for purchase or that the Town would negotiate with developers to preserve as new development occurs through incentives, regulations, and programs such as Transfer of Development Rights. These areas might also represent opportuntities for future greenways or linear parks that would serve both to protect natural areas along streams and floodways as well as provide important non-motorized transportation linkages throughout the Town.

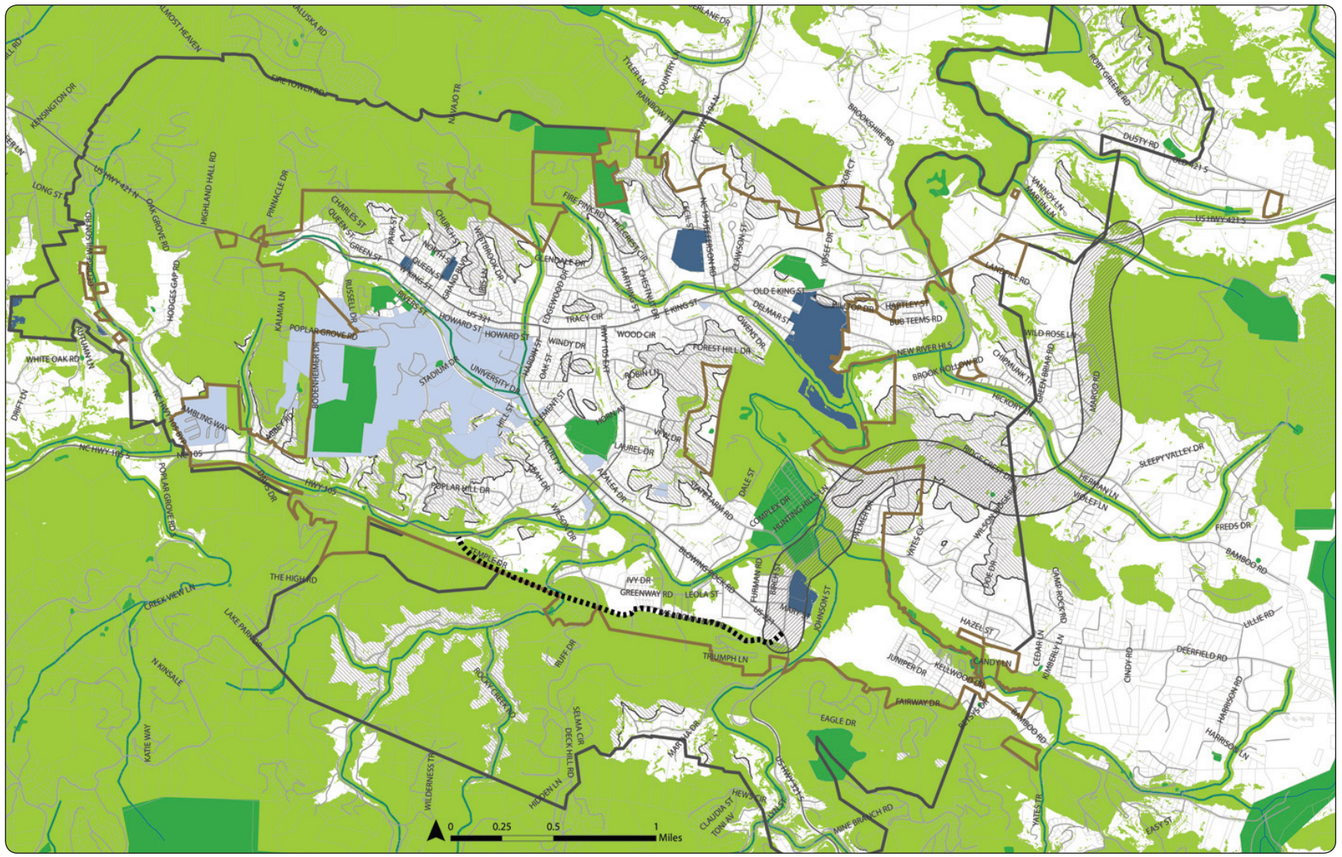
The Town's 2006 *Comprehensive Plan Update* recommends a "park master plan" and "greenways action plan," both of which could be an outgrowth or an outcome of the land use master plan. As a related effort, or perhaps as combined effort, this plan recommends that the Town do a more detailed assessment of the town's "green infrastructure" for the purposes of prioritizing areas for local land conservation efforts. The opportunities for preserving and promoting local agriculture, forest products and protecting natural habitats, could be factored into such a plan. Communities across the country are developing such plans, sometimes referred to as "greenprint" plans, which become strategy plans for conservation, open space, and promotion of local agriculture.

Many of the recommendations regarding natural areas and natural systems in this plan generally and in the Framework Plan specifically reflect recommendations and categories established by various North Carolina state authorities, including the *North Carolina Wildlife Commission's Guidance Memorandum to Address and Mitigate. . .Impacts to . . .Wildlife Resources and Water Quality* (2002).

This plan concurs with the following recommendations of NCWRC and further recommends that the NCWRC document and others like it be used for guidance in land use and environmental policy and regulation for the Town.

Enhance Minimum Open Space Requirements

"Further, [NCWRC recommends] leaving 30% of the development area as greenspace, which would include buffers and wetlands and ensure that the greenspace is connected to natural resources." Open space requirements for specific developments should be based on the location of the development in the Framework Plan. For example, 30% may be an appropriate target for neighborhoods in the G-1 and G-2 sectors. Areas in the O-1 and O-2 sectors should require 60 to 100% undisturbed area. As neighborhoods and centers become more urbanized, the percentage of open space required may be much less in area, but the detailing would be more formal in nature with increased landscaping, seating, play equipment, shelters, and community buildings. The Town will want to develop context-appropriate open space requirements for each local sector as it considers updating its development regulations in the near future.



Implement the Recommendations of the Urban Forestry Master Management Plan

The over-arching goals of Boone's Urban Forestry Master Management Plan is to guide the Town's efforts to recover the loss of tree canopy and enhance all tree-related benefits by recommending strategies and actions to improve the Town's urban forest management in an equitable, economic, and sustainable manner. Along with this Plan it should be used to protect, enhance, expand, and preserve the tree canopy for the benefit of the community. Through public participation, input from

Town staff, and a detailed analysis of urban forestry conditions, five management goal areas emerged as priorities for Boone:

1. **Tree Planting and Increased Forest Canopy Cover:** Boone's canopy cover has been estimated at 34.7%, and it is rapidly disappearing due to forest removal on private property and lack of new and replacement tree planting on public and private properties. Without an adequate forest canopy cover, Boone will not realize the many tangible and intangible benefits trees provide, and the character of the Town will suffer. ***Action: Achieve an overall tree canopy cover of 40% by a combination of updating and implementing the Boone Master Tree Plan, revising current legislation, enacting new legislation, creating incentives for private property owners to plant trees on private properties, and ensuring there is adequate funding for tree planting and maintenance.***

2. **Improved Tree Planting/Protection Legislation and Policies:** The Town should review and improve ordinances, guidelines, and policies regarding tree planting and tree and forest protection, and create or enact new legislation and policies as needed. These policies will serve as an official statement by the Town regarding the importance and value of trees in the community. ***Action: Improve Town tree planting/protection legislation by reviewing and amending, as needed, the Boone Unified Development Ordinance, and Section 99 of the Town Code. Create new technical standards as a document separate from the ordinances and create a new tree ordinance that clearly states the Town's responsibility for public trees.***

3. **Expanded Education and Public Relations:** Citizens, businesses, Town staff and leaders, and developers need continued education and marketing targeted to increase their awareness of the benefits of trees. They need to be aware of the availability of Town resources and the various ways they can become more involved in the urban forest management program and be a part of the solution. ***Action: Continue public and citizen urban forestry outreach efforts, and create an educational program for elected officials and Town employees. Market the urban forestry program with regular presentations at conferences and to local groups.***

4. **Improved Organizational Structure and Funding:** Currently, the components of and resources for Boone's urban forest management program are decentralized in various departments. Critical to the program's success is adequate funding, a centralized focus and improved interdepartmental coordination and communication. ***Action: Centralize urban forest management responsibilities, staff, equipment, funding, and resources, and seek new and reallocated public and private funding sources to support a comprehensive urban forestry program with strong interdepartmental coordination.***

5. **Improved Urban Forest Maintenance:** Proper and timely tree maintenance is required to maximize tree benefits, increase service life, improve aesthetics, and ensure public safety. Maintenance programs are critical to the survival, vitality, and growth of existing trees and of newly planted trees. ***Action: Implement and expand various tree maintenance programs, and conduct a complete public tree inventory every ten years using a tree data software program to manage the data. Train employees and use current and accepted best management practices and arboricultural standards.***

Investigate Application of a TDR Program for Preservation of Sensitive Environmental/Agricultural Lands with Watauga County

This recommendation is derived from policy recommendations the Town's 2006 *Comprehensive Plan Update*. Transfer of Development Rights (TDR) is a land preservation tool that may be worth exploring given the challenging development terrain, sensitive environmental areas, intense development pressures, and high land costs. The Reserved/Conserved Lands (O-2) sector of the Framework map is actually ideally conceived of as a TDR "sending area" from which the development rights on sensitive lands would be transferred to "receiving areas" in the parts of the Town's jurisdiction where more intense development is desired. The TDR concept uses free market forces and individual land rights to direct development for a locally determined common good. The basic notion of TDR is that development rights on land that is designated for protection or preservation (for environmental, agricultural, and/or open space purposes) can be sold to land holders or developers in areas that are designated for growth.

Currently, in North Carolina there is no specific legislative authority for TDR, but it is currently thought to be permissible under other existing authority granted to municipalities. Orange County, North Carolina has conducted a feasbility study and drafted standards for a local TDR program to protect farmland and environmentally sensitive areas there.

The Transfer of Development Rights (TDR) refers to a method for protecting land by limiting development in some areas and directing development instead to areas defined for growth by public policy. This conservation of rural areas and the support of localized urban development is achieved by transferring the "rights to develop" from one piece of property and selling them to the owner of another site where they take the form of a density "bonus" to spur more intensive development. The development right is independent of land ownership; it becomes a separate article of private property that can be shifted from one area to another and can have economic value.

One of the most current and definitive documents on TDR, including case studies from around the U.S., is available on-line from Resources for the Future (www.rff.org).

TDR IN MONTGOMERY CO., MD

In 1980, Montgomery County, Maryland, downzoned agricultural land from a maximum density of one house per five acres to one house per 25 acres. The County also designated this land the Rural Density Transfer Zone (sending area), allowing landowners to sell one development right per five acres. The County established an initial receiving area, which could accommodate up to 3,000 development rights. Each development right purchased entitled receiving area landowners to build one more housing unit than otherwise would have been allowed.

Prior to 1980, Montgomery County lost an average of 3,500 acres of farmland per year to development. In the ten years following establishment of the TDR program, the county lost a total of 3,000 acres to development, a drop of approximately 92 percent. By the end of 1997, the program had protected 39,180 acres out of a total sending area of 89,000 acres. The program was successful because development restrictions on sending area properties created a strong incentive to sell development rights. Moreover, demand was strong due to the County's rapid growth rate and the desire for greater densities in receiving areas. Finally, the County was proactive in educating landowners, developers, realtors, and attorneys about the program.

TDR programs are similar to the more commonly known purchase of development rights (PDR) programs. The main difference is that PDRs require that a governmental agency or land trust purchase the development rights to a particular property. The development rights on the piece of property are then "retired" through deed restriction in order to preserve land as open space.

A TDR program operates in a more controlled and predetermined setting as defined by a detailed community plan that defines certain locations as "sending" or "receiving" areas. Private developers or local governments purchase the development rights from within the "sending" areas and transfer them to an area to be developed; this area is known as the "receiving" area. The owner of the preserved site retains existing use rights while receiving cash compensation for the development value of the land. As a result, the development potential of the property is, in effect, frozen at a low or minimal basis and the owner is able to recoup the economic value of the property's frozen potential.

The most common TDR program allows the landowner to sell the development rights to a developer who then uses those development rights to increase the density of houses on another piece of property at another location (e.g., going from 4 units an acre to 6 units an acre). The higher density that developers are thus able to realize is the incentive for them to buy development rights.

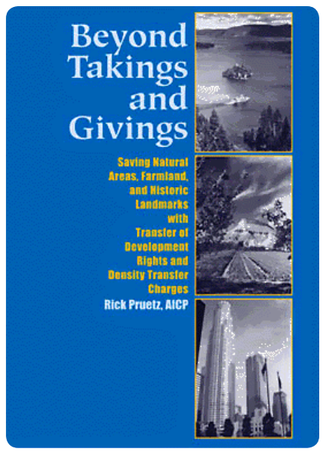
A second method allows a local government to establish a "TDR Bank" to transfer development rights. In this method, developers, who wish to develop at a higher density than current zoning allows, would purchase development rights from the local government, which had previously purchased them from property owners in "sending" areas. Again, achieving higher density is the incentive for the developer to purchase the development rights. The local government could then use these funds to purchase more development rights of properties in areas that it wants to protect from urban development. The receiving areas could not increase in density higher than some maximum set within the comprehensive land use plan.

TDR programs can be an effective tool in the preservation of farmland and natural resources; however, they are complex and can be difficult to administer.

(Notes for this section are taken, in part, from the Ohio State University Fact Sheet: "Transfer of Development Rights," CDFS-1264-98, Land Use Series, by Timothy J. Lawrence.)

Encourage Infill in Developed Areas with Regulations and Incentives

"In addition [NCWRC] encourage[s] 'infill' (new development in unused or underutilized land in existing urban areas) development in urbanized portions of the jurisdiction" as one of the most basic ways to protect and preserve more sensitive environmental features elsewhere. This Plan recommends that downtown and the Town's existing commercial corridors are the most important infill areas for the Town because of the established utilities and infrastructure there, but also because these areas are the most accessible and most appropriate locations to develop in a mountain environment. The Town should develop guidelines and development incentives for infill development as part of updates of the Town's policies and regulations. Incentives might include tax rebates, streamlined permitting, density bonues, and tax increment financing or other public participation for projects in key locations.



The title above, by Rick Pruett one of the country's foremost authorities on TDR, provides case studies and analysis of such programs from around the country.

STORMWATER MANAGEMENT & WATER QUALITY PROTECTION

An example of a bio-retention area in a mall parking lot in Charlotte, NC. The curb cuts allow stormwater to enter the retention area.

Image Source: Equinox Environmental

Constructed wetlands used as a stormwater management control measure

Image Source: NCSU

A demonstration of how water is being absorbed with pervious pavers

Image Source: Padgett & Freeman Architects

Cistern to store 60,000 gallons of rainwater for irrigation and toilet flushing at a new school being built by the Eastern Band of the Cherokee Indians

Apply Best Management Practices for Water Resources

Water quality, water quantity, and water availability are all very pressing issues for Boone's citizens and stakeholders. Fortunately, most of the recommended best practices for promoting smart growth and environmental protection are also consistent with the goals and best practices for protecting water resources.

The table at right provides a comprehensive framework of water resources strategies for all contexts and all scales of development. Many of these strategies the Town is already implementing or beginning to implement. Regional storm water plans may be appropriate for such areas where storm water management on a site-by-site basis may be counter to goals for compact development. Otherwise, incentives for on-site storm water management best practices and/or public participation may be appropriate.

These practices should be applied to all of Boone's creeks but special and enhanced attention should be paid to those watercourse that provide the Town's primary drinking water supplies - East Fork New River, Middle Fork New River, South Fork New River, and Winkler Creek.

Develop a Comprehensive Storm Drainage and Flood Management Plan

Problems related to storm water management, runoff and drainage were identified as a major ongoing issue in the Boone community-one that is expensive to correct. Drainage is a large scale problem which does not readily lend itself to incremental or piecemeal solutions. Rather, a comprehensive drainage and stormwater management plan is needed. Perhaps the foremost need in this regard is accurate surveying and mapping of the Town's existing drainage systems. Other elements of the plan might include consideration of utility fees and other funding alternatives, the need for coordination between Town policies and requirements for the private sector, and the need to consider permeable parking areas or other similar innovative approaches to stormwater reduction.

The Town has been actively involved in floodplain management for over twenty-five years. As a result of the Town's efforts to prevent property loss through pro-active floodplain management, property acquisition and open space preservation, Boone residents realize a reduction in flood insurance premiums. Currently the state in involved in a statewide floodplain mapping program which will effectively update the Town's Flood Insurance Rate maps. These new maps will further improve the Town's floodplain management capabilities.

The 2000 Flood Hazard Mitigation and Stormwater Management Study provided a detailed assessment of the flood risks in the Town of

STORMWATER BMP STRATEGIES	URBAN/HIGH DENSITY SETTINGS	SUBURBAN/URBANIZING AREAS	RURAL AND CONSERVATION AREAS
WATERSHED-WIDE OR REGIONAL STRATEGIES	Transfer of development rights, watercourse restoration, participation in regional stormwater management planning/ infrastructure	Regional park and open space planning, linking new transit investments to regional system, participation in regional stormwater management planning/ infrastructure	Regional planning, use of anti-degradation provision of Clean Water Act, sending areas for transfer of development, watershed wide impervious surface limits, water protection overlay zoning districts, water supply planning and land acquisition
DESIGN STRATEGIES	Transit districts, parking reduction, infill, improved use of curb side parking and rights-of-way, brownfields, urban stream clean-up and buffers, receiving areas for transfer of development	Infill, greyfields redevelopment, parking reduction, policies to foster a connected street system, open space and conservation design and rural planning, some impervious surface restrictions, stream restoration and buffers, targeted receiving areas for transfer of development, mixed-use developments	Regional planning, use of anti-degradation provision of Clean Water Act, sending areas for transfer of development, watershed wide impervious surface limits, water protection overlay zoning districts
INFRASTRUCTURE	Better use of gray infrastructure: repair and expansion of existing pipes, installation of stormwater treatment, fix it first policies, improve street and facilities maintenance	Priority funding areas to direct development, better street design, infrastructure planning to incentivize smart growth development, improve street and facilities maintenance	Smart growth planning for rural communities using onsite systems
LOW IMPACT DEVELOPMENT (LID) OR BETTER SITE DESIGN STRATEGIES	Ultra-urban LID strategies: high-performing landscape areas, retrofitting urban parks for stormwater management, micro-detention areas, urban forestry and tree canopy, green retrofits for streets	Swales, infiltration trenches, micro-detention for infill projects, some conservation design, retrofitting of parking lots for stormwater control or infill, tree canopy, green retrofits for streets. Depending on location, larger scale infiltration.	Large scale LID: forest protection, source water protection, water protection overlay zoning, conservation, aquifer protection, stormwater wetlands
STRUCTURAL BEST MANAGEMENT PRACTICES (BMPs)	Commercially available stormwater control devices, urban drainage basins, repair of traditional gray infrastructure	Rain barrels, bio-infiltration techniques, constructed wetlands	
STRATEGIES FOR INDIVIDUAL BUILDINGS AND SITES	Bio-infiltration cells, rooftop rain capture and storage, green roofs, downspout disconnection in older residential neighborhoods, programs to reduce lawn compaction, stormwater inlet improvements	Disconnecting downspouts, green roofs, programs to reduce lawn compaction, bio-infiltation cells, rooftop rain capture and storage	Green roofs, housing and site designs that minimize soil disruption

Source: EPA

A series of Stormwater BMPs organized according to development context. The above table is from Using Smart Growth Techniques as Stormwater Best Management Practices, by the Environmental Protection Agency. The full manual can be found at www.epa.gov/smartgrowth/pdf/sg_stormwater_BMP.pdf.

Flood Hazard Mitigation and Stormwater Management Study (2000)

All streams studied experienced significant flooding, of which Boone Creek had the worse flooding problems. In assessing the cause of flooding, two primary causes of flooding stand out. First, since Boone is located in a valley surrounded by steep mountainous terrain, developing in the valley is easier than developing on the side of the mountain. However, although the valley is easier to develop, it was also part of the natural floodplains for the studied flooding sources. Flooding in Boone is in part attributable to growth in Boone and surrounding areas. This growth replaces forests, meadows, and agricultural lands with impervious surfaces. These impervious surfaces increase runoff, worsening flooding in the valley. This growth has also resulted in hydraulic structures, such as bridges and culverts designed and constructed many years ago, to become inadequate.

Analyses were performed to find flooding solutions. The analyses first focused on identifying structural flood mitigation strategies. Several strategies were analyzed, including flood control reservoirs and detention ponds, diversions, levees, and bridge and culvert improvements. Since most of the land with suitable topographic relief to store floodwaters is already developed, very few sites for flood control reservoirs and detention ponds were found. For Boone Creek, a stream diversion into a culvert under US 321 was investigated. Although the diversion removed structures along the affected reach from the 100-year floodplain, its estimated cost of more than $9 million makes it unlikely that it will be built.

Although several solutions were found, they are costly and even if implemented do not eliminate most of the flooding problems in the Town. If structural solutions identified were constructed, it would cost approximately $23 million dollars and would remove seventy-seven structures from the 100-year floodplain. This is less than 20% of the structures identified in the 100-year floodplain. The focus of finding solutions to mitigate flood damages then focused on non-structural solutions. Non-structural solutions focus on managing development so that its exposure to flood risks is reduced rather than trying to control flooding. From these analyses it was found that a non-structural flood hazard mitigation strategy, which includes more stringent stormwater management regulations, public education, floodproofing, relocation, and acquisition of floodprone structures to be more promising.

Financing flood hazard mitigation and stormwater management is often a difficult problem. Seldom is flooding given a priority in funding given the other needs in the community. Therefore, new funding sources are needed to carry out floodplain mitigation and stormwater management activities. The Town of Boone has been very successful in obtaining grants to help is accomplish flood hazard mitigation activities. However, the availability of grant funds is limited and may not be able to support a long-term strategy for reducing flood damages alone. A preliminary assessment of a stormwater utility was performed. A stormwater utility is to stormwater what a sewer utility is to sewage, and a water utility is to drinking water. It is a "stand-alone" service unit within the local government that generates revenues through fees for service.

In estimating the revenue that could be generated from a stormwater utility, monthly fees were varied from $1 per month per equivalent residential unit (ERU) to $3 per month per ERU. With a $1 per month per ERU fee, annual revenue is estimated to range between $146,778 and $217,994 annually. With a $3 per month per ERU fee, annual revenue is estimated to range between $523,658 and $777,699.

A stormwater utility appears to be a significant source of revenue for implementing flood hazard mitigation and stormwater management solutions in the Town of Boone. However, given the severity of flooding problems, the utility should be coupled with other funding sources such as grants to implement flood hazard mitigation activities as quickly as possible.

Given that the most promising approach to mitigate flood hazards in the Town is through non-structural measures, basic objectives were laid out for a flood hazard mitigation plan. These objectives include implementing a public outreach program, updating ordinances, coordinating with Watauga County to coordinate development regulations and plan review processes, developing long-term community goals to minimize the impacts of future development on flooding, developing a long-range plan for elevating, relocating, acquiring, or floodproofing floodprone structures, identifying beneficial reuse of floodplain properties, working to pre-position the Town to secure additional grant funds, implementing a program to help commercial property owners floodproof buildings, implementing an inspection and maintenance program to maintain the flow capacity of bridges and culverts, and working with other agencies to jointly address flooding and drainage problems.

The narrative above was adapted and edited for length from the Flood Hazard Mitigation and Stormwater Management Study, as prepared in 2000.

Boone, an assessment of solutions to mitigate those flood risks, methods for financing flood hazard mitigation and stormwater management activities, and recommendations for implementing flood hazard mitigation solutions. The flooding sources studied included Boone Creek (Kraut Creek), Hodges Creek, East Fork New River, Middle Fork New River, Mutton Creek, Rocky Knob Creek, South Fork New River, and Winkler Creek.

It will be essential to complete a formal plan comprehensive storm drainage and flood management plan with the preferred build-out scenario noted in this plan. With increased infill often comes increased impervious surface, though the downstream impacts need not be severe if properly planned. In addition, it is the aspiration of this plan to actually improve some flooding conditions, particularly along the Kraut Creek/Boone Creek corridor with infill and redevelopment that improves both water quality and improves flood storage capacity.

Consider Increasing Minimum Riparian Buffer Widths in Certain Areas

"For a buffer to effectively perform for all riparian processes, wider contiguous buffers (100–300 feet) are recommended. . .[NCWRC recommends] the maintenance or establishment of a minimum 100-foot native forested buffer along each side of perennial streams and 50-foot native forested buffer along each side of intermittent streams and wetlands throughout the present and future service areas or the entire municipal jurisdiction. . .[NCWRC] additionally encourage[s] the implementation of buffers on ephemeral streams due to the important functions that they provide as headwater streams. . .Buffers should be measured horizontally from the edge of the stream bank. . .and must be provided over the entire length of stream, including headwater streams."

These suggested buffer widths are consistent with recent North Carolina Division of Water Quality recommendations which suggest 50-foot minimum stream buffers, but state that 100-foot buffers are preferred for long-term water quality protection. The largest buffers (up to 100 feet) will be most appropriate in the least urbanized areas (O-1 through G-1), which are also the areas that cover the most acreage in the Town's sphere of influence. Minimum width buffers (i.e. 50 feet) and/or other mitigating measures may be appropriate in the more urbanized sectors.

According the NCWRC, riparian areas provide the following benefits:

- Reduce pollutants and filter runoff
- Improve air quality and lower ozone levels
- Maintain stable water flows
- Help maintain water and air temperature by providing shade
- Stabilize stream banks
- Provide most of the organic carbon and nutrients to support the aquatic food web
- Provide sources of large woody debris for the stream channel
- Help reduce the severity of floods
- Facilitate the exchange of groundwater and surface water
- Provide critical wildlife habitat

Discourage Development in the 100-year Floodplain

"[NCWRC recommends] that the local governments prohibit commercial or residential development within the 100-year floodplain." This recommendation is consistent with recent efforts by the Town and the University to restore the natural systems in floodplain areas and with recommendations in the Town's Comprehensive Plan regarding floodplain protection. A number of communities in North Carolina including Cary, Davidson, Cornelius, and Belmont and others already have such provisions in their development ordinances. As there is already a great deal of development in floodplain in Boone, redevelopment in these areas will need to carefully consider and mitigate future impacts. The Town may want to consider additional floodplain buyouts in key locations and incentives to minimize the footprint of redevelopment in floodplain areas. A concept for a public-private redevelopment of a floodplain area along US 321 is shown later in this section.

Continue to Protect the Water Supply from Encroachment with Carefully Managed Development

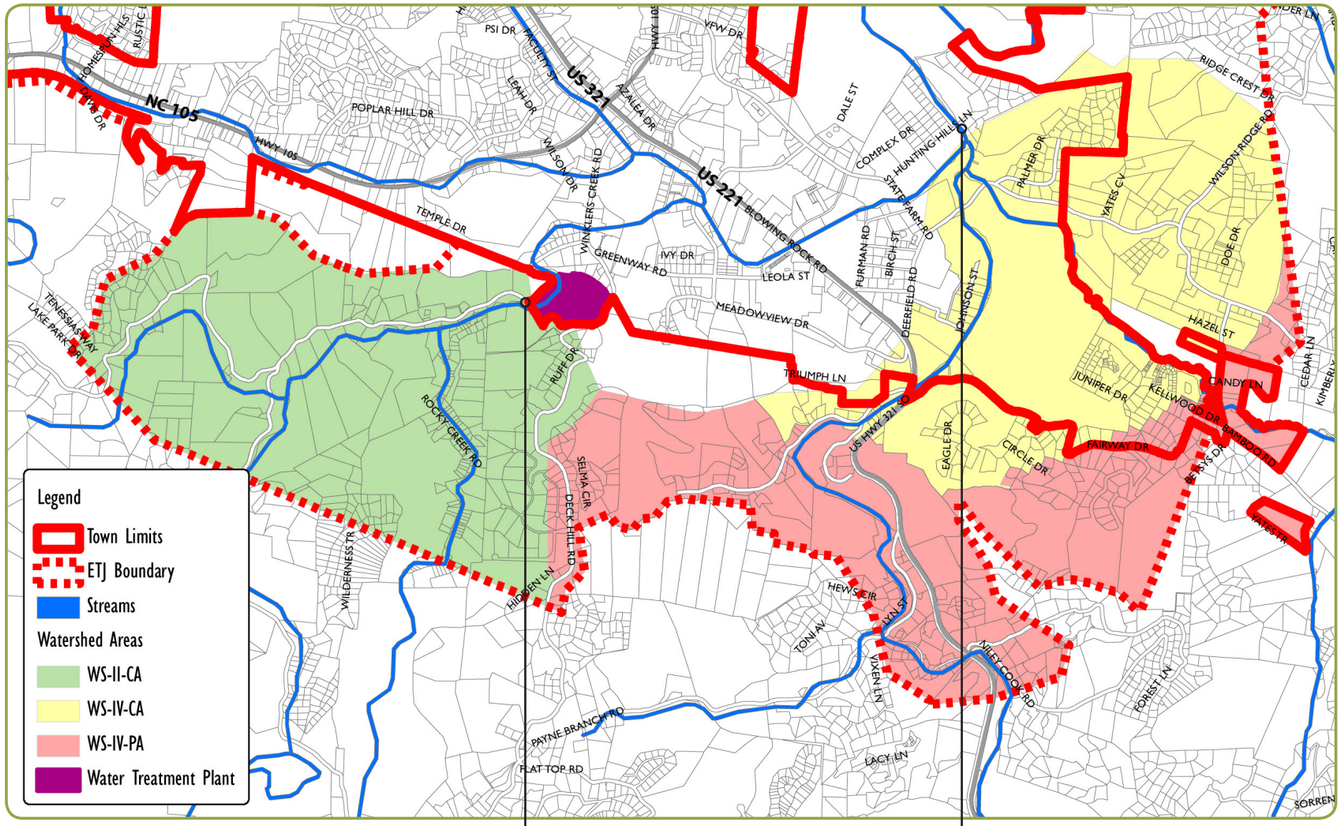
The presence of the raw water intakes in Winkler's Creek and the South Fork New River necessitates the requirement for upstream protection of water quality impacts to these drinking water supplies. Under the North Carolina's Water Supply Watershed Protection Rules, the state establishes regulations that manage development intensity and in particular, impervious surfaces, in watershed areas. These rules vary by watershed. At present, the town has three classifications:

WS-II-CA (Critical Area): Maximum density of 1 unit per 2 acres for single family development and a maximum built-upon area of 6% for all other development types.

WS-IV-CA (Critical Area): Maximum density of 2 units per acre for single family development and a maximum built-upon area of 24% for all other development types.

WS-IV-PA (Protected Area): Maximum density of 2 units per acre for single family development and a maximum built-upon area of 24% for all other development types.

Clearly the most important area for focused management is in the Critical Area. The Protected Areas, particularly those in the Kellwood area will need special attention. Thus, the recommendation in Chapter 4 for the need to create a special area plan so that balanced development can be ensured. In addition, current regulations should be reviewed and if necessary, amended, to ensure that the Winkler's Creek and South Fork New River water supply intakes are protected. To start, the town should consider conversion of the current 1/2 acre minimum-based standard to an straight impervious surface calculation. Many studies have shown that suburban style development at two units per acres is actually more damaging environmentally because of the extensive tree removal that is necessary for the home construction and the fertilizers that are often used on large expanses of grass.



CURRENT PROTECTED WATERSHEDS ▲ FOR BOONE'S PLANNING JURISDICTION

Advocate for Water Conservancy Techniques in Construction Practices

Beyond the current low-flow toilet standards, the town should consider either new regulations and/or incentives that encourage decreased water consumption. The LEED ND (Neighborhood Development) program offers some suggestions for performance goals. They include:

Category 1: For non-residential buildings and residential buildings over 3 stories employ strategies that in aggregate use 20%-30% less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements. Calculations are based on estimated occupant usage and shall include only the following fixtures (as applicable to the building): water closets, urinals, lavatory faucets, showers, and kitchen faucets.

Category 2: For residential buildings 3 stories or fewer comply with 2 out of 3 of the following requirements:

- The average flow rate for all lavatory faucets must be ≤2.0 GPM.
- The average flow rate for all shower heads must be ≤2.0 GPM.
- The average flow rate for all toilets, including dual-flush toilets, must be ≤1.3 GPF.

Develop a Water and Sewer Master Plan that Accommodates the Build-Out Envisioned in this Plan

While current availability and capacity were reviewed as a part of this plan, a detailed study on the impact of future development was not completed. With a adopted vision of build-out in place, the town can now look at completing capital improvement plans for each sewer basin as well as water capacity and availability analyses. It is assumed that many existing aging and/or undersized pipes will need to be repaired and or up-sized to accommodate the planned new development. It should be the policy of town to ensure adequate water and sewer capacity for all development within the current town limits but that new growth on the perimeter and outside the primary pressure zones should be responsible for the adequate delivery of these utilities at their own expense.

Historically, the settlement patterns in the western North Carolina landscape derived in large part from the topographic conditions that limited development zones to the flatter, more easily accessible areas. Development in the last fifty years aside, the predominant patterns in this area of the state have been either rural farming settlements or small towns. Some towns (such as Boone) served as centers of commerce and government for their respective counties. Other towns (such as Blowing Rock) provided weekend respites for their seasonal populations. Suburbanization and mountainside development are largely recent entrants to the overall patterns in the area. With modern heavy equipment and new technologies, there is now little terrain that is inaccessible.

Because true sustainability combines the very best in development location, site planning and building design it is necessary to provide a comprehensive approach to development decisions. The benefits of an energy efficient home on the side of a mountain are negated if every trip away from the home is by automobile, particularly if that automobile is not fuel efficient. The goal, therefore, should be to encourage development into patterns that are comprehensively sustainable.

Within the context of a neighborhood, town or village, the focus must be on walkability. Walkability is both about places to walk on (routes) such as sidewalks and trails but also places to walk to (destinations) including parks and shops. As such, these standards will place a strong emphasis on the relationship of the storefront (for commercial buildings) or the porch or stoop (for residential buildings) to the public realm (the street, park or open space). In general, buildings should be close enough to the street to create an interaction between those sitting on a porch and people walking by on the sidewalk. This interaction encourages pedestrian and bicycle activity as viable alternatives to the automobile and creates and reinforces the bonds of the social network.

Once a community establishes the most appropriate locations for new development as outlined in the Framework Plan, individual developers, builders, and their designers must take a careful approach to the development of land in forms that best complement the context. From the mountainside subdivision to the downtown infill building, appropriate building typologies and site placements will help achieve a sustainable site and building pattern for the greater community.

While not comprehensive, this section is intended to provide ideas for more sustainable development patterns appropriate for this region.

SITE RESOURCE ASSESSMENT (SRA)

While the community-wide Framework Plan will serve the larger study area well in terms of general guidance, it is not detailed enough to provide site specific decisions about street alignments, lot configurations, and building sites. As a result, a more specific site assessment is necessary to thoroughly evaluate a tract that is being prepared for development.

This plan recommends a comprehensive site resource assessment process that can provide both landowners and regional land stewards with predictable outcomes and a usable product that is "design-ready." The assessment process expands upon a pilot program begun by the Haywood County (NC) Waterways Association.

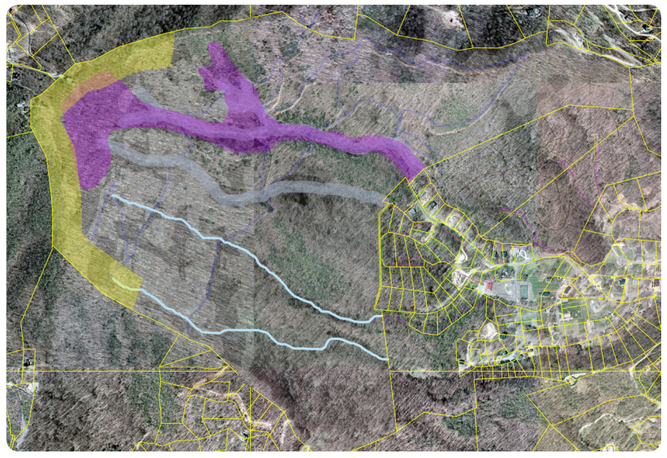
The assessment correlates a variety of factors including the nature and depth of the soils, slope and terrain, the presence of streams, seeps, and other water sources, the location of rock outcrops, the geology, and features of interest (such as special resource values or attractions) to identify the most suitable home sites and access road locations. This is all provided within a watershed perspective that addresses the impacts from the proposed development, possible downstream impacts and the potential effects of future upstream developments. The results are mapped in a 3D GIS model and provided to the developer, along with a written report.

The proposed Site Resource Assessment (SRA) as outlined in the Mountain Landscapes Initiative Toolbox has been broken into two distinct Tiers which will provide developers valuable information regarding a site's resources and different phases of the development process. An SRA is a critical step in the planning process and should serve as the basis for all future planning and design. A Tier 1 SRA collects the most basic information that utilizes the bare essential data. It will help promote better development practices in sensitive mountain terrain by enabling the property owner to better identify major site constraints early in the process. A Tier 2 SRA utilizes more detailed information that is collected from both available databases and on-site field reconnaissance. A Tier 2 SRA is the recommended assessment model to complete prior to design and formal entitlements to promote better patterns for sustainable development.

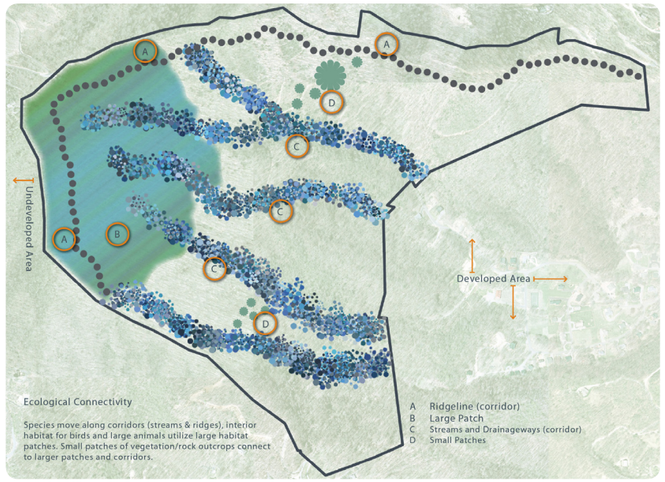
In order to supplement decision making regarding the appropriate design of homes, additional studies include those that model solar aspect (path of daylight) study and wind (to help shelter homes from high winds) may be useful. The SRA will not necessarily include direct design solutions or recommendations. Rather, it will provide direction for areas more suitable for building and areas appropriate to protect or otherwise avoid general disturbance. It does not involve lot layout, road layout or specific home site locations. Ultimately, the product of the Site Resource Assessment is a Suitability Assessment Map ready for use by designers to begin preliminary layouts and design.

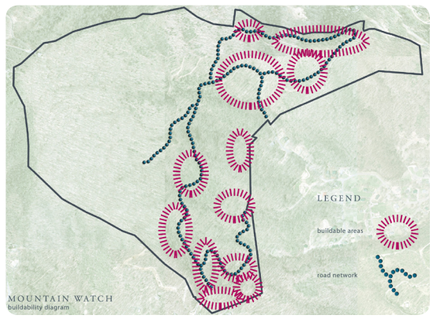
To ensure widespread application of this tool, Boone should consider the following:

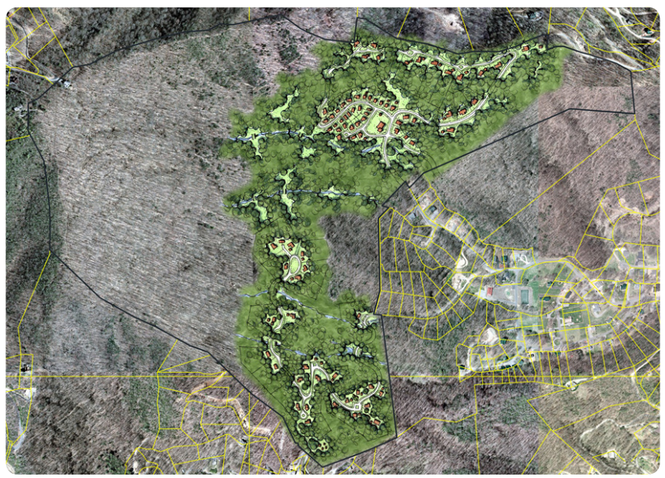
- ***Adopt the SRA as part of the UDO*** for new subdivisions, especially in the 0-2 and G-1 Framework Plan Sectors, and provide streamlined permitting process when used including fee waivers, fast-track reviews, etc. (The process will be less valuable in redevelopment locations or areas where the Town has already indicated a preference for higher density development.)
- ***Establish an education component*** of the program that serves both to market the process but also the value of best development practices as well.
- ***Provide documentation to share with developers*** regarding the cost/benefit of performing Tier 1 & Tier 2 SRAs. For example, document the costs for the SRA and compare to the cost of: building a road only to find that it may not be feasible after construction has started; fines due to sediment and erosion control violations; downstream wetland or stream impact violations; finding out after the property is parceled that half the lots are not suitable for septic.
- ***Create a funding source which provides grants to developers to use the SRA Tier 1 & Tier 2*** process prior to design.
- ***Develop a list of approved professionals qualified to perform an SRA*** (soil scientists, botanist, biologists, ecologists, geologists, etc.) and encourage ASU and the Community College to establish a program that helps train professionals in SRAs.



A Tier 1 SRA showing basic analysis of existing conditions (aerial photography), streams, drainage ways, poor soils and an important ridgeline using information from a brief field visit and commonly available GIS data.







Images from top: Typical SRA maps showing ecological corridors (top), buildable areas and proposed road locations (middle), and conservation site plan based on the SRA (bottom) for a proposed development in Maggie Valley, NC. The site plan preserves more than 80% of the 230 acre acre tract and provides lots for nearly 80 homes (some of which will be served by municipal sewer).

Site Resource Assessment (SRA) Tier 1 Study Checklist

Goal: To obtain a basic overview of the essential site conditions and the relationship of a property to the surrounding context based on readably available data

Required Process Mapping

- ❑ Project Boundary and Site Aerial (from County GIS)
- ❑ Slopes (in percent for ranges 0-5, 5-10, 10-15, 15-20, 20-25, 25-30, 35-40, 40-50, 50-60, over 60) based on LIDAR topographic data or 2'/5' fly over contour intervals
- ❑ Map to illustrate project context and connectivity beyond property boundaries
- ❑ NRCS Soils Data
- ❑ US Geological Data (landslide data & general geological features)
- ❑ Viewshed Exposure (map of surrounding areas from which the site is visible)
- ❑ Natural Resource Inventory
  - Hydrology (floodplains, floodways, streams, springs, wetlands, seeps, & drainages)
  - Database Search (Element Occurrence Database, Natural Heritage Database, and NC One Naturally Database)

Field Visit Required: Field visit to the site verifies the Tier 1 data.

Deliverables: Tier 1 General Suitability Assessment Map (composite map of process maps) that shows the following elements:

- ▶ Primary Conservation Areas (riparian corridors, unique geological formations, rock outcroppings, rare plants, rare plant communities, rare habitats, wetlands, & prime agricultural areas/farmland
- ▶ Unbuildable Areas (areas that have all of the following: highly erodible soils, slopes in excess of 60%, soils not suitable for septic)
- ▶ Prime Buildable Areas (slopes less than 25%, slopes with soils suitable for septic and soils not highly erosive and not within the primary conservation areas)
- ▶ Notation of areas which need further study and attention such as soils for appropriate roads or septic systems, etc.

General Notes

1. *The source of data for a Resource Assessment for Tier 1 should be readily available GIS data (except for Viewshed Exposure mapping). Tier 2 places more responsibility on the professional to obtain accurate and useful data as a result of field verification and data that will be obtained through on-site work.*
2. *All maps & data should be at the same scale and coordinate system.*
3. *NRCS Soils data does not provide the detail needed to make good decisions for developers, land-use planners, and landowners. It is recommended that efforts be made to generate better soils data for the region.*

Site Resource Assessment (SRA) Tier 2 Study Checklist

Goal: Detailed assessment of specific site conditions based on a scientific approach that will have an impact on design opportunities and constrains for a given site

Required Process Mapping

- ❑ All Mapping produced for SRA Tier 1 Study
- ❑ Property Survey showing boundary, existing logging roads, trails, roadways, previous building sites, utilities and other infrastructure, R.O.W.
- ❑ Regional Suitability Map (watershed, transportation, infrastructure, access to services)
- ❑ NRCS Soils Data verified with on-site soil sampling
- ❑ Viewshed Exposure (map of surrounding areas from which the site is visible)
- ❑ Natural Resource Inventory (on-site inventory)
  - Botanical Inventory (including rare plants)
  - Plant Community Inventory (including rare & sensitive communities)
  - Wildlife Habitat Inventory
  - Ecological Landscape Inventory (large patches, small patches, corridors, overall matrix)
- ❑ Cultural and Historic Landscape Inventory (structures/bridges, farms, gathering spaces, heritage sites, Native American sites, etc.)

Field Visit Required: A thorough site tour and inspection are expected to collect and verify all data.

Deliverables: Tier 2 Detailed Suitability Assessment Map (composite map of process maps) that shows the following elements:

- ▶ Primary Conservation Areas (riparian corridors, unique geological formations, rock outcroppings, rare plants, rare plant communities, rare habitats, wetlands, & prime agricultural areas/farmland)
- ▶ Unbuildable Areas (areas that have all of the following: highly erodible soils, slopes in excess of 60%, soils not suitable for septic)
- ▶ Prime Buildable Areas (slopes less than 25%, slopes with soils suitable for septic and soils not highly erosive and not within the primary conservation areas)
- ▶ Notation of areas which need further study and attention such as soils for appropriate roads or septic systems, etc.

BEST PRACTICES FOR DEVELOPMENT ON SLOPES

The diagram on this page is a conceptual illustration of "best practices" as it relates to site selection for both neighborhood and house siting, design, and construction in a mountain environment. While not to scale, this diagram illustrates appropriate building zones based on the two predominant geographical features of the High Country—steep slopes and floodplains.

As noted in the diagram, best development practices recommend avoidance of construction on primary ridgelines and in floodplains, and carefully considered development on steep slopes depending on the specific slope percentage and soil conditions. It also suggests how mountainside development can fit within the tree canopy and use natural land forms to minimize overall disturbance.

As with all generalized diagrams, there are always site-specific conditions that may require carefully studied exceptions. This should be used as a basic guide that complements and is incorporated into the Site Resource Assessment process.

STEEP SLOPE DEVELOPMENT GUIDELINES

Apply Best Practices for Steep Slope Development

Development on steep slopes should be avoided. The Town's adopted standards have identified steep slopes as being a 30-50% grade and very steep slopes as those in excess of 50%.The North Carolina Geological Survey maintains a database of historical landslides. Based on this data, a threshold of 35% (approximately 20°) slope would be needed to include the initiation points of most historic landslides for which accurate slope measurements are available.

However, when the full database of NCGS landslide records is considered, a threshold slope of 25% is needed to ensure that nearly all historic landslides would be included. It is recommended, therefore, that any development on slopes over 25% should obtain a detailed geotechnical analysis.In addition, it is generally accepted that septic systems do not function properly on slopes in excess of 30%. Likewise sewer systems should not be constructed within slopes that exceed 40%.

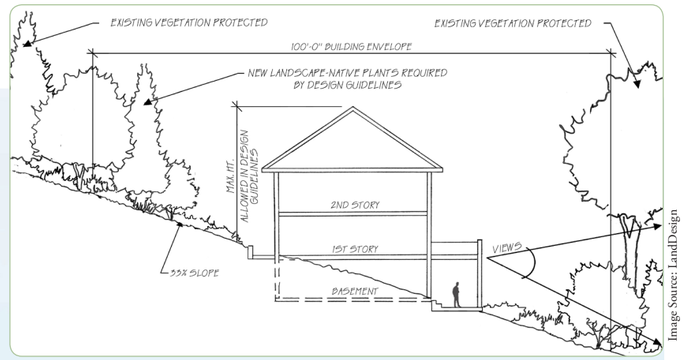
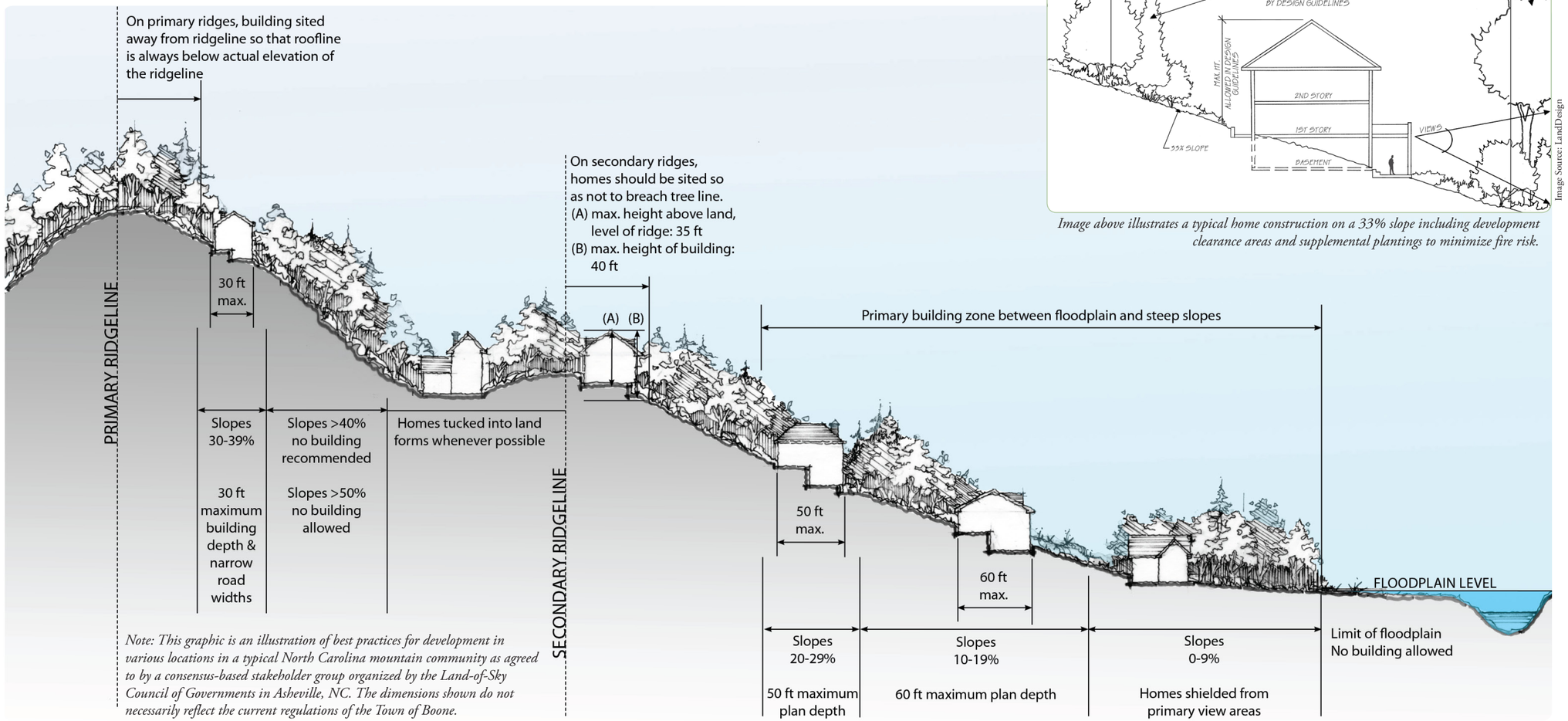


Image Source: LandDesign

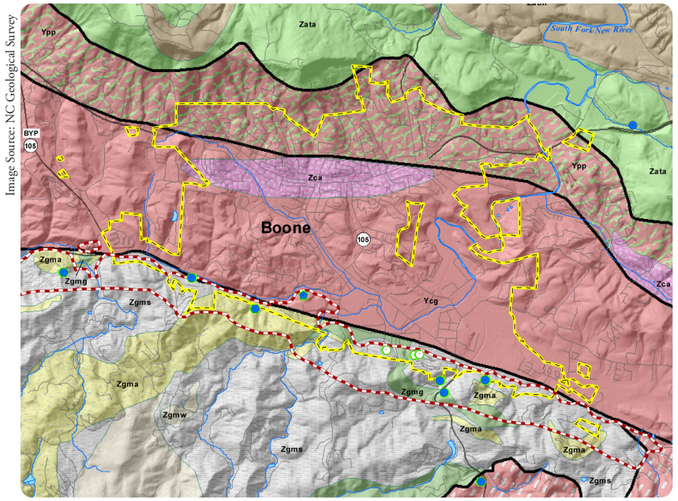
Image above illustrates a typical home construction on a 33% slope including development clearance areas and supplemental plantings to minimize fire risk.



Note: This graphic is an illustration of best practices for development in various locations in a typical North Carolina mountain community as agreed to by a consensus-based stakeholder group organized by the Land-of-Sky Council of Governments in Asheville, NC. The dimensions shown do not necessarily reflect the current regulations of the Town of Boone.

SLOPE STABILITY & LANDSLIDES

Image Source: NC Geological Survey



From A Map Showing a Zone of Potential Rock Slope Instability in Watauga County prepared by the NC Geological Survey in 2008. (See www.geology.enr.state.nc.us)

MAP SYMBOLS

- Major thrust faults
- Zone of potential rock slope instability

Rock Slope movements

Initiation zones

- Rock fall
- Rock slide-general
- Rock slide-translational
- Weathered rock slide-general
- Weathered rock slide-rotational
- Weathered rock slide-translational

Modifiers

- Dot indicates slope movement initiated on modified ground
- Green halo indicates slope movement was field verified

Roads

- Primary Roads
- Secondary Roads
- Blue Ridge Parkway

Rivers

- Major Rivers
- Minor Rivers

Municipal boundaries

Sources/Resources:

Mountain Ridge and Steep Slope Protection Strategies. Land-of-Sky Regional Council. April 2008. www.landofsky.org/downloads/LandofSky-MRSSPS-report.pdf

Wooten, R.M., Latham, R.S, Witt, A.C., Gillon, K.A, Douglas, T.D., Fuemmeler, S.J., Bauer, J.B., and Reid, J.C. 2007. *Landslide hazards and landslide hazard mapping in North Carolina*.

Landslides, or mudslides as they are sometimes called, are an increasing threat in the High Country as development continues on unstable slopes and in the paths of past landslide locations. Development occurring on steeper slopes, generally above 35%, causes mountainsides to destabilize and not only threatens those properties, but also the properties downslope. Modified slopes can be more susceptible to landslides than unmodified or "natural slopes." "Unless carefully done, slope modifications such as excavations, embankments and drainage systems can destabilize slopes that are marginally stable in the unmodified or natural state" (Wooten, et al).

Heavy precipitation events in combination with steep slope development in potentially hazardous areas is a public safety issue. "High-intensity summer storms and single tropical depressions can trigger slope movements" (Wooten, et al). Deforestation can further destabilization due to the removal of root systems that strengthens soils. In addition to the public safety hazard landslides pose, they also lead to soil and forest loss, sedimentation of streams, river and lakes and increased erosion and habitat destruction (Land-of-Sky Regional Council, 2008).

In general, underlying causes of landslides include: underlying geology, geomorphology, hydrology, weather-climate, slope modifications and deforestation. Possible triggers involve earthquakes, blasting, freeze - thaw, precipitation - water (back-to-back storms), and slope modifications.

LANDSLIDE PROTECTION RECOMMENDATIONS

Utilize Available Information to Prevent Landslides. The North Carolina Geological Survey in Swannanoa is heading up a multi-year effort to study counties for potential and known landslide hazards. Watauga County was mapped in 2008 and maps are available online. Landowners, developers and local governments should be knowledgeable about potential landslide hazards in their areas. NC OneMap and the NC Geological Survey have various geological and landslide mapping resources available for download free of charge. This information was incorporated into recommendations on the Framework Plan for Boone.

Require Geotechnical Analysis. Slope stability analysis is a useful tool to determine whether proposed development will jeopardize slope stability on the site and surrounding properties. Geotechnical Analysis should continue to be required for development on all slopes greater than 50% and on slope greater than 30% in areas of certain geologic hazards.

Minimize Site Disturbance/Maximize Site Design. Where possible, it is best to limit cut and fill, stormwater runoff and vegetative loss during construction. Not only do these adversely affect water quality, tree cover but they also all contribute to slope instability.

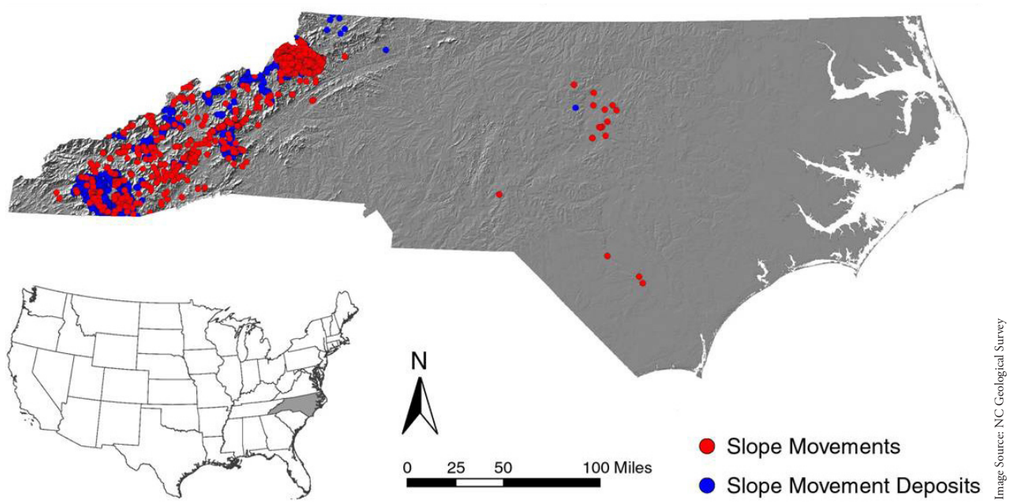


Image Source: NC Geological Survey

The NC Slope Movement-Slope Movement Deposit database currently has a total of 5,343 entries. However, entries usually increase weekly as mapping in a county progresses.

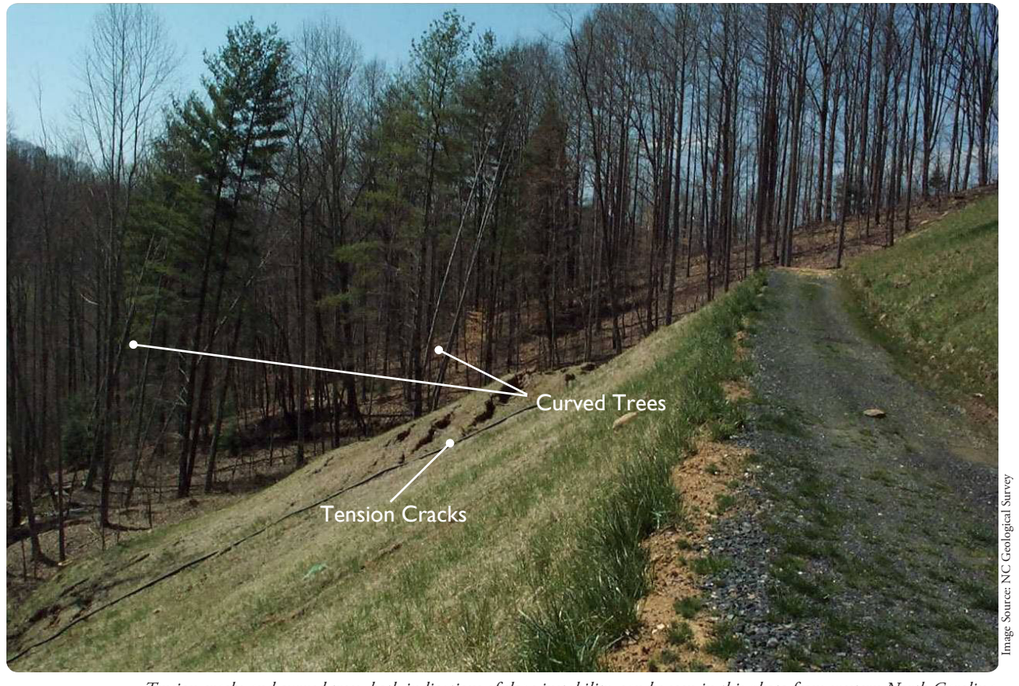
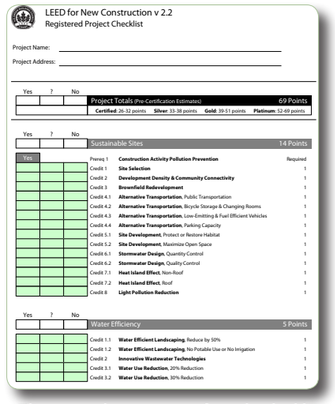


Image Source: NC Geological Survey

Tension cracks and curved trees, both indications of slope instability, can be seen in this photo from western North Carolina.


LEED for New Construction v 2.2
Registered Project Checklist

Project Name: _____

Project Address: _____

Yes	?	No		
			Project Totals (Pre-Certification Estimates)	69 Points
			Certified: 26-32 points **Silver**: 33-38 points **Gold**: 39-51 points **Platinum**: 52-69 points	

Yes	?	No	Sustainable Sites	14 Points
Yes				
			Prereq 1 **Construction Activity Pollution Prevention**	Required
			Credit 1 **Site Selection**	1
			Credit 2 **Development Density & Community Connectivity**	1
			Credit 3 **Brownfield Redevelopment**	1
			Credit 4.1 **Alternative Transportation**, Public Transportation	1
			Credit 4.2 **Alternative Transportation**, Bicycle Storage & Changing Rooms	1
			Credit 4.3 **Alternative Transportation**, Low-Emitting & Fuel Efficient Vehicles	1
			Credit 4.4 **Alternative Transportation**, Parking Capacity	1
			Credit 5.1 **Site Development**, Protect or Restore Habitat	1
			Credit 5.2 **Site Development**, Maximize Open Space	1
			Credit 6.1 **Stormwater Design**, Quantity Control	1
			Credit 6.2 **Stormwater Design**, Quality Control	1
			Credit 7.1 **Heat Island Effect**, Non-Roof	1
			Credit 7.2 **Heat Island Effect**, Roof	1
			Credit 8 **Light Pollution Reduction**	1

Yes	?	No	Water Efficiency	5 Points
			Credit 1.1 **Water Efficient Landscaping**, Reduce by 50%	1
			Credit 1.2 **Water Efficient Landscaping**, No Potable Use or No Irrigation	1
			Credit 2 **Innovative Wastewater Technologies**	1
			Credit 3.1 **Water Use Reduction**, 20% Reduction	1
			Credit 3.2 **Water Use Reduction**, 30% Reduction	1

The image above is a page from the checklist for LEED for New Construction v. 2.2

In the United States alone, buildings account for:

- *70% of electricity consumption,*
- *39% of energy use,*
- *39% of all carbon dioxide (CO2) emissions,*
- *40% of raw materials use,*
- *30% of waste output (136 million tons annually), and*
- *12% of potable water consumption.*

Source - USGBC

The introduction of energy efficiency in the design of buildings is an important factor in the overall sustainability of any community. However, a sustainable building built ten miles from the nearest services negates any energy savings the moment the car must be used as the sole means of transportation. Energy efficiency and environmental friendliness must marry the building, the site and its location, and the greater community. Promoting compact, walkable development is the best "green" building technology that the Town has at its disposal. Once this has been accomplished, opportunities abound to make individual buildings within a compact setting more green.

With the substantial advances in building construction technologies over the last ten years and the rapid integration of new "green" products into the marketplace, the incremental cost of green building has all but been eliminated for new construction. The US Green Building Council (USGBC) estimates that the slight increase in building costs that incorporate green standards are absorbed into lower utility bills and decreased maintenance over a relatively short period of time (often 2-5 years). Also, building occupants report a range of other secondary benefits including lower absenteeism, lower illnesses, and a more productive employees.

There are a number of third-party rating systems that seek to quantify the level of energy efficiency and environmental friendliness of buildings and sites. The two most popular in western North Carolina are the LEED program promulgated by the USGBC and the NC HealthyBuilt Homes Program. Though there are a number of other similar green rating programs, these two are the most well-respected and most well-established in this region.

Provide Leadership for Sustainable Building Practices

This report encourages that the Town provide leadership in sustainable building and site design practices. For example, like municipalities across the country, the Town could use the LEED guidelines for certifying all new public buildings as energy efficient and environmentally sustainable.

Developed by the USGBC membership, the Leadership in Energy and Environmental Design (LEED) Green Building Rating System is a national consensus based, market-driven building rating system designed to accelerate the development and implementation of green building practices. It is a leading-edge system for designing, constructing and certifying sustainable buildings. Already Boone is working with Watauga County on planning for green building and site design for the new high school. ASU is also planning for several LEED building projects.

Boone should consider sustainable building techniques at a minimum LEED Silver level with all new or expanded public buildings. The City of Chicago is implementing a similar requirement across all of its public buildings and is retrofitting many of them to achieve the goals. The most widely publicized of their retrofits is the installation of various roof systems. They are using "green" roofs such as a planted garden or "white" roofs (white painted surfaces to reflect sunlight rather than absorb it) for all new construction, particularly for public uses such as fire stations and schools. Such roofing systems not only reduce energy costs on the buildings, but garden roofs can also be designed to capture and filter stormwater during a rainstorm. These techniques reduce the environmental footprint of a building and promote sustainable development practices.

The Town can provide a valuable marketing and testing ground for local green building practices. And sustainable construction practices do not have to be and should not be limited to buildings and LEED standards. Boone can also ensure that all capital projects including parking lots and sidewalk installations include sustainable best practices.

Encourage Green Building Standards For Private Development

The Town should consider green building incentives at the local level for developers who consider the use of the LEED rating system for buildings and/or developments. Arlington County, Virginia has a LEED Certification Incentive Program entitled "Building Green, Building Smart." If projects achieve the minimum LEED certification of Silver then they can receive up to 3 additional stories and/or .35 additional Floor Area Ratio (FAR). The City of Seattle provides direct grant funding and technical assistance for soft costs related to LEED documentation, building commissioning and certification. This can be quite valuable as these soft costs can run $10,000 - $20,000 or more depending on the size of the project.

Beginning in 2009, LEED for Neighborhood Development (LEED-ND) will be available as a certification that evaluates an entire development within the context of a walkable environment.

Image Source: Ben Brown/PlaceMakers

These affordable modular duplex homes were designed for an infill site in Asheville. They provide a model of building in an accessible, low-impact location, using low-cost, low-tech and green materials.

"The more high technology something is, the quicker it breaks. The things that really work brilliantly are the simplest design decisions—integrating workers with housing, integrating mixed-use, reducing the need for travel, reducing private car use, and providing access to locally produced food, local goods and services. Then reduce the demand for heat and power using a high level of insulation, passive solar orientation, good daylighting, good shading strategies, natural ventilation, a passive heat-recovery ventilation system. Once you've reduced demand using those techniques, then create basic renewable energy systems like solar electric panels, wood-pellet boilers, and solar thermal collectors. No technological innovation required," he adds.

-Bill Dunster, founder of ZEDfactory
Urban Land Magazine, June 2008

A recent installation of solar panels on the ASU campus

One of the most compelling vision statements offered by participants at the charrette was the suggestion that Boone be the first town on the East Coast using totally renewable energy sources. Not surprisingly, Boone has the local capacity and intellectual resources to achieve this vision. In the realm of energy resources, Boone is blessed with two significant attributes, among others: First, it is located in a region with some of the best wind potential in the state and the country (see map at right). Second, it is home to some of the best knowledge resources on alternative energy sources in the state, if not the country. Boone is home to outstanding ongoing research and advocacy for and implementation of alternative energy systems and policy at ASU and through organizations like the Appalachian Institute for Renewable Energy (AIRE).

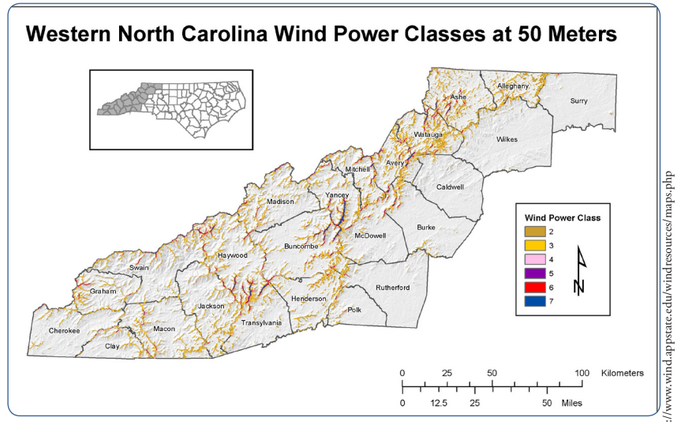
RENEWABLE ENERGY SOURCES

Bioenergy. With expected continued volatility in oil prices, bioenergy is gaining popularity as a renewable energy source that can be used for heat, electricity and to fuel vehicles and farming operations. Biofuel and ethanol are the two main types of bioenergy currently used in the United States. While solar power is the most sustainable way to heat your home, new oil furnaces that run on higher blends of biodiesel are great for back-up systems. Bioheat consists of a mixture of conventional heating oil and biodiesel.

Hydro Power. Falling water is used to produce hydropower though large-scale hydropower can cause environmental impacts. Small-scale hydro systems however offer several advantages because the generation process produces no pollution and it doesn't require a large dam or reservoir.

Solar Power. Solar power involves the conversion of sunlight into electricity. This can be done more easily and affordability on a small to medium sized scale through solar panels, modules, charge controllers, batteries, inverters and power centers. Solar thermal technologies can be used for water heating and space heating. You can now sell your solar and other renewable generation to the North Carolina Green Power program.

Wind Energy. Not only does wind power create jobs and reduce air pollution, but it is also an affordable, clean and sustainable way to harness and reuse energy. The costs of installing a small wind energy system typically range from $3,000-5,000 per kilowatt for a grid-connected installation. Many variables affect the time it takes to break even, depending upon the wind resource at your site, your power provider's electricity rates, and financing and incentives. Small wind owners with strong average wind speeds can usually recoup their investments within fifteen years (American Wind Energy Association). In general, the prime location for these systems is in higher elevations in western North Carolina. NC OneMap has free GIS download of wind power data, which maps the entire states potential to provide wind power.



Boone is located in one of the highest wind power potential regions in North Carolina. http://www.wind.appstate.edu/windresources/maps.php

RECOMMENDATIONS

The text box at right provides excellent big picture recommendations on the topic of energy independence, many of which the Town is already making progress on and which are consistent with other recommendations in this plan.

Establish an Energy Task Force and Develop a Renewable Energy Plan

As noted above, Boone is rich in natural and technical resources for alternative energy promotion and implementation. The Town and its stakeholders should take maximum advantage of these resources in establishment of a local task force. One of the first goals of the Task Force should be development of a long-range renewable energy plan for Boone. These would be the first steps on the road to a 100% renewable energy vision.

Remove Regulatory Barriers to Renewable Energy and Provide Incentives for their Use.

Local advocates and experts have contributed to a wind ordinance for Watauga County. The Town should ensure that regulatory barriers (e.g., height limitations, etc.) do not discourage or prohibit the use of renewable energy systems. The Town should also look for opportunities, through streamlined permitting or other means, to promote the use of renewable energy technologies locally.

PLANNING FOR ENERGY AND CLIMATE UNCERTAINTY

Joint energy and climate strategies would do well to focus on two main goals: reducing overall consumption and meeting basic needs more locally. In this way communities can reduce their reliance on transoceanic supply lines, reduce their vulnerability to rising and volatile energy prices, and reduce their contributions to global warming. There are five key principles that local governments should integrate into ongoing decision making and long-range planning for addressing both peak oil and global warming:

1. **Deal with transportation and land use (or you may as well stop now).** Fundamentally rethink your land-use and transportation planning practices, from building and zoning codes to long-range planning. Make infrastructure decisions with 100-year timeframes, and work regionally to address the land-use and transportation challenges of energy and climate uncertainty.

2. **Tackle private energy consumption.** Use existing tools to encourage serious energy conservation and efficiency in the private sector. Engage the business community aggressively, challenging local leaders to reinvent the economy for the post carbon world.

3. **Attack the problems piece by piece and from many angles.** Use proven solutions, pursuing many different kinds of solutions at different scales. Enlist the entire community, setting clear community goals and spurring action from all sides to meet them.

4. **Plan for fundamental changes — and make them happen.** Educate local elected officials, staff, and community stakeholders about the challenges of energy and climate uncertainty and engage them in the discussion. Challenge them to find serious solutions and integrate peak oil and climate change considerations into decisions.

5. **Build a sense of community.** Get people talking with each other, forming relationships, and investing themselves in the larger community. The social resilience that comes from a strong sense of community and mutual investment is essential for meeting the complex and unknown local challenges of peak oil and global warming.

Excerpted from "Post Carbon Cities" by Daniel Learch. Planning *magazine. December 2008. postcarboncities.net/node/4071*

6: TRANSPORTATION

The Town of Boone has been at the forefront of the discourse on smart and sustainable transportation since the 1990s with the completion of the landmark 1994 *Boone/Blowing Rock Alternative Transportation Plan*. Although Boone forged ahead in establishing an outstanding public transit system, quality bicycle and pedestrian accessibility has not been established in the Town as envisioned in the Plan.

With traffic congestion continuing to worsen in Boone, plan participants made it clear that there is a readiness for establishing a multi-modal network of complete streets throughout the Town, with an integrated system of roads, transit, pedestrian, and bicycle facilities. In fact, relieving traffic congestion and providing transportation choices (especially making it practical to bicycle and walk) were two of the top community priorities articulated in the public input process.

Map 6.1 shows the range of transportation projects that have either been contemplated or planned by NCDOT and/or the Town of Boone prior to inception of this planning process.

ROADWAY LEVEL OF SERVICE & CONGESTION

The North Carolina Department of Transportation regularly collects traffic counts (referred to as Average Daily Traffic or ADT) information for state routes throughout North Carolina. The development of the Master Plan included a review of these counts within the Boone area. (Map 6.2) summarizes historic ADT counts on Boone roadways.

The roadways shown in Map 6.2 are typically evaluated on the basis of their Level of Service (LOS). Roadways are ranked on a lettered scale of A to F, with level of service 'A' representing the best operating conditions for motor vehicles and level of service 'F' the worst.

Following is a description of the various levels of service categories as outlined in the Highway Capacity Manual 2000 (HCM 2000).

Level of Service A: Primarily free flow operations at average speeds, usually about 90 percent of free flow speed. Motor vehicles are completely unimpeded in their ability to maneuver within the traffic stream.

Level of Service B: Reasonable unimpeded operations at average travel speeds. The ability to maneuver within the traffic stream is only slightly restricted.

Level of Service C: Stable operations. Ability to maneuver and change lanes may be more restricted than in LOS B.

Level of Service D: Borders on a range on which a small increase in flow may cause substantial increases in the approach delay and hence decreases in travel speed.

Level of Service E: Significant delays and average travel speeds of one third the free flow speed or slower.

Level of Service F: Traffic flow at extremely low speeds. Intersection congestion is likely at critical signalized locations with high approach delays.

In an area like Boone which values non-motorized travel and transit, these evaluation criteria must come with a few caveats. First, the letter scale is not indicative of whether a roadway "works" or not. Unlike the letter grade scale used in education, a D, E, or even F grade may be acceptable if the corridor in question serves many uses and users. Many downtown Main Streets operate at these "lower" levels of service from a motor vehicular standpoint, but function in an exemplary manner from a standpoint of walkability or economic vitality. A decision to enhance the car-carrying capacity and increase the level of service in such contexts would be unfathomable. Examples of Main Streets that function in this way include such examples as Rodeo Drive in Beverly Hills and 5th Avenue in Manhattan.

The second caveat is that the LOS measure looks at the conditions over the course of the day. A roadway may be extremely congested from a motorist standpoint during peak hours, which could result in a "lower" level of service. However, the same roadway may be uncongested through most other times within a 24-hour period.

Finally, the criteria only measure the amount of delay a motorist may experience in moving through a corridor. This criteria does not account for the quality of travel or safety associated with non-motorized modes of travel that are often compromised by faster-moving motorists. Many criteria in addition to vehicular level of service are used to determine the best balance in transportation systems in urban environments (see the the Walk Score, which is shown on Map 6.3), and these were evaluated holistically in the planning process for Boone.

TOLLS & PARKING CHARGES KEY TO EASING TRAFFIC

[In 2008], the RAND Corporation, a non-profit think tank, put out a report on how to get traffic moving faster. They considered lots of the standard solutions—improving signal timing, clearing accidents quickly, encouraging telecommuting, and so forth—and found that many of them could, in fact, provide some temporary congestion relief.

But here's the rub: RAND found that over the long haul, these kinds of solutions simply don't have much effect on congestion. They can briefly get traffic moving faster, but just about every improvement in travel time results in. . .more people taking to the road! Over the long haul, apparently, most congestion relief efforts sow the seeds of their own destruction. Says RAND: 'This is why we often see, for instance, that flow improves for a short while when new lanes are added to a freeway but usually returns to former levels of congestion within just a few years.'

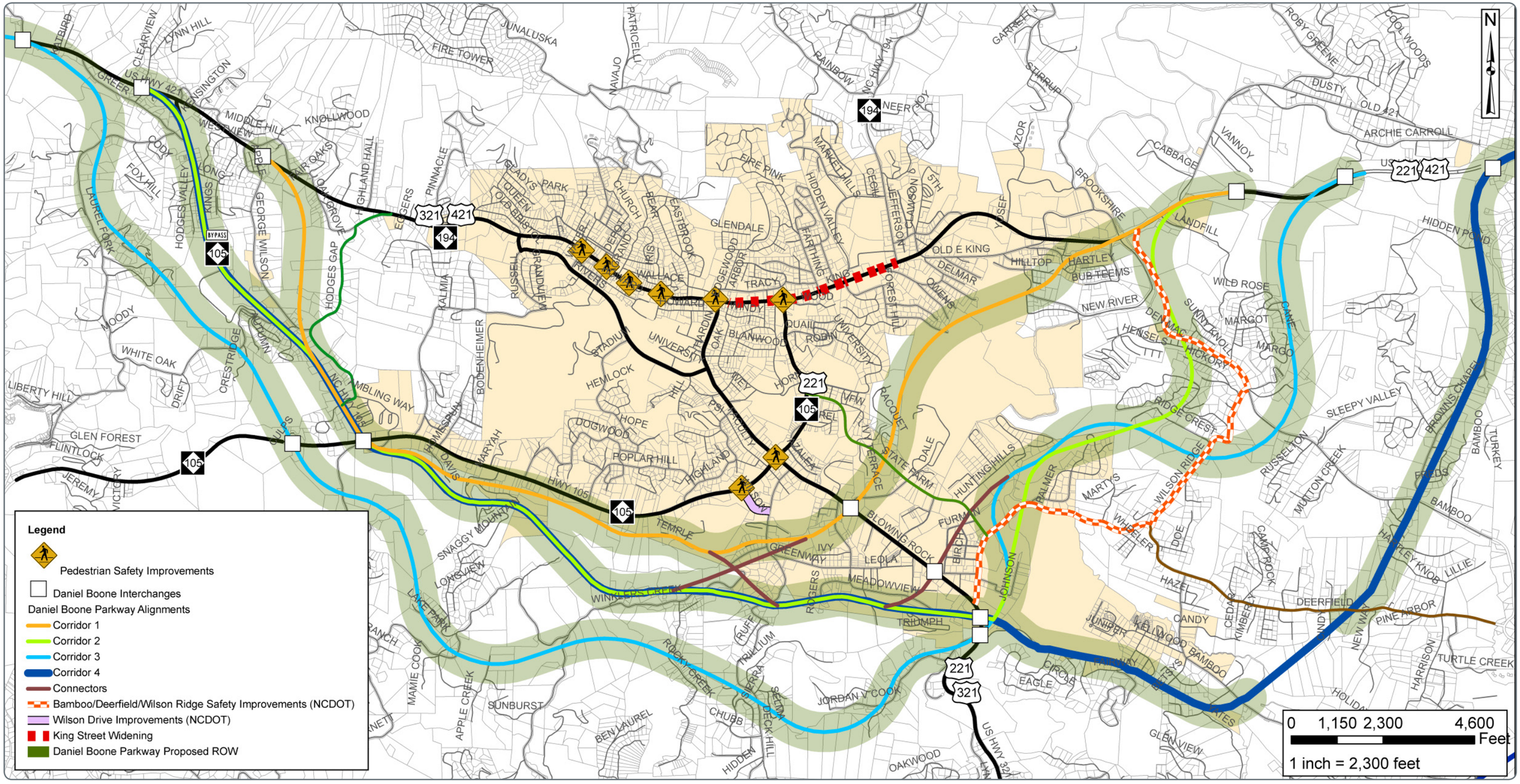
In the end, RAND found that only a few strategies had any significant potential to curb congestion. The thing these strategies had in common was that they raised the cost of trips on congested routes. RAND singled out two basic tactics: charging tolls for driving where congestion is heaviest; and making it more expensive for drivers to park. Sadly, RAND also found that the road pricing solutions. . .face huge political and practical obstacles.

Which leaves parking pricing in the sweet spot. Variable parking rates and parking "cashout". . . are relatively easy to implement, and have great long-term benefits for congestion. Parking cash-out—where employers give workers the option to take a cash payment in lieu of free [or subsidized] parking—has real financial benefits, too.

But for all the other congestion-busting ideas out there -- well, they might help a bit, at least for awhile. Over the long run, though, as long as we give road and parking space away for free, we'll still be struck in traffic.

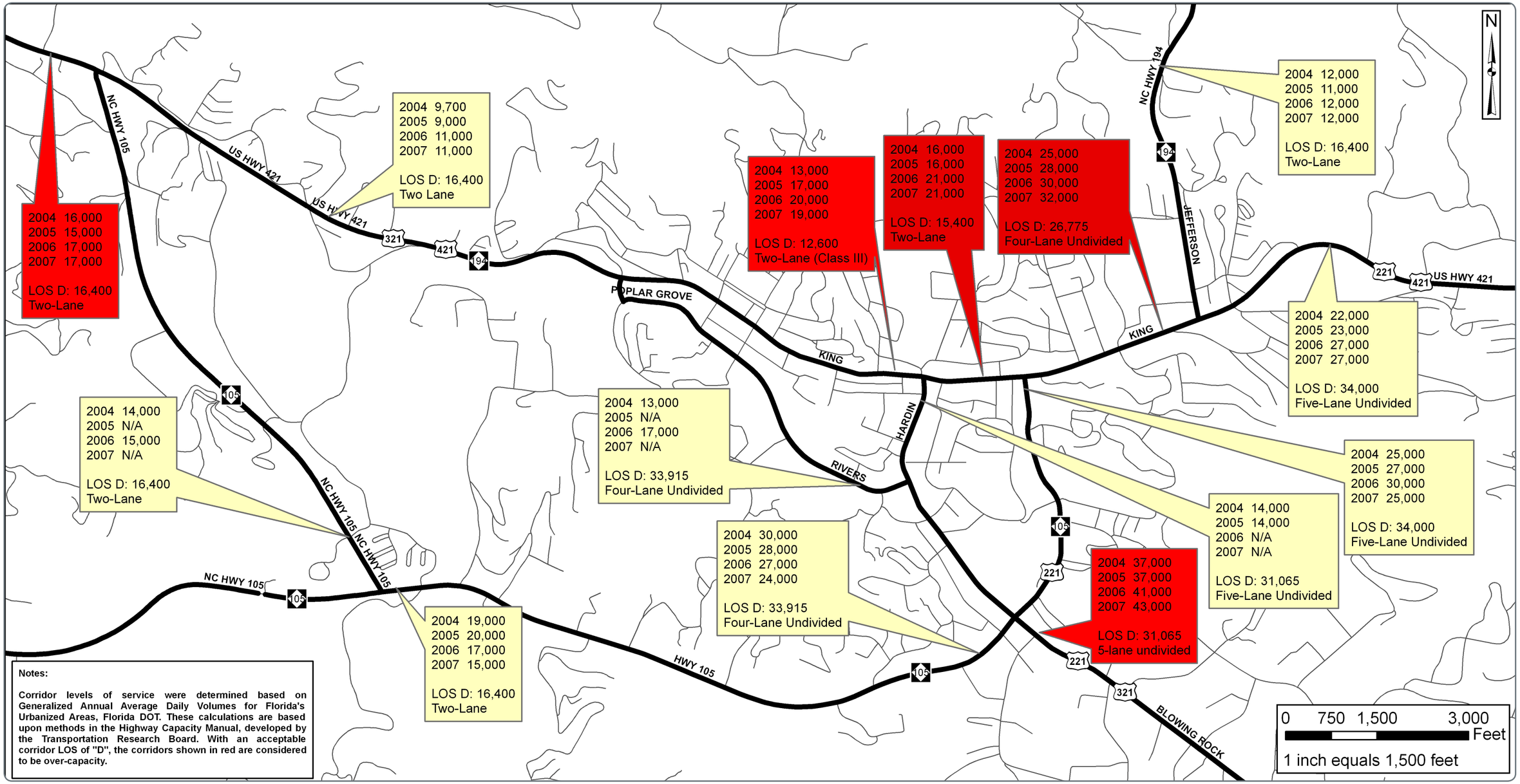
Excerpted from "Fighting Congestion, RAND Style," http://daily.sightline.org/daily_score/archive/2008/12/18/fighting-congestion-rand-style

CURRENT TRANSPORTATION INITIATIVES



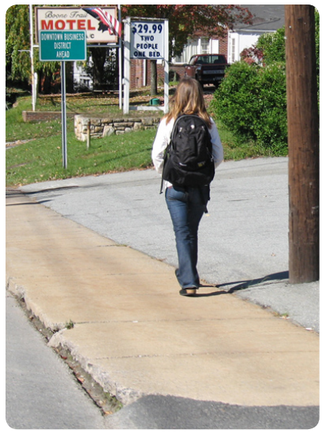
MAP 6.1 CURRENT TRANSPORTATION INITIATIVES ▲

TRAFFIC VOLUMES & CONGESTION



MAP 6.2 NCDOT AADT COUNTS & CORRIDOR LEVELS OF SERVICE ▲

WALKING IN BOONE



Just how walkable is Boone? Many college towns like Boone have piles of students and faculty walking and biking around their community because it is frankly just easier than trying to find a place to park. But how easy is it to do other things on foot? Can you buy groceries or pick up dinner as a pedestrian? Using www.walkscore.com, we evaluated the "potential" walkability for each neighborhood and major residential area in Boone. (See Map 6.3 on the following page.)

According to their web site "Walk Score helps people find walkable places to live. Walk Score calculates the walkability of an address by locating nearby stores, restaurants, schools, parks, etc. Walk Score measures how easy it is to live a car-lite lifestyle—not how pretty the area is for walking."

The Walk Score is a number between 0 and 100. Here are general guidelines for interpreting the score:

90–100 = Walkers' Paradise: Most errands can be accomplished on foot and many people get by without owning a car.
70–89 = Very Walkable: It's possible to get by without owning a car.
50–69 = Somewhat Walkable: Some stores and amenities are within walking distance, but many everyday trips still require a bike, public transportation, or car.
25–49 = Car-Dependent: Only a few destinations are within easy walking range. For most errands, driving or public transportation is a must.
0–24 = Car-Dependent (Driving Only): Virtually no neighborhood destinations within walking range. You can walk from your house to your car!

The results may surprise you. In fact, a number of in-town neighborhoods scored remarkably well, but there is a big footnote to add. As noted above, Walkscore uses an algorithm that gathers information from Google Earth's extensive inventory of places such as churches, schools, restaurants, and shopping areas. We call these destinations. But, what this score does not incorporate is the journey. It only looks at how far you live from goods and services (destinations) as the crow flies and does not evaluate the site conditions—the presence of a sidewalk or the area's topography—from point A to point B.

So is this map still useful? Absolutely! We contend that this map can serve as the basis for future pedestrian improvements by prioritizing where the Town will get the biggest bang for their buck. A sidewalk inventory is being completed by the Town and can be overlaid with this information to show where the gaps are. Then, Boone can begin to make investments in areas with the highest potential pedestrian activity.

HOW TO BE LIKE BOULDER

People visit Boulder, CO to check out its bicycling and walking system. Some leave inspired to change their communities; others think, "Well, it works in Boulder, but it will never fly back home." . . .Boulder has built-in advantages–call it "good bones"–and for 20 years it has made a significant commitment in resources and priorities. Still, any community can make things better, and the time to start is now.

Be a college town. It creates a built-in population less inclined to drive, more educated, and often more progressive.

Have a growth boundary. Boulder began buying open space in the late 1960s and has amassed 43,000 acres that serve as a physical buffer around the city. The city also collaborates with Boulder County on a forward-thinking comprehensive plan which focuses growth within existing city boundaries. As a result, most of Boulder's new development is in-fill, which increases density and allows Boulder to spend its dollars on providing transportation choices rather than building new roads to serve sprawling developments.

Have a really good plan. The Boulder City Council adopted its first transportation master plan in the late 1980s. The council looked at what would be needed, financially, physically and in quality of life, to continue to expand the roadway system. It said, "Nope, that's not for us," and decided to provide mobility not through new roads, but through a wide array of transportation choices that make it easy not to drive. Later revisions to the plan set audacious goals of keeping vehicle miles traveled (VMT) to 1994 levels and having only 25% of trips made in single occupancy vehicles by 2025. Boulder adopted the concept of complete streets in 2003, with a commitment to accommodate all modes on major corridors.

Put the plan into action. Boulder has a strong transit system with buses running on 10-minute frequencies on several major corridors, and 30,000 transit trips a day in a community of 100,000 people. Since 1989, the city has added, on average, one mile of off-street path, a half-mile of on-street bicycle lane, and two underpasses a year. Today, Boulder has over 100 miles of multi-use pathway with 74 underpasses; 95% of major arterials have bicycle lanes or adjacent pathways.

Get some political support. People in Boulder are active, engaged and like to debate everything. . .Projects often get scaled back or require additional investment to find a compromise, but the City Council moves most projects forward. Bicycle advocates help, but elected officials lead on these issues.

Redefine the problem. Michael Gardner-Sweeney, Boulder's Transportation Planning and Operations Coordinator, says, "Engineers are problem solvers. If the problem is to move as many cars as possible through an intersection, that's what they'll do. If you define the problem differently, you get different results." Boulder has redefined the problem as moving people in a multi-modal system emphasizing bicycles, pedestrians and transit. This mindset has been institutionalized throughout the city's transportation division.

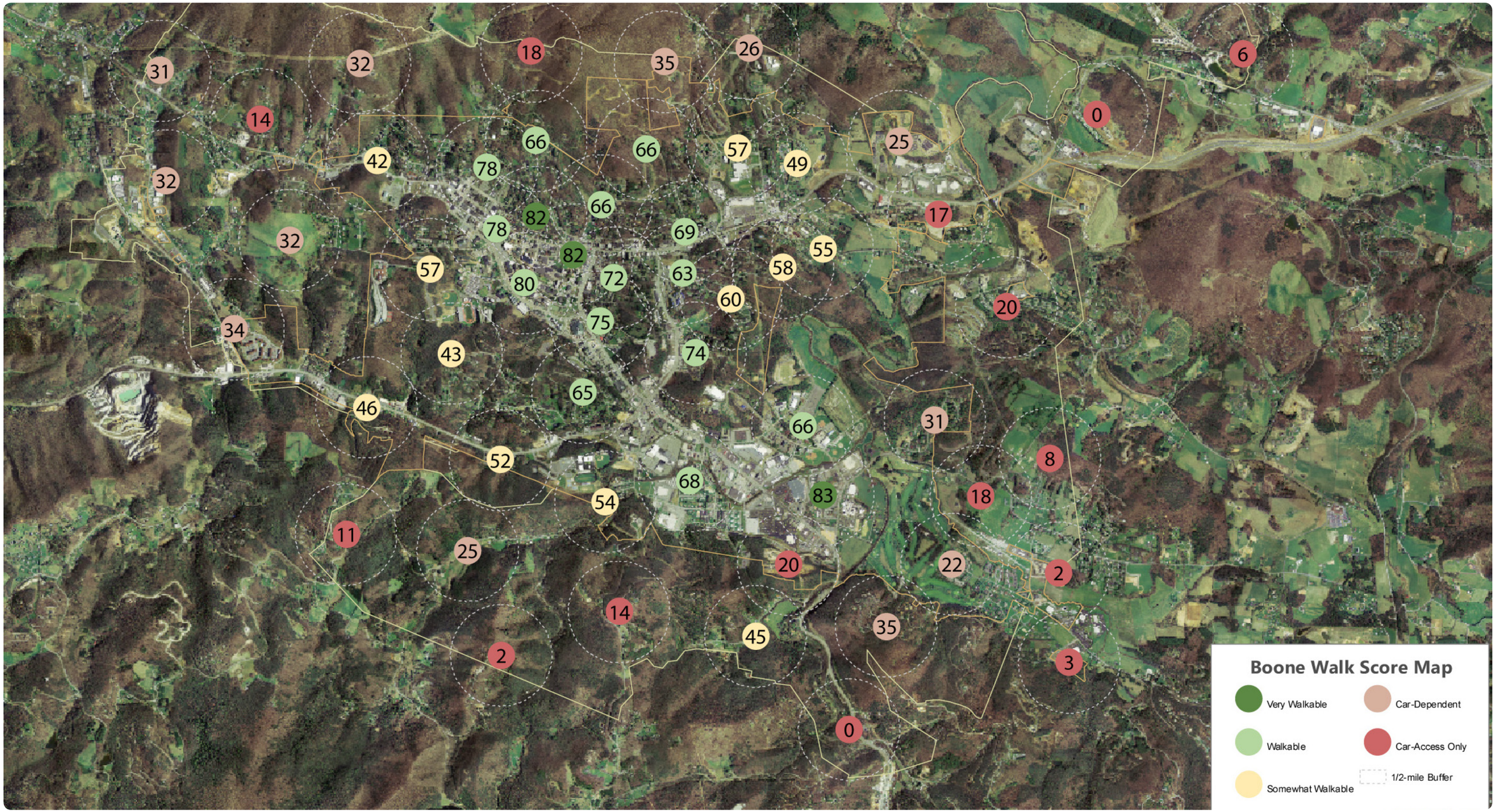
Sweat the details. Residents love Boulder's pathway system, which includes numerous side paths. A recent state DOT analysis of bicycle- and pedestrian-related crashes shows that the side paths do not have higher crash rates than the on-street system. That's due to a combination of innovative treatments, such as raised right turn bypass islands and careful signage, and the reality that bicyclists are expected users.

Fix your mistakes. The eastern half of Boulder was developed after 1950, with the same lousy combination of superblocks, strip malls, shopping centers, big parking lots and intimidating arterials as most cities across the country. Boulder's trying to fix that. The city's biggest street will be converted into a complete street, with bicycle lanes, transit improvements, pedestrian-actuated crossing signals and pathways . . .Changing land use takes longer, but the city is working to reduce the number of curb cuts, bring buildings back up to the street, and break up superblocks through redevelopment. There are bicycle lanes in the Target parking lot, which connect through the adjacent shopping area to link to greenway paths in either direction.

Do something cool. In the mid-1980s, Boulder City Council directed staff to build a small section of path along Boulder Creek in the downtown area. It was a hit, and the public clamored for more. That bit of pathway helped launch the Greenway System, a program with many goals including riparian protection and flood mitigation.

Don't ignore the soft side. The city works hard on encouragement and education, partnering with the school district on Safe Routes to School, strengthening Walk & Bike Month, launching GOBikeBoulder, an interactive bicycle routing Web site, and piloting an individualized marketing program.

Excerpted from "How to Be like Boulder" by Martha Roskowski nd Marni Ratzel, Go Boulder (Boulder's transportation agency). In The Bike/Ped Professional, *Newsletter of the Association of Pedestrian and Bicycle Professionals, 2008, vol. 2.*



MAP 6.3 WALK SCORE MAP ▲

Throughout the planning process, the community expressed a desire to maintain the quality of life and attractiveness that has long been associated with Boone and the High Country area. The community also recognized mistakes of the past, often associated with growth, that have damaged parts of that quality of life and attractiveness in some areas such as the US 321 South corridor. In many communities, the impression is that any growth requires sacrificing some of those qualities. That conclusion does not have to be the manifestation of growth however. Through a holistic, integrated planning process that melds transportation and land use contexts, communities can experience growth in a responsible and sensitive manner that enhances, rather than damages, the community. The design team adhered to a set of guiding principles when analyzing issues, evaluating opportunities, and developing transportation system solutions for all modes of travel. These principles reflect community priorities articulated during the public input phase of the plan and are presented below as suggested principles for all future transportation planning in Boone.

PRINCIPLE 1: INTEGRATE LAND USE AND TRANSPORTATION

Changing land use patterns will affect travel throughout Boone. Residential and commercial land uses and functions need to be located in proximity to one another and connected by a network of multi-modal streets. By introducing more mixing of housing, office, recreation, and retail land uses, there will be several walkable community nodes in Boone, walking and biking will become more viable, and the demand for parking will be reduced. By mixing land uses, there will be more people on the street during more hours of the day. There will also be a mix of people sharing one setting, including people who live in the area, people who work in the area, and people visiting the area. With people working, shopping, living, and accessing the activity nodes by walking and cycling, there will be several vibrant communities within Boone, each with its own distinct sense of place.

PRINCIPLE 2: UTILIZE CONTEXT SENSITIVE DESIGN

Context sensitive design improves the quality of transportation decision making by incorporating solutions that are best suited to the local setting in all aspects of planning and the project development process. Although Departments of Transportation are sometimes not aware of the practical guidance available to Engineers, the Federal Highway Administration actively supports context sensitive design initiatives:

> *"Context sensitive solutions (CSS) is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist."* – Federal Highway Administration

Many roadways within the Town of Boone and surrounding area serve some of the most scenic areas in the country. These roadways serve the function of being experienced rather than simply traversed, as evidenced by the increasing amount of tourism associated with "the scenic drive." When working with such a varied context, other issues become more important than simply shaving seconds or minutes off of a trip. Intrinsic qualities of a particular route, whether historic, scenic, or even economic can often trump the desire to provide the highest level of motor vehicular capacity on a given roadway. In past transportation planning, before Context Sensitive Solutions became mainstream, vehicle operations were considered to be paramount in the transportation decision-making process. In today's world, the practice of strictly adhering to roadway design manuals is considered to be dated and can result in facilities that significantly damage the surrounding context, both in the natural and built environments. By considering the context in roadway design and being flexible around topographic elements, scenic views, and water quality, the integrity of "the place", the driver experience and the quality of the environment can be retained.

PRINCIPLE 3: BUILD COMPLETE STREETS

Complete streets are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists and bus riders of all ages and abilities are able to safely move along and across a complete street. By rebalancing the transportation system in Boone, the quality of the resident and visitor experiences in activity nodes can be enhanced, the sense of community will be enriched, and the overall quality of life in Boone will be improved.

PRINCIPLE 4: ENHANCE THE REGIONAL NETWORK

Most of Watauga County is connected by a series of sparsely spaced state roadways and US highways. The number of vehicle miles traveled is high as there are limited numbers of direct routes between activity nodes and residential areas. As development has continued throughout North Carolina's mountain region, traffic congestion has worsened, and the need to improve the regional network by providing a connected network of alternative routes has become more evident.

Source: Kubilins

Mixed land uses with walkable, low-speed infrastructure (Rockville, MD)

Source: Kubilins

Typical scenic mountain road in the High Country.

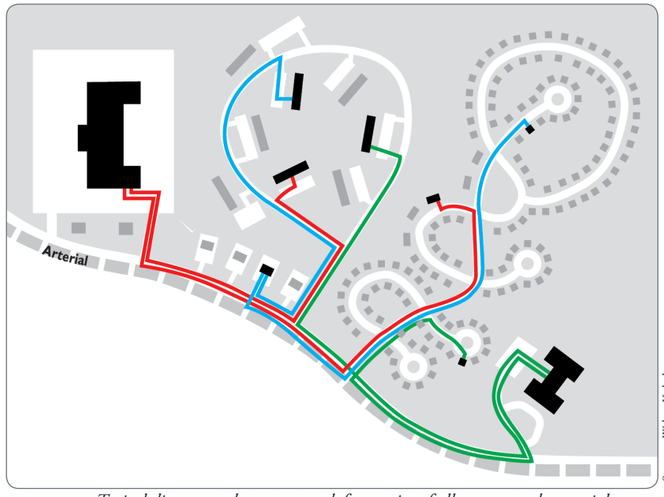
Source: City of Charlotte

A "Complete Street" for all users (Charlotte, NC)

PRINCIPLE 5: IMPROVE STREET CONNECTIVITY

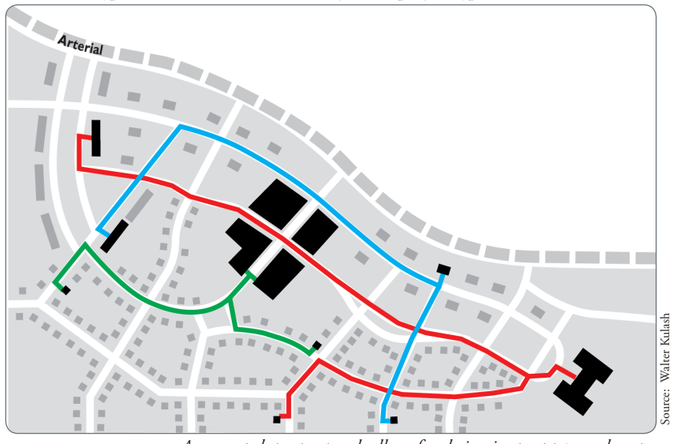
Connectivity refers to the directness of links and the density of connections in the path or road network. A well-connected road or path network has many short links, numerous intersections, and minimal dead-ends. As connectivity increases, travel distances decrease and route options increase, allowing more direct travel between destinations, creating a more accessible and resilient system.

Road network connectivity is an important consideration in planning a sustainable community. A connected grid network of streets and paths in Boone will provide easy connections between residential and commercial land uses, making them closer together and accessible by walking and bicycling. The layout of streets in the Town will be an approximate grid due to the topographic limitations and in some cases, pedestrian and bicycle pathways may provide a linkage where building a roadway is not possible. To introduce new connections, land uses can be transitioned in the future to provide new linkages as redevelopment occurs. By offering multiple street and pathway choices for most trips, local traffic is dispersed across the entire system and the overall imprint made by vehicles in the Town setting is reduced. The placement of different street and pathway types at suitable locations can affect the amount of vehicular travel on each street, the comfort and safety of pedestrian and bicycle travel along and across the street, and the success of fronting land uses.



Source: Walter Kulash

Typical disconnected street network forces trips of all types onto the arterial street.

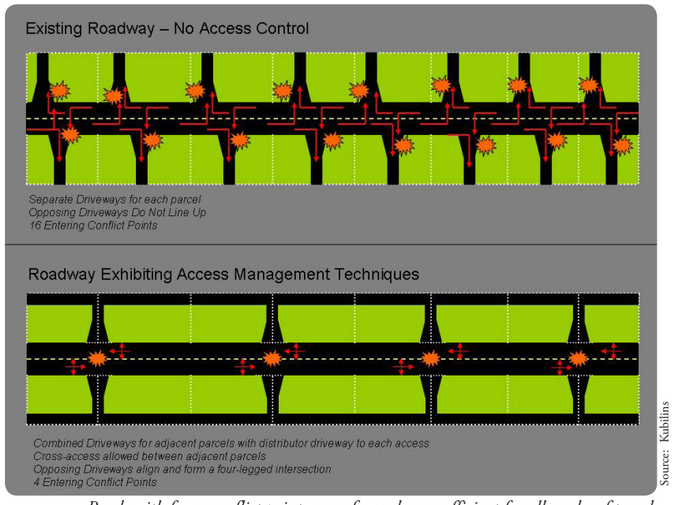


Source: Walter Kulash

A connected street network allows for choices in street type and route.

PRINCIPLE 6: MANAGE ROADWAY ACCESS

As the Boone community and surrounding areas continue to develop, there will be a growing need to preserve the functional integrity of arterial streets and promote an efficient traffic circulation system. This can be achieved by providing inter-parcel connections to retail uses and consolidating unnecessary driveways. The parallel street system results in reduced traffic congestion on the arterial road network at the same time providing an environment on the local streets that encourages walking, bicycling and transit use. By employing access management techniques, the safety and traffic flow on the arterial corridors can be preserved and even improved while the place-making objectives of the town are achieved. By providing safe and convenient walking and bicycling access to destinations in the Town, there will be less reliance on personal vehicles, more people on the streets, and greater sense of community life.



Source: Kubilins

Roads with fewer conflict points are safer and more efficient for all modes of travel.

PRINCIPLE 7: BE A TRANSIT-ORIENTED COMMUNITY

Transit has played an integral role in the transportation system of the Boone community. Transit services have successfully knit the Boone communities together and have provided accessibility throughout the Town for the entire population. By continuing to rebalance the transportation system to be multimodal, a synergy of alternative modes of travel will be created and demand for transit services will continue to grow. Continued infusion of transit will be a vital aspect of the Town of Boone's community livability provided that transit service programs continue to be designed and managed in response to local needs.

PRINCIPLE 5: PROMOTE WALKABILITY

Several aspects contribute to the walkability of a community. In general, pedestrians need safe, comfortable, and accessible routes covering the entire Town of Boone. A pedestrian system can encourage walking as a viable mode of transportation as well as a recreational activity. Strategic planning plays a vital role in the planning of a connected system of pedestrian facilities. In this way, policy commitments that actively encourage the development of pedestrian facilities can aid the Town in ensuring that pedestrian facilities are implemented. In addition, a collaborative process can be undertaken that identifies projects, and funding and budget and implementation timetables for any projects that may be undertaken in the future.

PRINCIPLE 9: BECOME A BIKE-FRIENDLY COMMUNITY

To establish a functional, efficient, and usable bikeway system across the Boone area, an extensive network of bicycle facilities linking on-street bicycle lanes, neighborhood streets, and greenways is needed. Road safety, connectivity, directness of routes, attractiveness of the route, and comfort all need careful attention in the design process. In addition, the design process needs to be carried out in a collaborative manner involving community members, cyclists, property owners, AppalCART, NCDOT, the Town of Boone, and other stakeholders.

Source: Kubilins

The Boone Greenway trail is a highly valued local amenity.

DANIEL BOONE PARKWAY

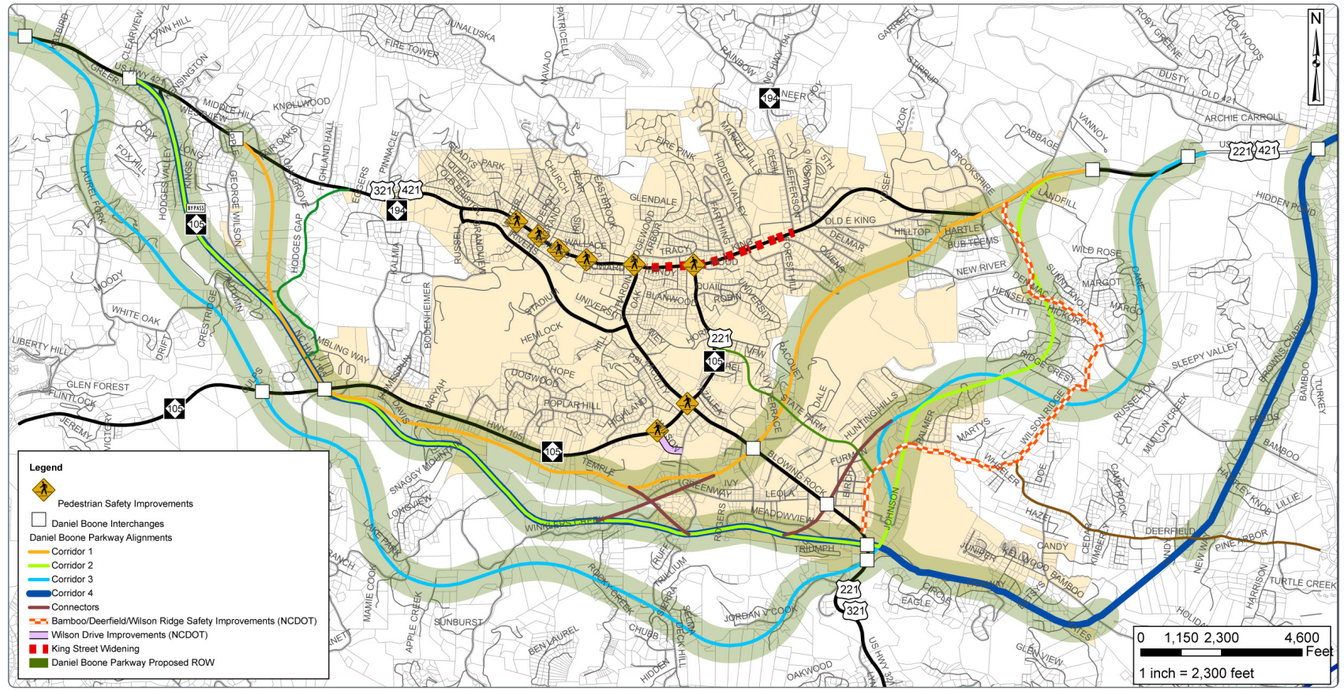
ISSUES

For many years, the idea of an alternate to US 421/King Street through downtown Boone has been debated. Currently, NCDOT is exploring options for a bypass around the congested areas of Boone to offer through-traffic, with neither origin nor destination in the town, an alternate to travel through or around Boone. All of the alternatives under study consist of a high-speed, limited-access expressway along a new alignment that would form a southern "loop" connecting US 421 west of town to US 321 south and then east to US 421 near Bamboo Road. The alternative corridors currently being considered are shown on Map 6.1, which is shown at a smaller scale at right.

The proposed project is subject to the National Environmental Protection Act (NEPA) and as such, must adhere to a "Purpose and Need," goals of which are stated as follows for the proposed Boone Parkway:

- Reduce the use of US 421 (King Street) through downtown Boone by local and through traffic;
- Improve roadway system linkages by providing a more direct connection between US 421 and US 321/221 to the south and NC 105 to the west;
- Improve traffic flow along US 421 (King Street) and the other major roadways in the area; and,
- Improve safety along US 421 (King Street) and the other major roadways in the area.

Through the course of the stakeholder interviews, focus meetings, and charrette, it became apparent that the community as a whole favored the idea of a roadway connection to meet the purpose and needs as stated, but opposed a facility that resulted in many environmental and community impacts due to the nature of its width, geometric profile, and proposed alignment. In addition, the projected costs of the new facility as originally conceived ranged from between $149 and $294 million as estimated in 2005. Given the current budgetary shortfalls at NCDOT and the fact that the project is currently unfunded, the feasibility of the project as originally proposed occurring in the foreseeable future is slim.



NCDOT PROPOSED ALIGNMENTS FOR THE DANIEL BOONE PARKWAY ▲

During the charrette, an alternative was developed that not only complied with the Purpose and Need statement, but also allowed for the use of many existing alignments to form what became termed as the "Low Build Alternative" to the Daniel Boone Parkway. The alternative proposal would provide a lower speed option and take advantage of the scenery of the area. The alignment utilizes upgrades to existing roadways such as Bamboo Road, Deerfield Road, NC 105 and NC 105 Bypass to form links between destinations.

The Low Build Alternative project can be constructed in phases as funding becomes available with total costs (capital and environmental/ community impacts) much less than the original proposals. In this way, pieces of the Parkway can be constructed over time without reliance on all of the funding at once. Additionally, the concept of the Low Build proposal aligns with the principles of Context Sensitive Design and alternative transportation modes, which were articulated as priorities by the community during the charrette.

RECOMMENDATIONS

Advocate for the Low-Build Alternative. The Low Build Alternative should be taken forward to NCDOT to reduce the impact of the proposed Daniel Boone Parkway by constructing a continuous two-lane parkway with a design speed of 40 mph, with recreational parking (such as pull-offs for views) and shoulder bike lanes/shoulders. This involves a Five-phase approach be undertaken to complete the proposed Low Build Parkway connection around Boone as funding becomes available:

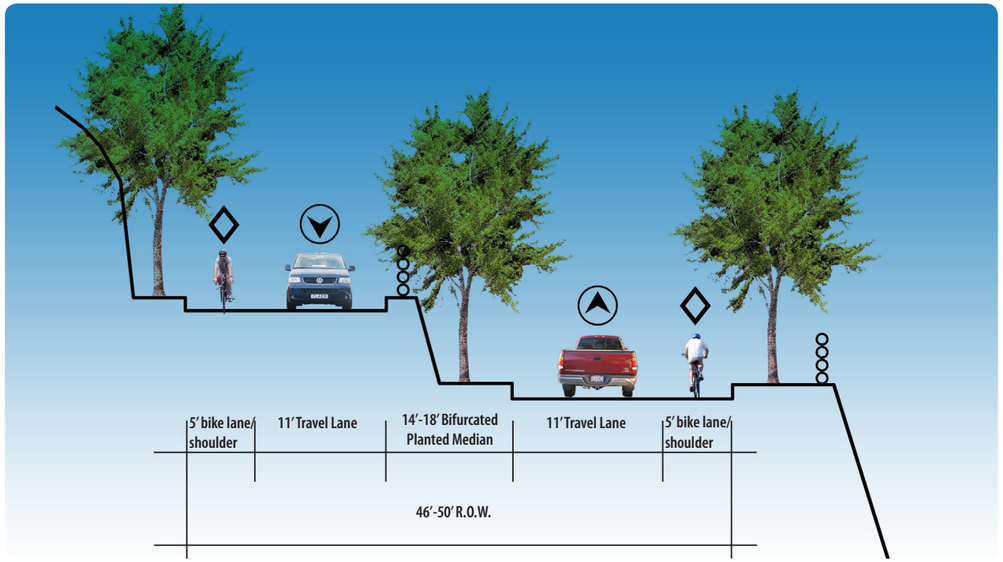
Phase 1: Safety upgrades to Bamboo, Wilson Ridge and Deerfield Roads (parts of this project are currently being considered by NCDOT as part of the required traffic maintenance in preparation for the US 421 widening project);

Phase 2: Bifurcated two-lane parkway section on new alignment between US 321 and NC 105 (illustrated above right);

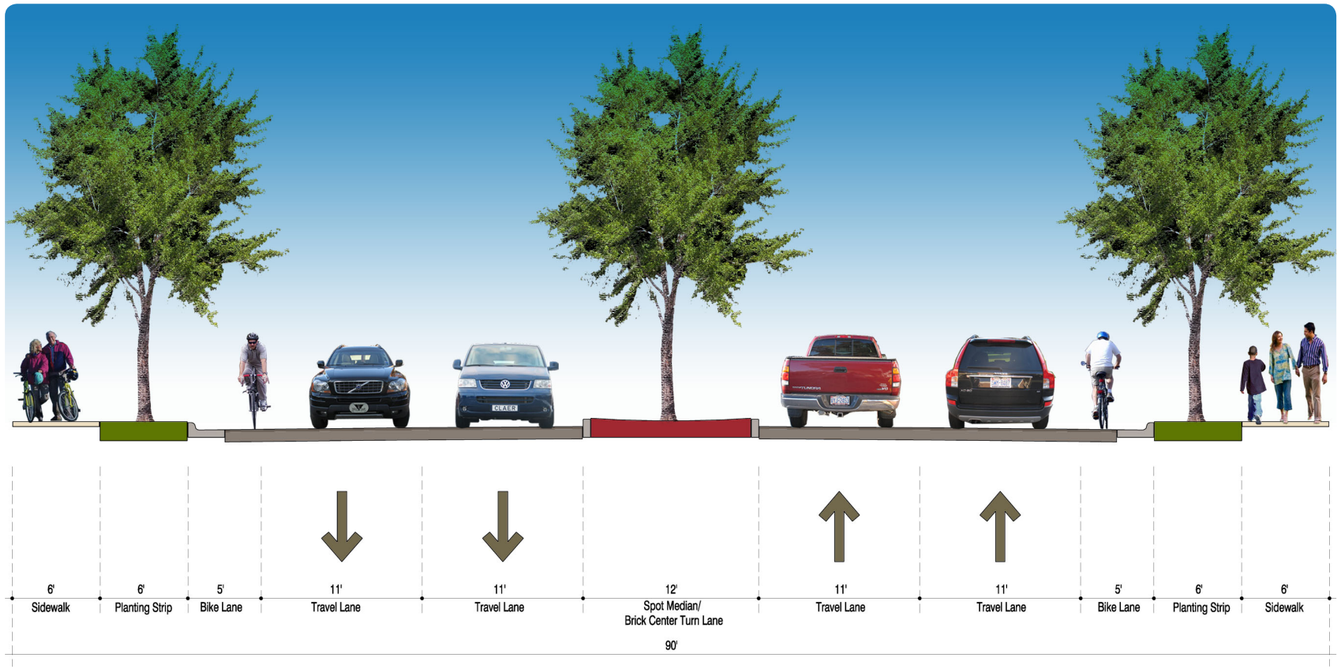
Phase 3: Conversion of NC 105 to a four-lane median divided section with turn lanes (illustrated below right);

Phase 4: Conversion of NC 105 Bypass to a three-lane alignment with Spot Medians; and

Phase 5-A: Construct future parkway on new alignment between US 421 and US 321 (contingent on future traffic volumes).

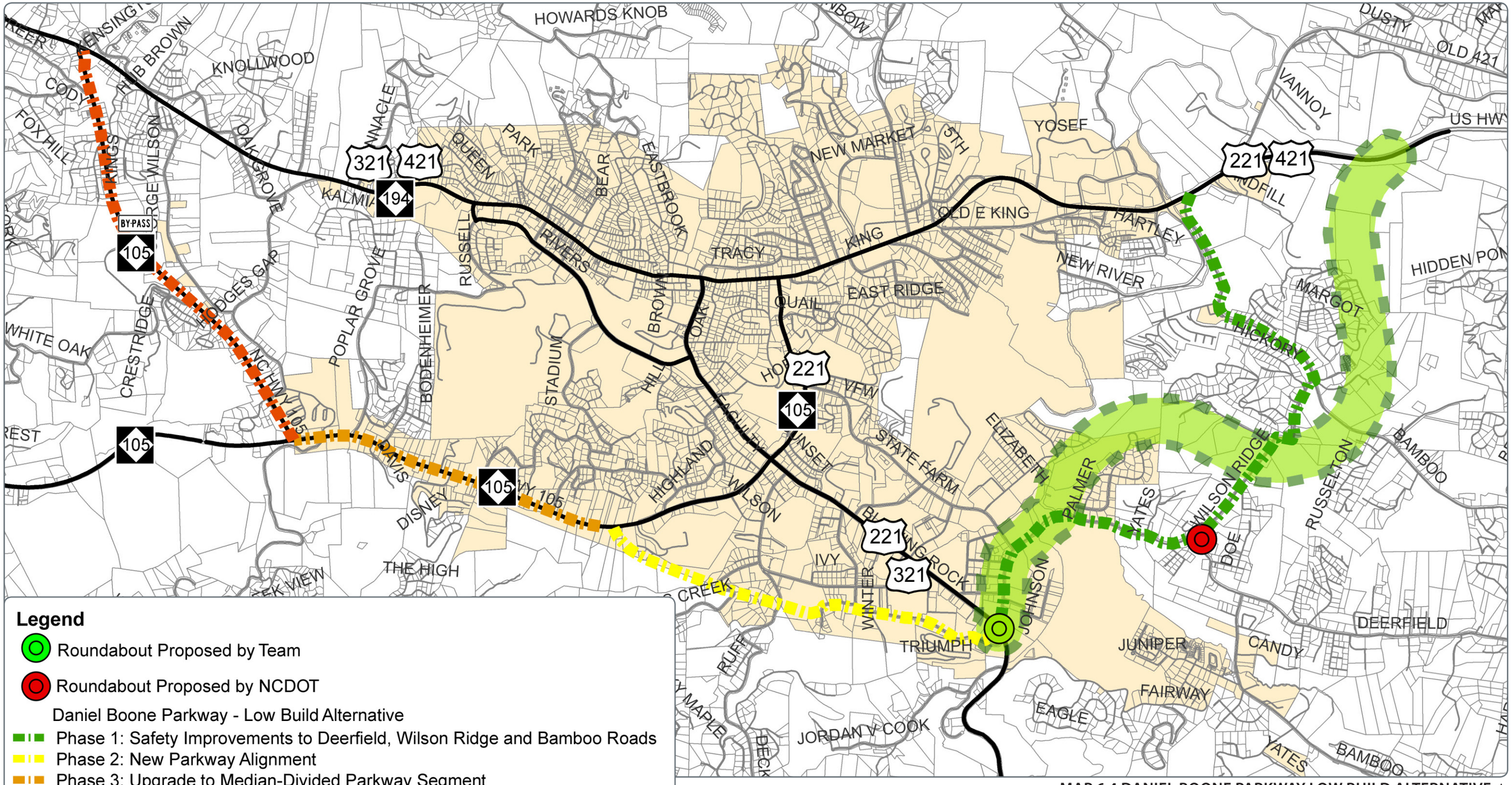


PHASE 2: TWO-LANE PKWY SECTION ON NEW ALIGNMENT BETWEEN US 321 AND NC 105



PHASE 3: CONVERSION OF NC 105 TO FOUR LANE MEDIAN DIVIDED SECTION WITH TURN LANES

DANIEL BOONE PARKWAY



Legend

- Roundabout Proposed by Team
- Roundabout Proposed by NCDOT
- Daniel Boone Parkway - Low Build Alternative
- Phase 1: Safety Improvements to Deerfield, Wilson Ridge and Bamboo Roads
- Phase 2: New Parkway Alignment
- Phase 3: Upgrade to Median-Divided Parkway Segment
- Phase 4: Upgrade to three-lane cross section with spot median
- Phase 5-A: Future R.O.W. for Parkway

MAP 6.4 DANIEL BOONE PARKWAY LOW BUILD ALTERNATIVE ▲

Source: Kubilins

Downtown is the pedestrian-friendly heart of Boone

Source: Kubilins

Abuse of private parking is a common issue in downtown

ISSUES & OPPORTUNITIES

Boone's downtown is the vibrant, historic, mixed-use, and pedestrian-friendly heart of the town. Residents have expressed a desire to continue to enhance the pedestrian and bicycle accessibility of downtown while retaining mobility and access for motorists.

Parking in Downtown was the number one issue cited by the community during the charrette. Specifically, stakeholders noted that ASU students and visitors abused the available parking in Downtown, thereby constraining the availability of parking for patrons of the Downtown businesses. Another parking concern for the Downtown area was the use of private parking spots by non-patrons. These issues have led to a parochial attitude toward parking in Downtown, with signs threatening towing for abuse of private lots. Charrette participants felt there were opportunities to introduce more parking and make better use of the valuable land in the Downtown area with the introduction of parking garage facilities. This recommendation is also reflected in input from the ASU Campus Master Plan.

Stakeholders also expressed the desire to make Downtown more pedestrian- and bicycle-friendly. Howard Street serves as the "edge" between the Town and Gown environments of Downtown and the ASU campus. As such a seam, it is important to address the movement of ASU and Downtown patrons and vice-versa. Additionally, residents identified the need for additional high visibility or textured crosswalks, pedestrian countdown crossing signals, and bicycle racks along King Street to improve access for pedestrians and cyclists. Residents also articulated that bicycle safety could be improved at the intersection of King Street and Hardin Street.

For Howard Street, currently, the Town is preparing design plans for the western segment of Howard Street that would formalize the on-street parking while providing wider sidewalks and streetscape. Participants expressed interest in exploring options to continue the street taming to the segment of East Howard Street as redevelopment of that area occurs. Residents favored a "Woonerf", curb-less style, festival-street, that could be shared by pedestrians, cyclists, and motorists and closed for special events throughout the year.

Stakeholders expressed the desire to relieve traffic congestion along King Street by revising the on-street angle parking layout with back-in angle parking. Back-in parking is more efficient and reduces the amount of time that traffic is held up by parking activities, and is safer for pedestrians exiting the vehicles and loading packages. Stakeholders also suggested an assessment of the left turn signals and left turn storage at the intersection of King Street and Hardin Street as a potential for alleviating the congestion that continually occurs at this intersection.

DOWNTOWN PARKING SUPPLY ▲

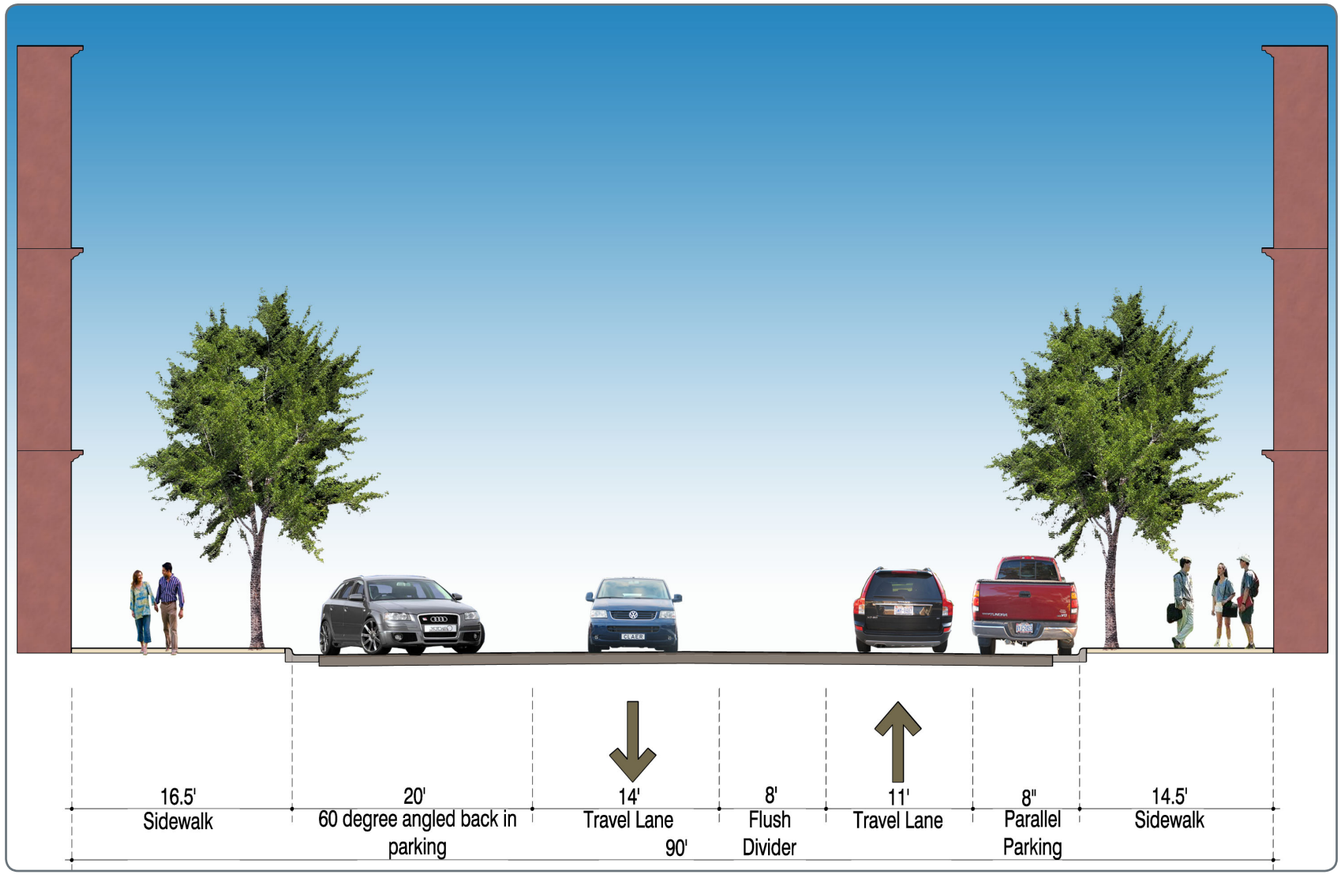
RECOMMENDATIONS

Improve Pedestrian and Intersection Safety. Conduct an analysis to determine the potential for additional high visibility crosswalks and pedestrian signals throughout the Downtown and left turn signals and extended left turn storage at the intersection of King and Hardin streets.

Consider Using Reverse Angle Parking. The angle parking on King Street can be converted to back-in angle parking to improve the flow of traffic along the street.

Conduct a Parking Study. The Town, the DBDA, and ASU should conduct a downtown parking study to explore opportunities for shared parking, including the construction of shared parking garage(s); and other aspects of parking management including parking fees, fines, etc.

Consider a Festival Street Section for Howard Street. A curb-less, "festival" street section on Howard Street should be explored with proposed streetscape enhancements extended to the segment of East Howard Street as redevelopment of that area occurs.



PROPOSED CROSS-SECTION FOR ▲ KING STREET WITH BACK-IN ANGLE PARKING

Source: Kubilins

An example of back-in angle parking on the main commercial street in the Adams-Morgan district of Washington, DC.

Source: Kubilins

Wall Street in Asheville is a good example of a curbless "festival" street (or Woonerf) that provides for vehicular access while emphasizing the pedestrian nature of the corridor.

US 421/EAST KING STREET WIDENING

Currently, NCDOT is completing construction plans for the proposed widening of US 421 between US 321/Hardin Street and NC 194/ Jefferson Road. The roadway today consists of four travel lanes with no median or turn lanes, except at major intersections. The proposed design adds turn lanes and medians while widening to the south side of the right-of-way. The widening will require a significant amount of additional right-of-way, which is proposed to be acquired from the south side of the roadway, facilitating a redevelopment of the properties along that edge. The opportunities associated with this redevelopment were explored, and a potential concept is detailed from a land use and urban design discussion in the Focus Areas section of this document.

From a transportation perspective, the widening of East King Street will improve motor vehicle capacity by allowing left turning vehicles to refuge in a turn bay rather than blocking the inside travel lane; however, the widening produces challenges to pedestrians and cyclists due to a faster vehicle travel speed, wider cross section, and additional width and turn lanes at intersections. Due to the late stage of design with the roadway plans, there is limited ability to modify or influence the major design elements of the roadway. During the charrette, there was concern that little consideration had been made for these modes of travel in the design plans.

Current conditions on US 421/East King Street.

Source: Kuhlins

High-visibility crosswalk

Sharrows indicate shared use travel lanes

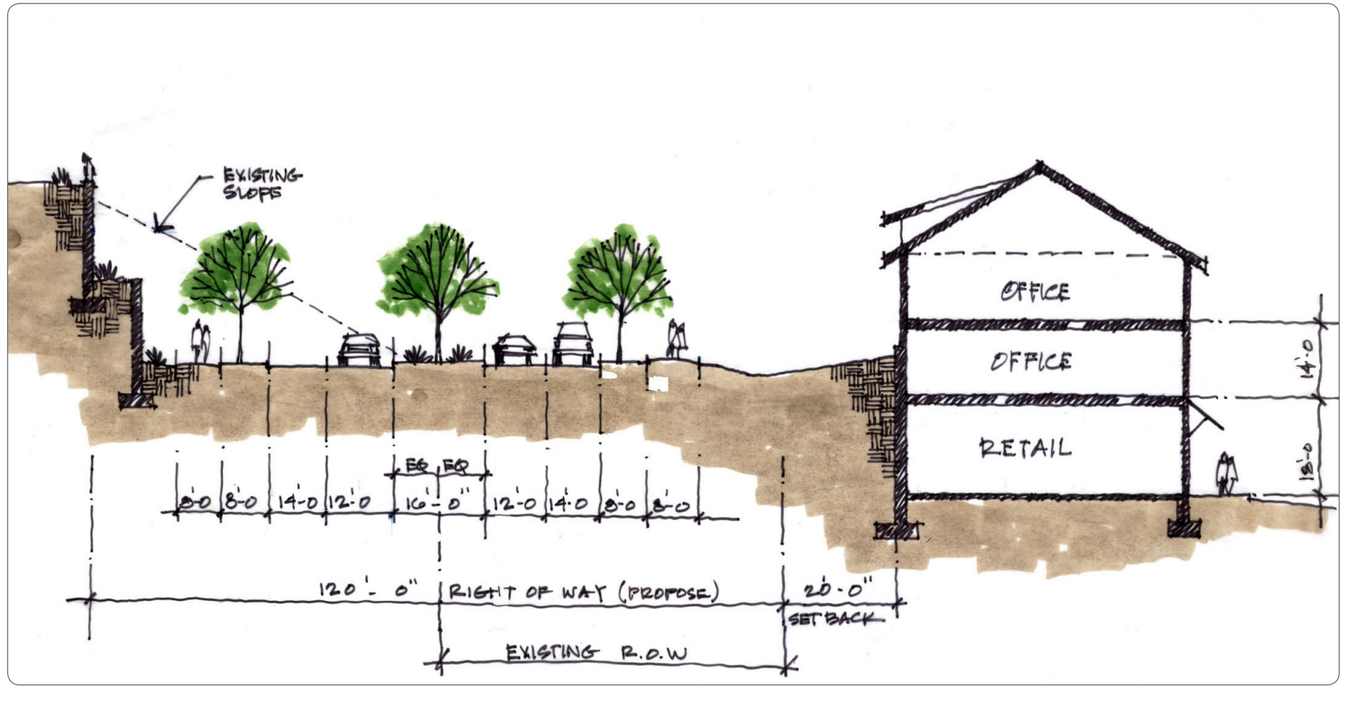
RECOMMENDATIONS

Implement Planned Pedestrian and Bicycle Improvements with the US 421 Widening. The Town should continue to be actively engaged in the early portions of project planning and design with NCDOT to insure that all modes and all objectives are being addressed in each and every project, and that the Town's vision as a leader in alternative transportation modes is reflected in all new initiatives regardless of the jurisdictional agency in charge.

The consultant team met with NCDOT and the Town of Boone, and suggested several minor modifications to the roadway design that could still be implemented at this stage while creating an enhanced environment for pedestrians and cyclists. The proposed section is illustrated at right, and it includes the following elements:

- A planted median instead of the concrete monolithic median as proposed to aesthetically soften the cross section;
- The use of high-visibility crosswalks at both signalized and unsignalized intersections; and
- The use of a "sharrow" marking on the wide outside lane to emphasize shared use with cyclists and to give guidance to cyclists on safe lane positioning

FUTURE CROSS-SECTION OF E. KING ▼



Existing conditions on 321 at KMart site

Proposed pedestrian-oriented form of development and streetscape at the same location.

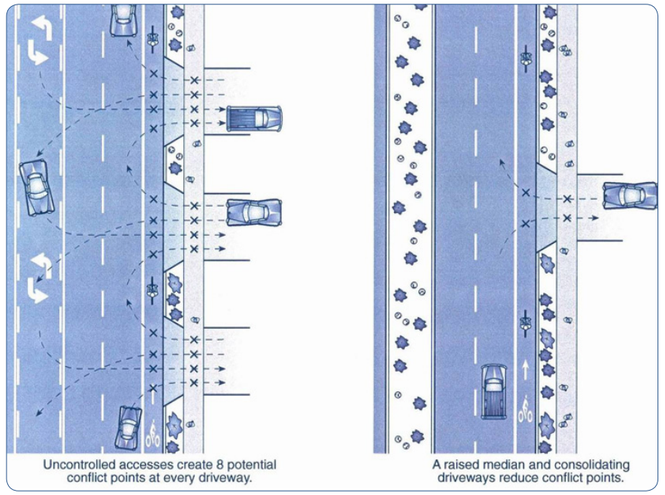
ISSUES & OPPORTUNITIES

Much of the community discussion surrounding the "worst" traffic congestion in the Town of Boone centered on the segment of US 321 south of the NC 105 intersection. Stakeholders pointed to the section of US 321 from the NC 105 intersection to Deerfield Road as one of the most congested and least attractive segments of roadway within the Town. Multiple driveways, lack of parcel interconnectivity, little parallel network, and auto-oriented land uses all contribute to this segment of US 321 carrying not only through, inter-regional traffic, but also short auto trips between multiple destinations on the corridor. Compounding the auto-dependence of the corridor is a lack of or very poor quality pedestrian and bicycle facilities, and the orientation of the land uses toward strictly automotive access.

Considerable time was spent during the charrette to determine a strategy by which the corridor could be modified to support more sustainable multi-modal forms of travel and land uses. Select blocks were analyzed from a land use and urban design standpoint to develop redevelopment scenarios that are more mixed use and walkable in nature as opposed to auto-dependent (See Focus Areas section).

Consolidation of driveways and cross-parcel accessibility is a shorter-term initiative that would lessen the conflict points along US 321 and reduce the dependence on the road for each and every trip. The image at right above illustrates how this concept can be accomplished through the closure and consolidation of driveways, connection of adjacent parcels through parking lots, and shifting of primary driveway access to side streets instead of US 321. Elimination of these various friction points along US 321 will improve vehicular safety, relieve congestion, and afford other connections among uses for non-motorized modes of travel.

As the land uses along the roadway change over time from an auto-dominated form to more mixed-use and walkable uses, there will be a need to fully address the retrofit of the US 321 cross section. Growth in traffic volumes will likely require that additional capacity be provided within the corridor. Some of this additional capacity can be supported through the inter-parcel connections and ancillary parallel roadway network proposed as part of the interim strategy. In some cases, such as on the east side of the US 321/NC 105 intersection, topography will preclude the provision of a parallel network.

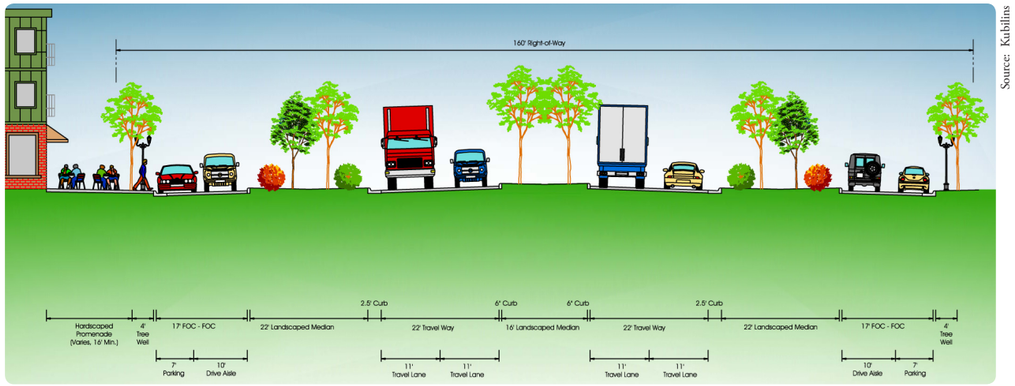


Source: Oregon DOT

Existing conditions on US 321 between NC 105 and Rivers Street. Uncontrolled access, frequent driveways, and limited or low quality bicycle and bicycle facilities add to congestion and safety problems for all users along the roadway.

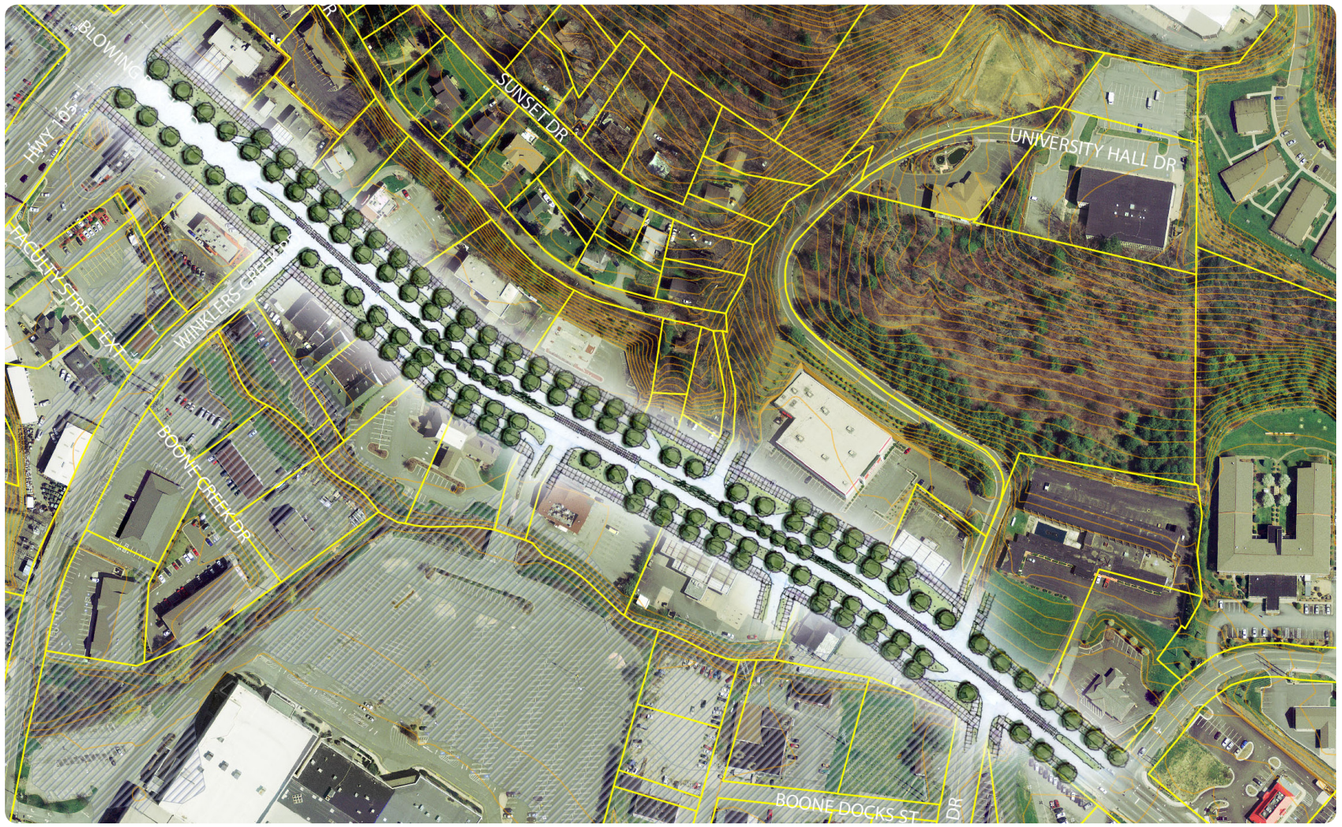
While there will likely continue to be a push to widen the facility to deal with future growth, a concept was developed during the charrette that would mesh cohesively with the proposed urban, walkable form of development envisioned for the corridor. Use of a multi-way urban boulevard concept would allow for development to front the roadway in a walkable manner but still provide the roadway capacity afforded by two additional lanes. The major difference is that the two additional lanes would be physically segregated by a median and would be much lower speed, including pedestrian facilities and on-street parallel parking as shown in the cross-section illustration at right.

Many jurisdictions are considering the use of the multi-way boulevard as a retrofit to auto-oriented arterials in conjunction with redevelopment to a more urban form. The Esplanade in Chico, California, Octavia Boulevard in San Francisco, and Pacific Avenue in Vancouver, British Columbia are three examples of constructed urban multi-way boulevards in North America. Virginia is also currently considering two proposals for these type facilities as retrofits to major arterials in suburban retail contexts similar to US 321. Coincidentally, they are also both US Highways: US Route 29 through Fairfax and US 17 through Bealeton. US 421 through North Wilkesboro is constructed with some elements of an urban boulevard, including frontage streets and connected out parcels. However, the land uses in this section are decidely not urban.



Source: Kubilins

▲ TYPICAL URBAN BOULEVARD SECTION



▲ CONCEPTUAL URBAN BOULEVARD PLAN FOR US 321

RECOMMENDATIONS

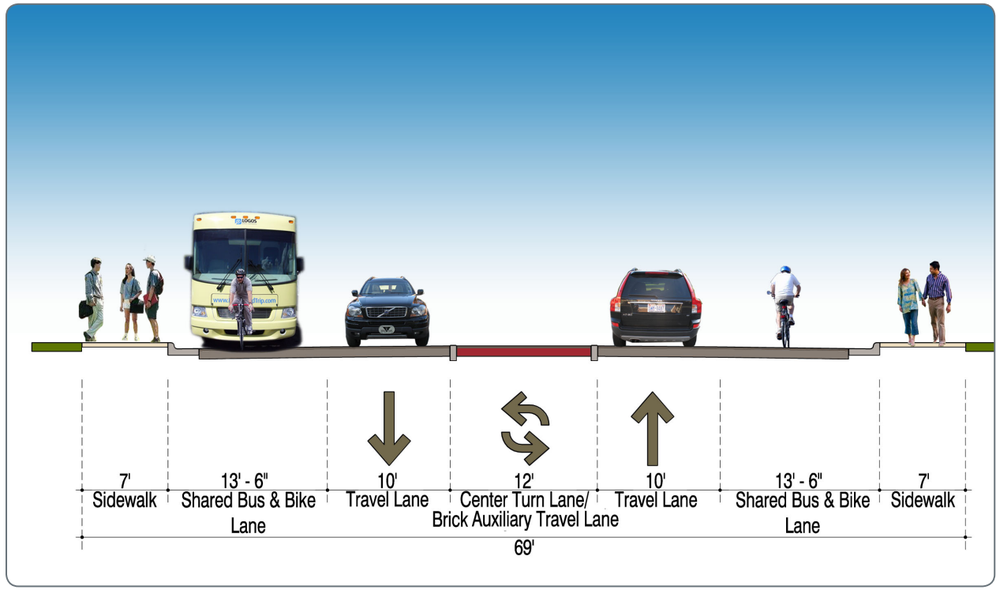
Consolidate Driveways and Develop Cross-Parcel Connections. Where opportunities exist, the Town should work with property owners in the near term to consolidate driveways and establish cross-parcel access to decrease conflict points along US 321 and reduce the dependence on the road for every trip.

Consider an Urban Boulevard as One Possible Long-term Solution for US 321. This is a long term vision that would include walkable, parallel access roads along US 321.

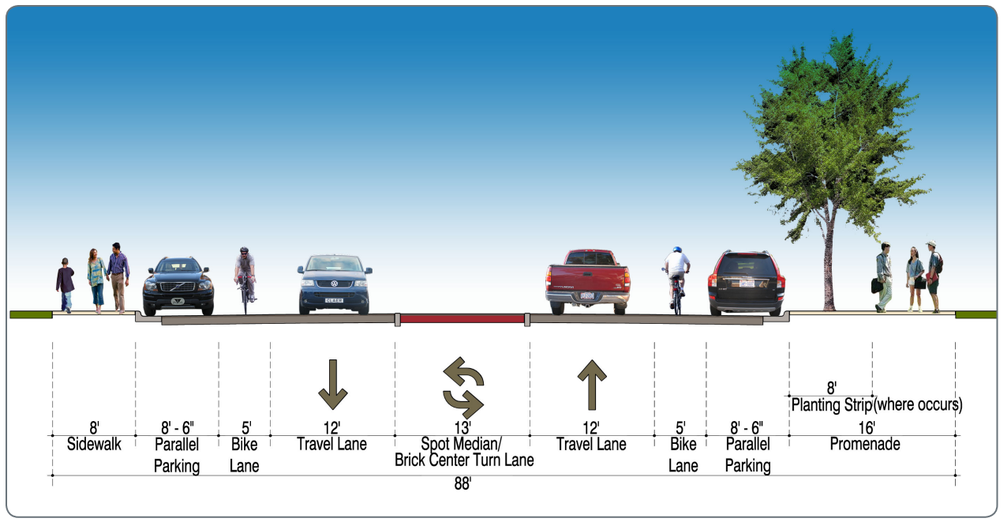
Implement Pedestrian and Bicycle Improvements to Corridor. In the meantime, the Town should ensure that pedestrian enhancements to the US 321 corridor be made as part of the proposed US 321/NC 105 safety initiative, including high-visibility crosswalks, corner islands, and countdown pedestrian signals. In addition, the Town and NCDOT should study options for bicycle lanes or other bicycle facility (e.g. sharrows) feasibility along the corridor and identify parallel bike route/ trail locations, potentially connecting to Blowing Rock.

Source: M. Ronkin

Bike lane added to a 5-lane commercial corridor through travel lane narrowing, which also contributes to increased safety for motorists and decreased speeding.



▲ PROPOSED RIVERS STREET CROSS-SECTION



▲ PROPOSED HARDIN STREET CROSS-SECTION

Reallocate Space on Rivers and Hardin Streets to Other Modes of Transportation

The Hardin and Rivers Street corridors are the front door to the university area. Each street is a four lane cross section with center turn lanes, sidewalks at back-of-curb and no bicycle facilities or parking. Both Rivers Street through campus and Hardin Street from US 421/ King Street to Rivers Street have excess roadway capacity that could be reallocated to create a street that is safer for all users and at the same time more walkable, bikeable, and attractive, while adding needed on-street parking.

Cities throughout the United States have completed such conversions from 4 or 5 lanes to three lanes on streets with similar or higher volumes. In general, what they have found is that motor vehicle volumes stay about the same or even increase; that pedestrian and bicycle volumes increase; that traffic safety improves and crashes decrease; that parking utilization increases; and that property owners adjacent to the street are pleased with the conversion. All of this is possible simply by restriping the existing roadway. No widening is required.

Given the traffic volumes along the two corridors, there is also potential to introduce a gateway roundabout to keep the traffic flowing and improve safety at the intersection of Hardin and Rivers streets and announce the entry to the campus precinct, as well as to provide the transition from the four lane section on US 321 to the proposed three-lane sections on Hardin and Rivers Streets. Currently, the northbound lanes on Hardin Street transition to one through lane at the Rivers Street intersection, which reinforces the viability of a reduction in the number of through lanes on Hardin Street.

◄ PROPOSED ROUNDABOUT AT RIVERS & HARDIN STREETS

ADDITIONAL ROADWAY NETWORK CONNECTIONS AND ENHANCEMENTS RECOMMENDATIONS

During the course of the charrette, consultants and stakeholders identified additional opportunities for roadway connections and enhancements to create additional route choices in Boone. One such option was the Deerfield Road to the Blue Ridge Parkway connection, which is sometimes used as a bypass around Boone when the parkway is open. This route also includes the Bamboo Road route as the eastern segment of the Daniel Boone Parkway Low Build Alternative. NCDOT anticipates making some safety enhancements to this route in preparation for its use as an alternate route to US 421 while construction is being completed on the East King Street widening.

Provide Additional Roadway Connections and Safety Upgrades

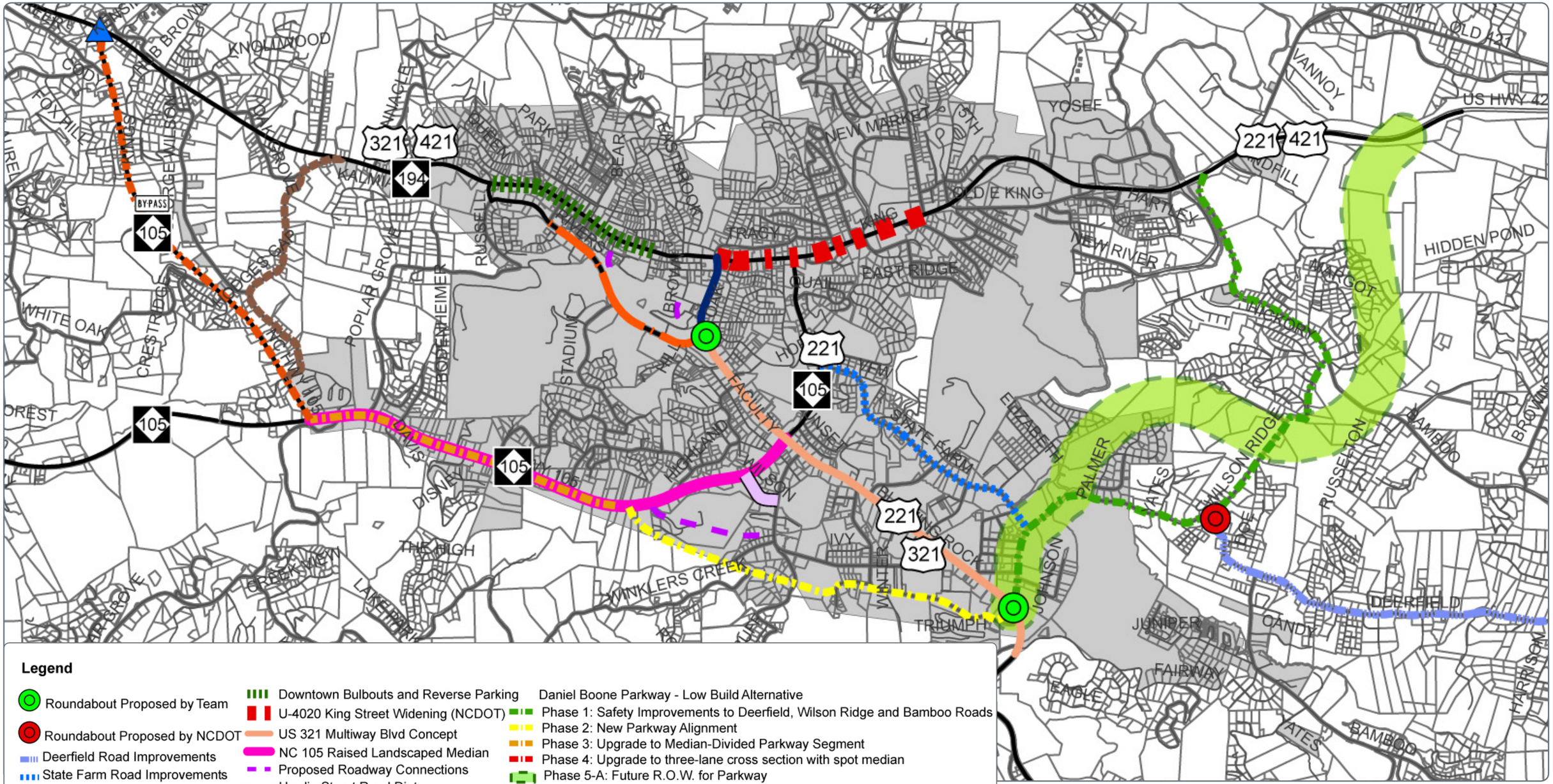
To provide additional regional and local network and facilitate the use of minor corridors as more local connections, safety upgrades are needed along several roadways or intersections, including:

- Deerfield Road, between Wilson Ridge and the Blue Ridge Parkway
- Hodges Gap Road (convert to a three-lane alignment between NC 105 Spur and US 421)
- State Farm Road (convert to three-lane alignment between NC 105 and Deerfield Road)
- Appalachian Street (from King Street to Rivers Street on the university Campus)
- The US 421/NC 105 Spur/Old Bristol Road intersection reconfiguration

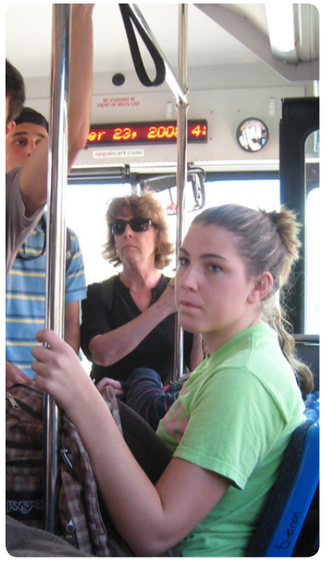
The connections and enhancements noted above are not intended to serve large amounts of regional vehicular traffic. Rather, they are collectively intended to improve overall access and mobility choices within these areas in concert with the goals of the 1994 Alternative Transportation Plan and the recommendations in this plan.

A composite illustration of all proposed roadway initiatives is presented in Map 6.5 on the following page. These roadway enhancements will help to provide a truly interconnected, redundant network to facilitate accessibility, mobility, and growth within Boone in a context-sensitive and multi-modal manner.

OTHER ROADWAY RECOMMENDATIONS



MAP 6.5 OVERVIEW OF PROPOSED ROADWAY PROJECTS ▲



Appalcart is the Transportation Authority serving all of Watauga County with 10 fare-free bus routes in the Boone area, and 10 van routes throughout the county. The bus system has always provided a transit option for students and non students since January 1980 when it began and all 20 routes are open to the public. With the growth in miles of service and passenger trips over the years, AppalCART is now at a critical point with its facility. Space is at a premium, and a facility review recently done by a consultant hired by the NCDOT recommended looking for a larger site. With the town, county, and university all growing, the need for public transportation has never been greater.

Information adapted from www.appalcart.appstate.edu/EN/US

A great point of pride for the Boone community is its outstanding transit system which is offered fare-free by the AppalCART public transit authority. AppalCART is the transportation authority serving all of Watauga County. A coordinated effort by local, state, and federal governments, human service agencies and Appalachian State University has enabled AppalCART to offer consolidated public transportation since 1980.

In 2008, an astounding 1.15 million trips were made on AppalCART buses; on some routes ridership increased over 100% from the previous year (See Map 6.6 on the following page). Unfortunately, the growth in demand has exposed some of the limitations of the system, with buses that are full bypassing patrons waiting at stops. Coupled with a space constraint at its maintenance and storage facility, AppalCART finds itself as almost a victim of its success. The space limitations for acquiring and storing new fleet vehicles should be alleviated by an imminent move to a new facility at NC 105 Bypass and US 421, but funding constraints still limit the amount of expansion that can take place at any one time.

As the Town of Boone continues to rebalance the transportation system to be multi-modal, a synergy of alternative modes of travel will be created and demand for transit services will continue to grow. The continued growth in the array of transit services will play a vital role in community livability. Desires from the community during the charrette focused on a larger local AppalCART fleet and more frequent service; aesthetically pleasing stops and shelters similar to those on the ASU campus provided community-wide; and enhancement of the inter-regional service currently offered by Piedmont Area Regional Transit (PART) from Boone to Winston Salem and Greensboro to include a stop at the Piedmont-Triad International (PTI) airport. Additional interregional services such as service to Raleigh and Charlotte were also an expressed desire. Finally, the charrette participants expressed a desire for more intercept park-n-ride lots on the periphery of the community, so that they could transfer to a bus prior to entering the developed areas of Boone.

Transit services have successfully knit the Boone community together and have provided accessibility throughout the Town for the entire population. To ensure that continued quality of Boone's transit services, it will be important that transit service programs, including park and ride facility locations, shelter facilities, service information, and other elements continue to be designed and managed based on the needs expressed by local residents, students, visitors, and workers of the Town and region.

RECOMMENDATIONS

Continue to Improve and Expand Appalcart services. This should include improving headways (times between buses) to less than 7 to 10 minutes during peak times and less than 20 minutes during off-peak times, and extending services to 2 a.m. or later on weekends. This should also include the introduction of new services serving Meadowview Apartments via the Purple Line, along the Deerfield Road Corridor to serve the new nursing school, and US 421 west of NC 105 Spur.

Improve Communication of Transit Service Information. With online real-time bus arrival updates on the Appalcart Website, including time to destination and number of available seats and improved signage and schedule information at bus stops.

Establish Park-and-Ride facilities at community portals. Key locations should include US 421/NC 105 Bypass, US 321 South, US 421/NC 194, and others to capture commuters before they enter the community.

Continue the implementation of bicycle racks on buses. These racks expand the transit catchment area by up to 12 times over the walking catchment area. Appalcart should track rack utilization and if capacity becomes an issue, 3-bike racks and other higher capacity options should be explored.

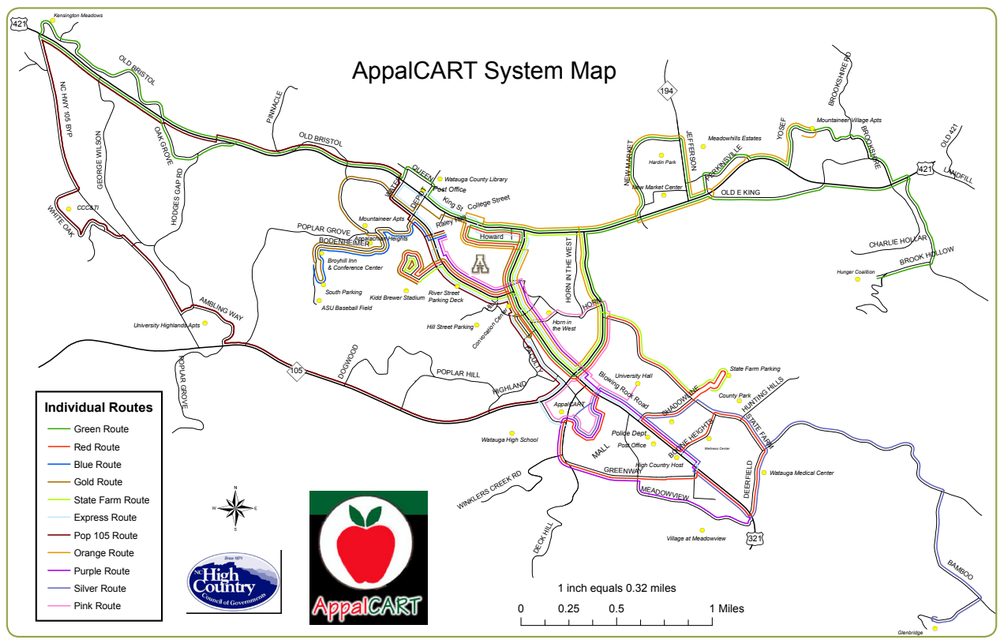
Establish weather protected transit shelters. These should be similar to those on the ASU campus and be introduced a key transfer points and other high ridership locations.

Consider expansion of regional bus services to additional locations. Locations should include Charlotte, Raleigh, Asheville, Hickory and regional Airports, including the extension of the Greensboro line to provide a connection with the Piedmont Triad International (PTI) Airport.

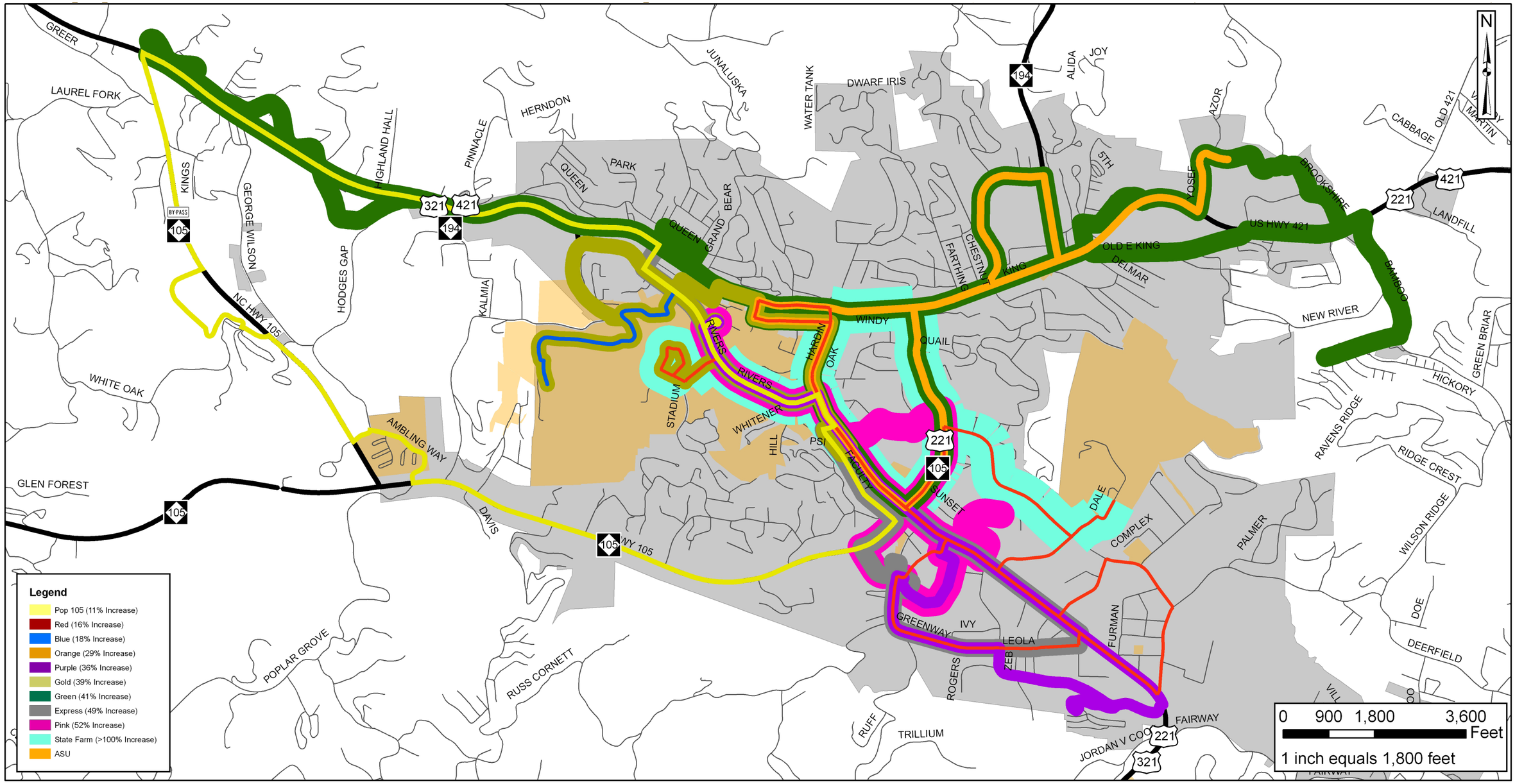
The recommendations listed above are represented graphically in Map 6.7 on page 80.

AppalCart provides in invaluable service to the citizens of Boone and the surrounding areas.

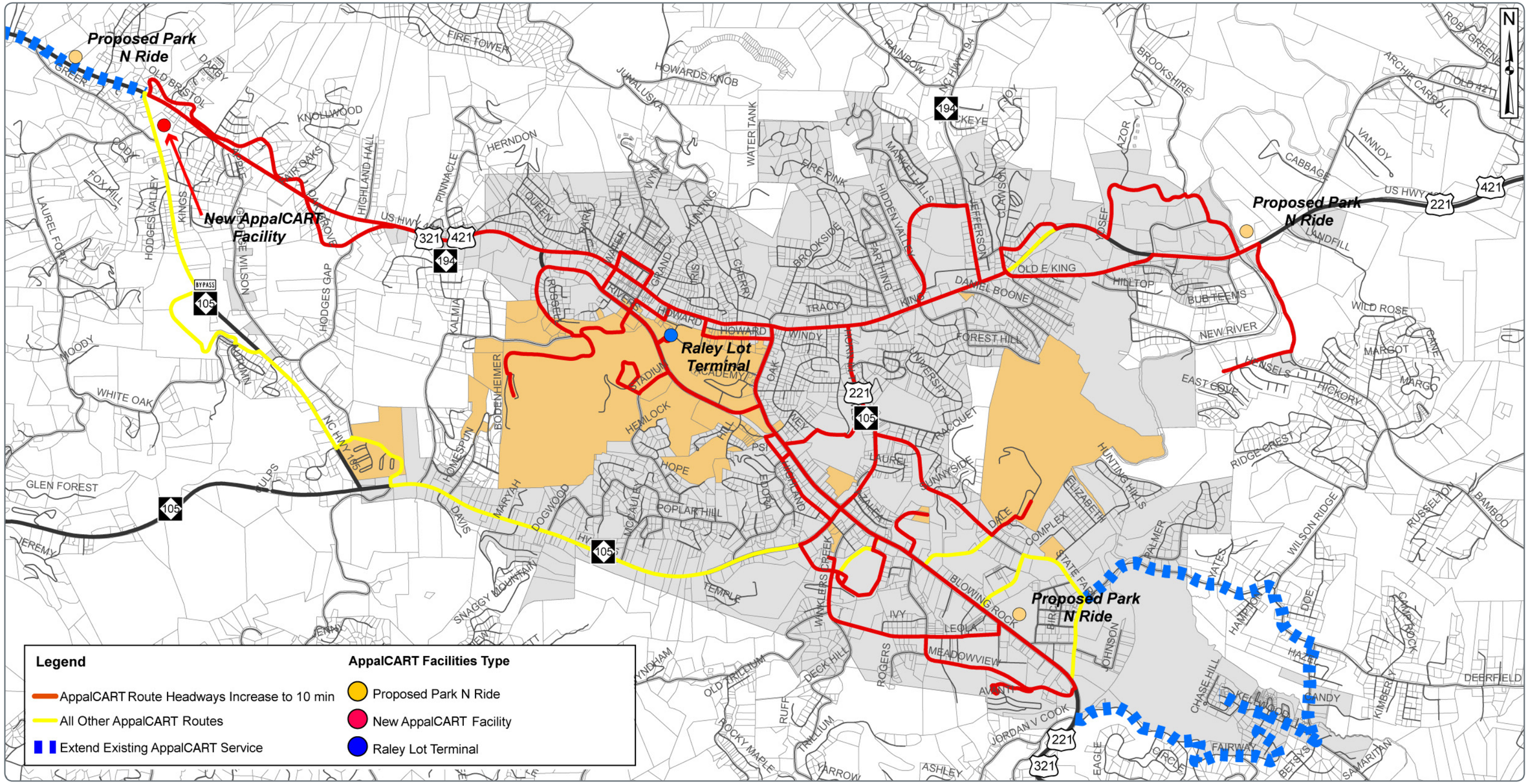
APPALCART ROUTE MAP ▼



TRANSIT RIDERSHIP INCREASES 2007-2008



MAP 6.6 APPALCART BUS RIDERSHIP INCREASE BY ROUTE (2007-2008) ▲



MAP 6.7 TRANSIT RECOMMENDATIONS ▲

BICYCLE AND PEDESTRIAN ACCESS & MOBILITY

Improvements to Boone's Bicycle, Pedestrian, and Greenway network was a clear priority for the stakeholders who provided public input and participated in the plan's development. In fact, in the public survey, pedestrian, bicycle, and greenway infrastructure were the top transportation priorities, the top priorities for public expenditures, and at the top of the list of overall community objectives, far and away above any roadway improvements.

To achieve the Town's vision of becoming a walkable and bikeable community with quality pedestrian and bicycle network similar to Boulder, Colorado or Davis, California, residents feel that it is necessary that the Town update the 1994 *Alternative Transportation Plan* with new bicycle and pedestrian plans.

Some of the improvements identified as part of the 1994 Alternative Transportation Plans that should be considered in an update should be inexpensive, "quick wins," such as signing and marking a roadway with a sharrow, restriping a road to allow bicycle lanes, or making bicycle maps and route information accessible to the public. Some can be completed through redevelopment and the opportunities afforded by roadway widenings or other roadway improvements. Others may require grant funding with a firm commitment by the community at large to champion the cause. With a formal commitment to bicycle and pedestrian mobility, the Town will be better positioned to secure grants from the NCDOT Bicycle and Pedestrian Division, including bicycle infrastructure grants, greenway grants, Safe Routes to School grants and others.

RECOMMENDATIONS

PEDESTRIAN FACILITIES

Complete a Pedestrian Master Plan. The Town should complete a pedestrian master plan to identify locations and prioritize funding for sidewalks, and Safe Routes to School facilities and safety programs. Such a plan can be partially funded through an NCDOT grant. Recommendations from the plan should be implemented through the Town's Capital Improvement Plan (CIP) and through State and local transportation and development projects. Consider partnering with the University for funding and implementation of the plan.

Make Changes to the Unified Development Ordinance. The 2007 Boone Smart Growth Audit recommended numerous changes to the Town's UDO that would create a more walkable community. These should be prioritized for integration into the current UDO.

Prioritize sidewalk construction around identified nodes and key pedestrian routes.

- Link disconnected segments of sidewalk around activity nodes in the Town.
- Provide additional sidewalks near the periphery of town, including King Street between Green Street and NC 105 Spur; and State Farm Road between NC 105 and Deerfield Road;
- Add side paths along Poplar Grove and Stadium Drive (cantilevered if necessary) to provide pedestrian access to the university from the south side
- Incorporation of an approximately 20 foot wide pedestrian promenade into the US 321 Multi-way Boulevard Concept.

Improve pedestrian safety at intersections and crossings. Improve pedestrian safety along major corridors through high-visibility crosswalks, activated strobe signage, pedestrian refuge medians, and lighting at appropriate locations. Provide pedestrian signal heads and countdown clocks at all signalized intersections within the Town.

BICYCLE FACILITIES

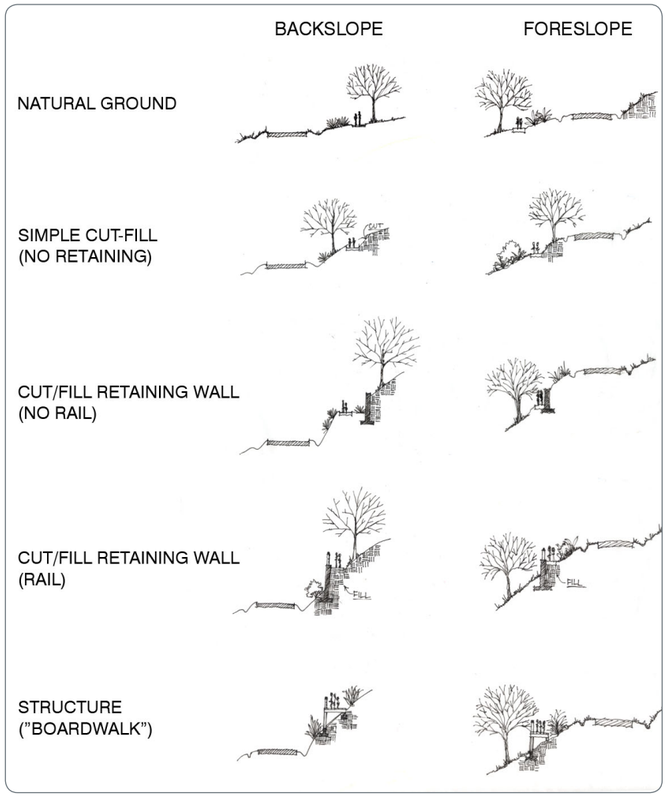
Develop Bicycle Facilities as Part of Proposed or Planned Roadway Projects. These recommendations were mentioned in earlier portions of the Transportation Section

- Add shared roadway bicycle markings ("sharrows") to the outside lane as part of the King Street widening project;
- Restripe Rivers and Hardin Streets to provide bike lanes or bus/bike lanes
- Explore opportunities for sharrows or bike lanes on US 321 and NC 105 and other major corridors
- Implement other bicycle facilities, including sidepaths where appropriate, as shown on Map 6.9.

Complete a Bicycle Master Plan. The 1994 Alternative Transportation Plan was a great start for Boone and the recommendations in this plan build upon that vision. However, a more detailed study and recommendations for a bicycle network (including on-street facilities, greenways, and neighborhood connections), and program of bicycle education, enforcement, and encouragement and evaluation is necessary to achieve the community's goals. Such a plan can also be partially funded by NCDOT and should include participation from ASU.

GREENWAYS

Expand the Existing Greenway. Extend existing greenway termini west to Boone Mall and the university, North to Brookshire Park, and connect with the new high school.



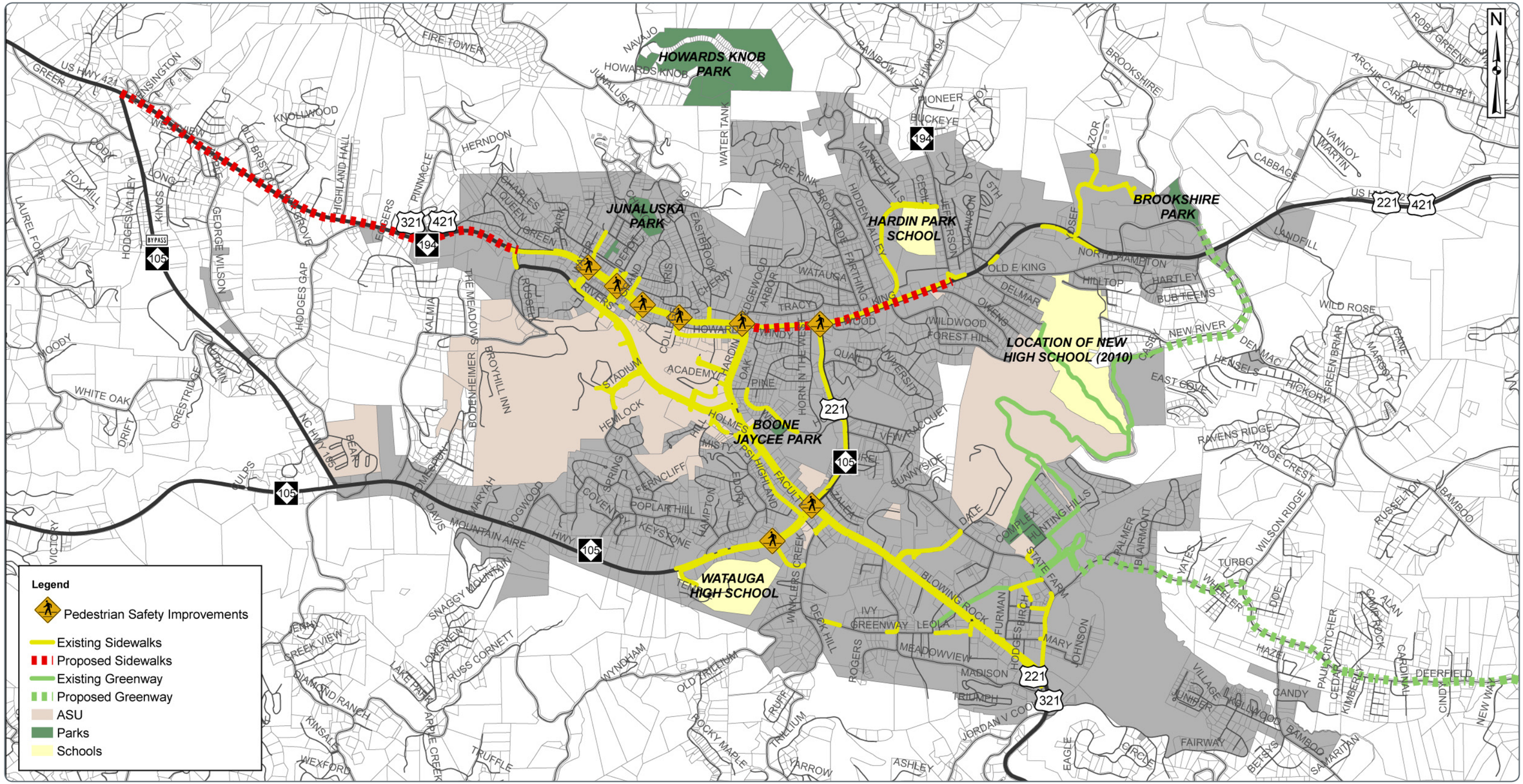
OPTIONS FOR SIDEWALKS OR PATHS ON SLOPES ▲

Plan and Implement the Middle Fork Greenway. Investigate opportunities to obtain funding for the Middle Fork Greenway between Blowing Rock and Boone.

Link Neighborhoods and Destinations with Paths and Greenways. Link disconnected neighborhoods with greenways to make the community more walkable and bikeable.

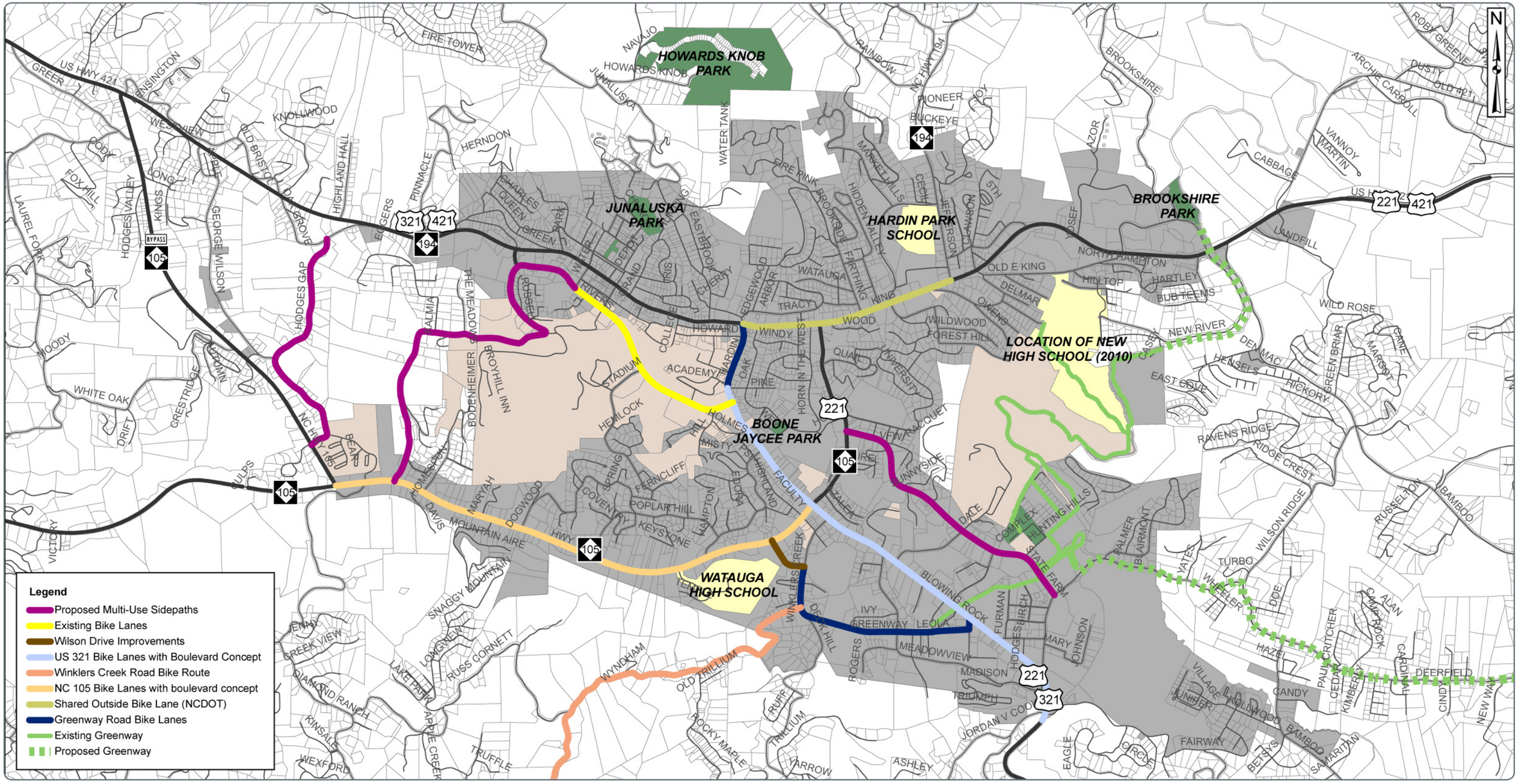
Investigate Boardwalks or Elevated Walkways. Investigate opportunities to develop greenways by implementing a boardwalk or elevated walkway on fore slopes or back slopes in mountainous terrain in order to reduce the need for retaining walls with sidewalks. One candidate corridor might include Poplar Grove Road.

PEDESTRIAN RECOMMENDATIONS



MAP 6.8 PEDESTRIAN INITIATIVES OVERVIEW ▲

BICYCLE & GREENWAY RECOMMENDATIONS



MAP 6.9 ALTERNATIVE TRANSPORTATION INITIATIVES OVERVIEW ▲

7: DOWNTOWN BOONE

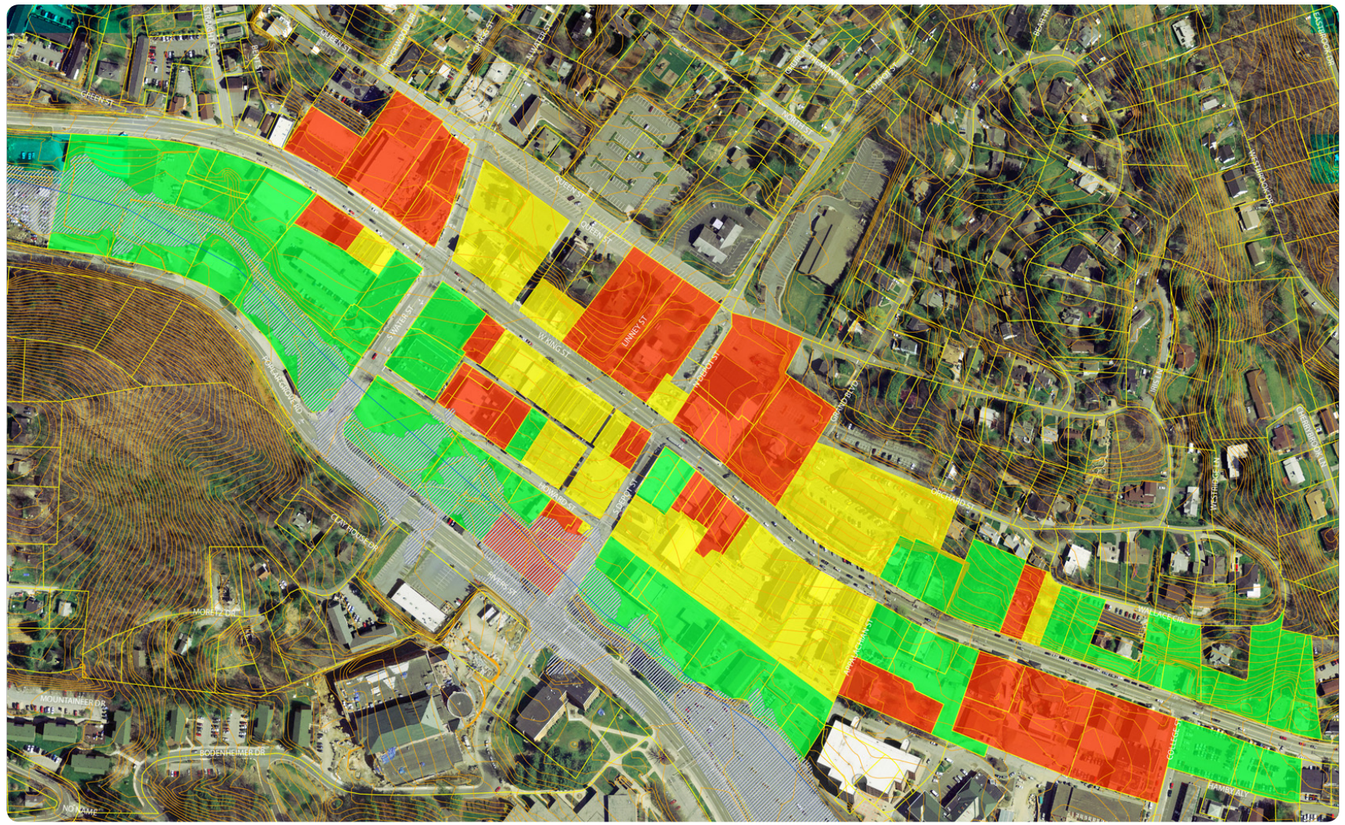
ASSESSMENT OF EXISTING CONDITIONS

Before beginning any design work, the project team conducted surveys of the study area in order to analyze the existing conditions in Downtown. The project team identified property conditions through several walking tours and windshield surveys, in addition to meetings with citizens, property and business owners, Town officials, and other stakeholders. Numerous members of the community participated in each part of the process, helping to guide the design team towards specific areas requiring extra focus. The Ripe and Firm Analysis map depicts the community's collective assessment of properties and conditions in the downtown area. It includes suggestions gathered before, during, and after the public charrette process.

The Ripe & Firm Analysis provides a working map that helps to evaluate the downtown's current property conditions. Parcels determined to be "Firm" are generally in their final building/land-use pattern and reflect the "highest and best use" according to real estate and appraisal forecasts. Such properties typically require little to no intervention, though improvements might further enhance their appeal.

"Ripe" properties, on the other hand, typically offer significant development/redevelopment opportunities. These include those parcels that are currently undeveloped, underdeveloped (able to accommodate additional on-site expansion/development), or in need of redevelopment (such as a vacant shopping center). Parcels appearing in yellow lie somewhere in-between, or the exact future of the property's future is uncertain/unknown.

This analysis enables the project team to focus efforts on specific, high-priority areas. It also helps to protect areas in the community believed to be important for their civic value or other community interests.



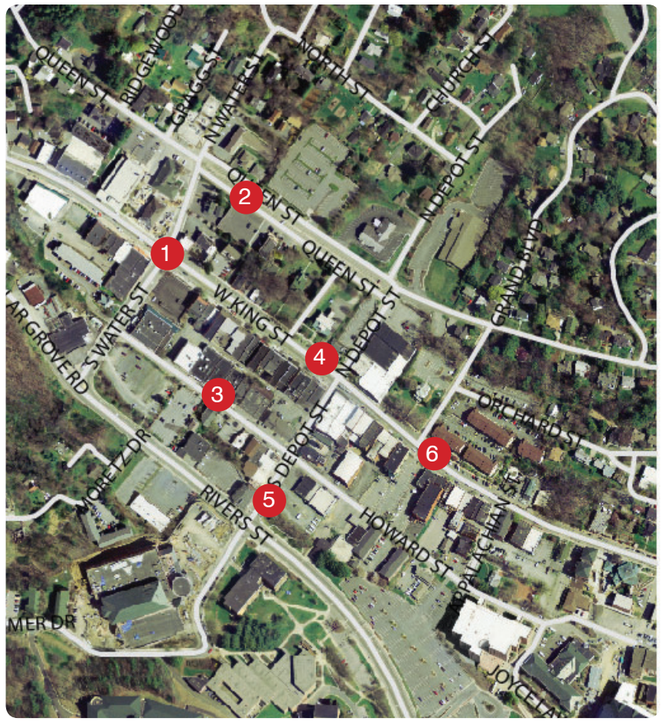
RIPE FOR DEVELOPMENT/ REDEVELOPMENT

POSSIBLE OPPORTUNITY SITE

FIRM (NO INTERVENTION NEEDED)

WALKING TOUR ASSESSMENT

Downtown Boone



	SITE 1: KING ST @ WATER ST	SITE 2: QUEEN STREET	SITE 3: W. HOWARD ST	SITE 4: KING ST @ DEPOT ST	SITE 5: DEPOT ST @ RIVERS ST	SITE 6: KING ST @ GRAND BLVD
COMFORT & IMAGE • overall attractiveness • feeling of safety • cleanliness/maintenance • places to sit	2.19	2.21	1.89	2.69	2.81	**3.21**
ACCESS & LINKAGES • parking availability • ease in walking • transit access • information/signage	2.67	2.64	2.09	2.90	2.72	**3.15**
USES & ACTIVITIES • mix of stores/services/destinations • events/activities • overall busy-ness • economic vitality	2.40	1.49	2.30	3.29	2.08	**3.52**
SOCIABILITY • small groups • casual interaction • sense of pride/ownership • presence of children/seniors	2.05	1.34	1.88	3.02	2.02	**3.22**
TOTAL AVERAGE SCORE	*2.33*	*1.92*	*2.04*	*2.98*	*2.41*	***3.28***

PLACE GAME

This tool was used during the public walking tour of downtown Boone to give the design team a sense of what areas the community values and what makes those "places" successful. More than 35 residents, business owners, and other stakeholders participated in the walking tour. Each individual scored the various areas of downtown using the survey sheet at right. The average scores for each area are reflected in the table above with 4 being the best possible score on the listed attributes and 1 being the worst score. Notes for each site written by place game participants is included in the Appendix.

SITE #: _____

Rate the Place:

COMFORT & IMAGE	POOR			GOOD
Overall attractiveness	1	2	3	4
Feeling of safety	1	2	3	4
Cleanliness/Quality of maintenance	1	2	3	4
Comfort of places to sit	1	2	3	4

Comfort & Image average rating: (sum/4) _____
Comments/Notes:

ACCESS & LINKAGES				
Visibility from a distance	1	2	3	4
Ease in walking to the place	1	2	3	4
Transit access	1	2	3	4
Clarity of information/signage	1	2	3	4

Access & Linkages average rating: (sum/4)_____
Comments/Notes:

USES & ACTIVITIES				
Mix of stores/services	1	2	3	4
Frequency of community events/activities	1	2	3	4
Overall busy-ness of area	1	2	3	4
Economic vitality	1	2	3	4

Uses & Activities average rating: (sum/4)_____
Comments/Notes:

SOCIABILITY				
Number of people in groups	1	2	3	4
Evidence of volunteerism	1	2	3	4
Sense of pride and ownership	1	2	3	4
Presence of children and seniors	1	2	3	4

Sociability average rating: (sum/4)_____
Comment/Notes:

SUGGESTED DOWNTOWN IMPROVEMENTS

During the charrette, a list was generated by listening to the public's long term and short term visions for the downtown area. The ideas included:

SHORT TERM IMPROVEMENTS

- More benches
- Companies pay for benches (art contest)
- New street paint (Depot & River) [Pedestrian cross walk enhancements]
- Pedestrian scaled lighting on King Street (north side very dark @ night)
- Consolidate signage/wayfinding
- Make bus stops more obvious (bus stops with benches)
- Direct people to parking with signage (use Raley Hall parking for weekends)
- Parking not perceived as quantity issue—may be in the future
- Private/public parking—perception of more private
- Speakers for music along King Street (Morganton, Hendersonville)
- Wi-Fi—coordinated zone for downtown
- Sidewalk cafes
- Nightlife has picked up in last year—makes safety even more important
- Better garbage cans
- Weekends—trash cans get full (need more frequent emptying)
- $35,000-$40,000 raised/donations
- Separate operations from capital (important)
- Revise downtown boundary (District tax 14 cents-could go to 21 cents)
- Need better retail mix (book store, ice cream parlor, newsstand, small grocery, city government center(fire, police, town hall)—already have lots of antique shops and t-shirt shops)
- Lighting (Depot from campus to King)
- Wayfinding Package (in house) [$80-100,000]
- No open/common space (can be small)—way to clean up dead spots
- Buildings are not up to code
- Bring families into downtown during later hours—need programming

LONG TERM IMPROVEMENTS

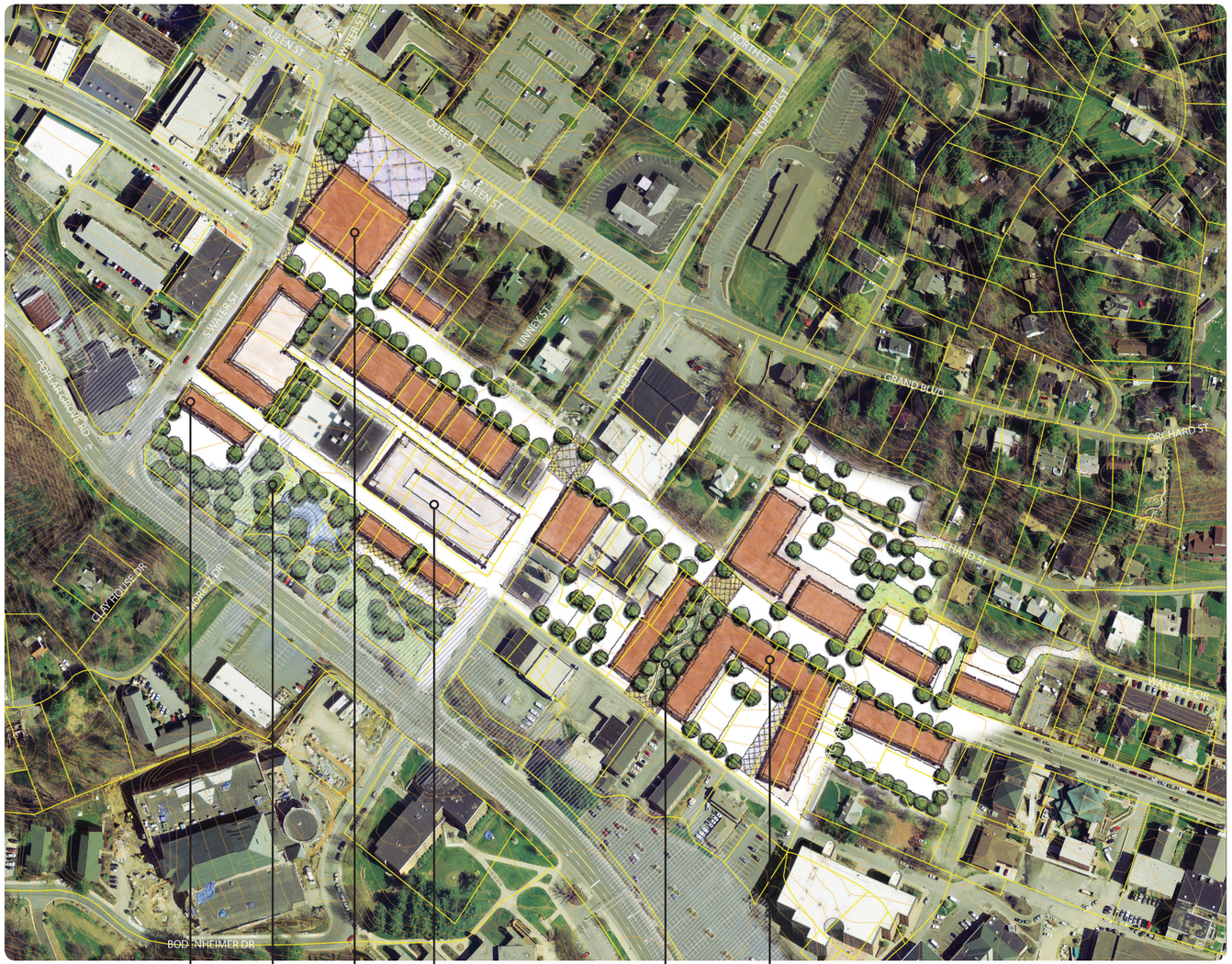
- Implementation!
- Uniform look in downtown
- Lacking quaint charm of… Banner Elk, Blowing Rock, etc—apply concept to the streets as many shops are doing
- Authentic/Balance ("We are real!") Don't be Helen, GA
- Traffic issues solved
- Parking requirements in downtown (change/reduce/eliminate)
- Parking (unsure where?)
- New investment and development in downtown
- Redevelopment of entire blocks (facilitate density)
- Planning & Inspections—need flexibility to minimize cost of rehab [goal to make it better than it is now]
- Developer wants market, cost, public commitment
- Need rehab code "How To" Guide, public workshops to educate craft circles
- Municipal tax credits
- Existing Façade Grant Programs, Community Development Grants, Sign Incentive Grants
- Provide business incentives—ability to turn a profit
- More dedicated revenue to reinvestment in downtown (parking tickets, etc.)
- $75,000 MSD tax

Participants in the downtown walking tour share their goals for the downtown area

EXISTING CONDITIONS ▶

EXISTING CONDITIONS

The downtown area explored during this process included the property along King Street between Appalachian Street to the east and Water Street to the west. Downtown Boone has a "small town flair and metropolitan spirit," that includes an eclectic mix of shops, restaurants, and services. This high country downtown is full of people who are devoted to its survival and revitalization and are a passionate and enduring population. This will remain a powerful asset as this area continues to evolve and grow. With over 70 businesses in this district, the streets are typically bustling with people and cars.



PROPOSED CONCEPT PLAN ▲

RECOMMENDATIONS

Complete a Comprehensive Downtown Master Plan. A more detailed and comprehensive master plan for downtown is in order. Such a plan would include a specific market assessment; a branding and signage package; a thorough parking plan; and detailed streetscape, urban design, and regulatory recommendations.

New signage & wayfinding package. A strong branding effort through signage and wayfinding can transform a downtown, and in the case of Boone, highlight many wonderful things already happening. The design package should remain true to Boone's eclectic nature and highlight the arts and crafts community present in the downtown.

Enhance streetscapes and introduce street furnishings. By planting uparching street trees along the southern side of King Street and in appropriate locations on the northern side, a needed visual rhythm through this corridor will be created. Traffic naturally slows in tree lined sections and the four seasons of beauty can enhance the entire ambiance of the downtown. With little effort and expense, items such as benches and trash receptacles can produce a great starting point for larger enhancement projects. The Town should take advantage of the talented artists within the community and perhaps commission each one to design and construct a bench for the downtown area.

Daylight the creek south of Howard Street and create a downtown park area. Opening up this area and revitalizing it for better stormwater practices will offer not only drainage benefits but green space benefits to the urban core of the Town. This design choice would also produce a natural transition between the downtown core and the university.

Make Howard Street an eclectic and innovative artist's alley with a mix of uses. An opportunity exists to create a back alley condition of interesting live work units along Howard Street. The plan envisions gallery space in the lower levels and lofts above (i.e. an artists-in-residence program)

Introduce strategic infill and height in appropriate locations. The concept plan illustrates specific building and even entire block opportunities for strong mixed use infill within the downtown. Taking advantage of the grade change from King to Howard offers the benefit of additional height on the low side without impeding on the traditional height conditions along King.

Extend Appalachian Street as a through street or path. Taking Appalachian through to Rivers Street would offer route choices in maneuvering around downtown and to and from the University.

Develop shared parking structures in partnership with the University. The Town and University could each benefit from the location of parking structures within the downtown area. By joining forces, efficiencies are produced in design, construction, maintenance, and revenue. The concept plan illustrates a deck at the corner of Howard and Depot Streets. This location offers the benefit of being convenient to the patrons and business owners of King Street while being one block away from the University's northern boundary. The University's Master Plan shows another potential shared deck near King and Hardin Streets.

Create a green pedestrian alley/public space between King and Howard Streets. A small surface parking area currently resides at the midblock of downtown. The concept plan suggests turning this space into a landscaped pedestrian alley and linear park. The experience should be enhanced with tree, shrub, and flower plantings as well as a curvilinear pathway connecting the parallel streets.

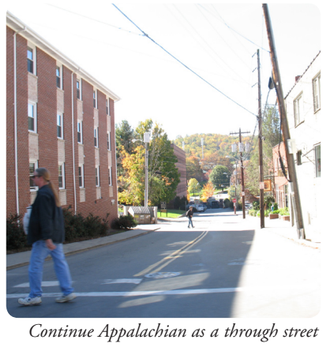
Branding package for Germantown, TN

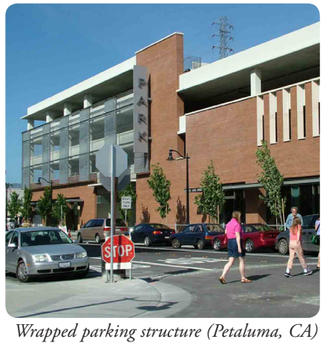
Street trees (Boulder, CO)

Daylight the creek

Eclectic alley street (Boulder, CO)

Promote appropriate mixed use infill (Boulder, CO)


Continue Appalachian as a through street



Wrapped parking structure (Petaluma, CA)

Green pedestrian alley (Davidson, NC)

DOWNTOWN INFILL OPPORTUNITY

▲ EXISTING CONDITIONS

APPROPRIATE INFILL

One of the efforts at the charrette involved determining the appropriate types of infill for downtown both architecturally and in terms of scale. The concept for this prominent King Street corner is to replace single story buildings with three-story, mixed-use structures in the same location. The new buildings are consistent with existing buildings in design and massing and provide an opportunity to triple the square footage on the site and allow for additional uses of the upper stories such as office space or residential units. Participants at the charrette agreed that buildings should be no taller than four stories on King Street.

PROPOSED INFILL ►

MIXED USE INFILL AT HOWARD AND WATER STREETS

▲ EXISTING CONDITIONS

APPROPRIATE INFILL

While charrette participants agreed that four stories was an appropriate height for King Street, they stated that taller buildings would fit along Howard Street and other locations in downtown. The concept on this page shows a redevelopment concept for the existing single-story building with a six-story mixed-use building with retail on the lower level and residential units facing the restored creek above. Because Howard Street is lower than King, the overall building height would be similar to the buildings on King Street.

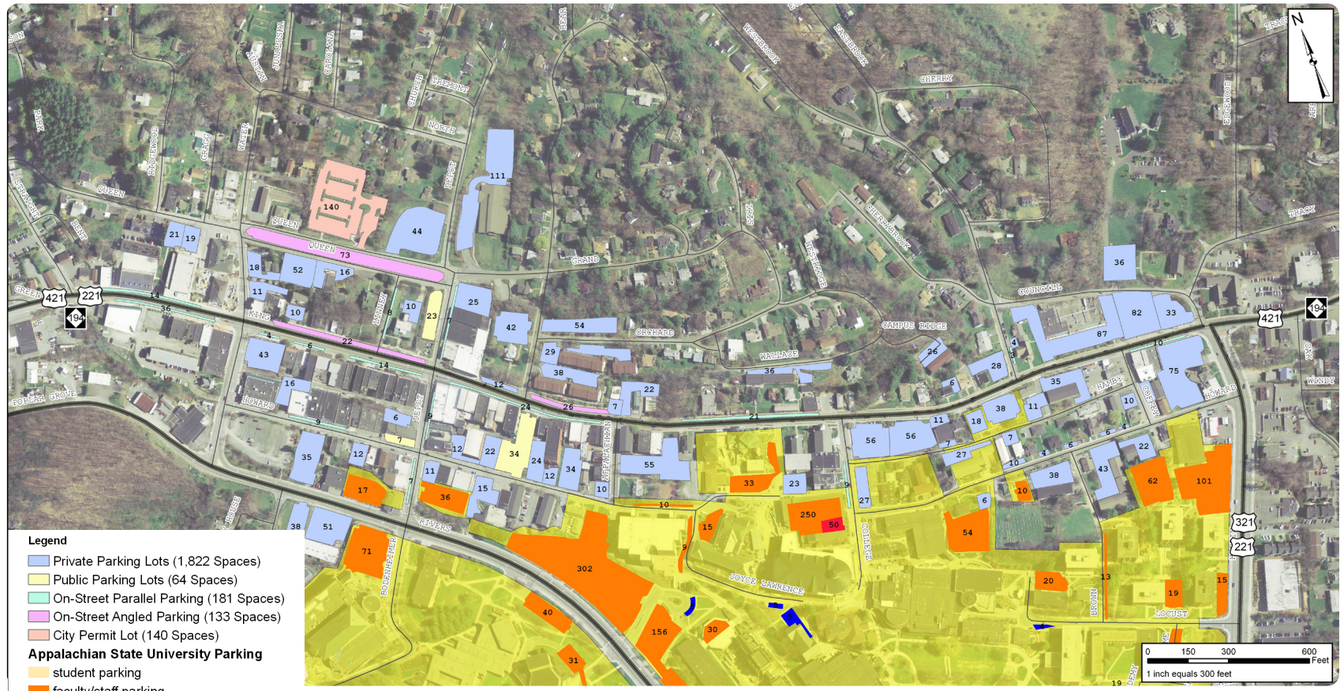
PROPOSED INFILL CONCEPTS ►

Many people that express parking concerns likely desire closer parking rather than more parking. A preliminary downtown parking inventory was completed for this plan. The diagram on this page shows the existing public surface parking lots and on street spaces. Future decisions regarding public parking (on-street and off-street) should be made based on this accurate supply and demand data. Urban Land Institute (ULI) recently published shared use parking characteristics for land uses. The shared use concept suggests the ability for various land use activities to share a particular supply of parking without impediment. Different land use activities (commercial, public, residential, etc.) exhibit different parking demands throughout the day allowing for a more efficient use of parking supply.

Effective management of on-street parking spaces is critical to providing adequate and convenient access for residents, business owners, and customers to shops, stores, offices, and homes. While hourly restrictions are in place along some streets, inconsistent enforcement and insufficient penalties fail to influence parker behavior. Many of the remaining parking spaces – those on adjacent side streets, residential streets, and alleys – are mostly unregulated. Parking spaces in the most desirable parking locations should be priced to promote turnover for retail customers and maintain a 15% vacancy rate. Variable pricing throughout the day may be needed to deal with differing parking demand. On the "main" downtown streets, two-hour parking restrictions are recommended to be implemented, signed, and enforced.

The Town should evaluate the following strategies to help maximize the use of existing parking facilities and help promote continued infill development Downtown:

- Designate and enforce "A" streets (primary pedestrian corridors) for 2-hour on-street parking
- Provide more publicly-owned parking in strategic locations (i.e. not on "A" streets)
- Enhance the design and lighting of public parking
- Provide specialty signage that is clear and direct for motorists entering downtown. Parking signage should work in concert with an enhanced way-finding strategy for the downtown. In addition, kiosks and brochures for downtown should include locations where public parking is permitted and encouraged.
- Develop a parking strategy for larger-scale trip generators (Town, County, and University buildings)



Downtown parking supply diagram

Metered parking north of King Street

Flyer promoting downtown businesses and parking

THE COMBINED DOWNTOWN & ASU VISION

The northern boundary of Appalachian State University abuts Boone's Downtown District and creates the intersection of "Town & Gown." While the Town was going through this planning process, ASU was simultaneously updating their campus master plan. In fact, the design teams for each process were all from the same firms and conducted parallel charrette processes. The efficiencies of this decision by both parties was most evident while looking specifically at how the University interfaces with Downtown Boone.

Promote mixed use infill along King Street. The illustration to the right demarcates the University's proposed northern boundary in orange while red and blue buildings are proposed infill construction for the updated campus master plan. Both plans placed an obvious emphasis on the enhancement of the building articulation along King Street. As the "Main Street" of the Town, buildings along this corridor should be pulled close to the street with wide sidewalks and enhanced streetscapes.

The red buildings on the ASU master plan represent proposed new university-owned buildings. The blue buildings represent privately developed mixed-use buildings that might serve university-related uses (residences, offices, and retail). The campus master plan also reflects another potential shared Town-ASU parking deck location at the eastern end of King Street.

Continue the conversation. The concurrent charrette process began to open up the lines of communication between the Town and the University. This plan suggests continued meetings as both plans are implemented over the coming months and years.

Town & Gown intersect in Boone

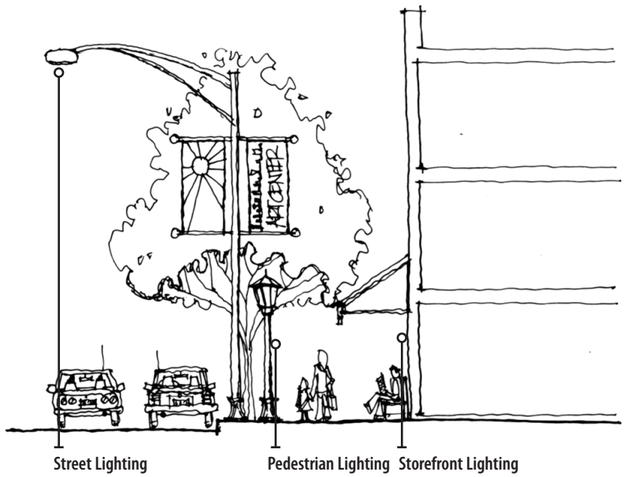
URBAN DESIGN & RETAILING PRINCIPLES FOR DOWNTOWN

The following general principles are representative of best practices for downtown development, redevelopment, and retailing. These principles are incorporated in nearly all successful downtowns and shopping environments.

NIGHTTIME LIGHTING

There are three basic zones of lighting a downtown - street lighting, pedestrian lighting, and storefront lighting. The first two are generally effective but due to spacing and obstructions such as street trees and signage can have long shadows and dark areas. The most effective way to supplement these areas is with indirect lighting cast from shop front windows. Simple lighting of display windows can provide a measure of security to pedestrians by ensuring an even allocation of light on the sidewalk area.

One of the best ways to promote nighttime activity in the downtown is to encourage downtown business owners to leave their display window lights on at night, at least until a certain hour. The light cast from storefront windows not only provides for an enhanced sense of security but it also serves as an effective marketing tool by enabling merchandise to be better displayed and gives the sense of activity and excitement.



DISPLAY WINDOWS

In this same vein, storefronts should be attractively arranged and regularly changed. Mall stores are often required to change out their display windows at least every week so that regular shoppers will get the impression that their is a new selection of merchandise for sale. Of course, this is also a function of how often the average shopper returns to a store. If the average customer comes into the store every two weeks, then the display should be changed that often.

As part of the encouragement to rotate displays, a downtown organization should consider a quarterly award to the best window display. This award should carry with it a cash incentive to be used on storefront improvements as a further incentive for facade reinvestment. Awards should be given for the best individual window display, the best overall displays over a period (quarterly or annually) as well entering all merchants who rotate their window displays at least once per month during the year into a raffle for a third incentive prize.

Take lessons from national retailers in properly merchandising store fronts

15 RETAIL TIPS TO ATTRACT NEW SHOPPERS

1. Wash your windows at least once a week; wash your front door daily because it is so visible.
2. Polish your brass door handle or scrub your aluminum knob weekly. First impressions matter.
3. Scrape off old stickers from windows-Visa, MasterCard, etc. It is assumed that you take plastic in today's retail environment.
4. If you don't take plastic, begin immediately. It is a proven fact that shoppers using plastic have larger average sales that those using cash.
5. Remove old posters and window clutter so shoppers can see into your store. Look inviting to curious eyes.
6. Post your hours on the door so shoppers know when to come back and make a purchase.
7. Change your window displays frequently. The Gap changes its windows once a week.
8. Replace burned-out light bulbs so your store looks maintained and well lit.
9. Increase the wattage of light bulbs throughout your store. Have you shopped in Benetton lately?
10. Leave your display window lights on at night to highlight your merchandise 24 hours a day. Your windows are free advertising!
11. Remove bars on your windows to show shoppers that the neighborhood is safe. Don't feel comfortable doing that yet? Move the bars inside to the back of the display window.
12. Replace your yellowed Plexiglas windows with clear glass. All the cleaning in the world won't make a difference if your windows look dingy.
13. Ask your customers what they like about the appearance of your business and what they would like to see change. Then, implement the suggestions.
14. Go on vacation. When you come back, you will have a fresh perspective. Walk through your store with a pad in hand and jot down anything "you never noticed before" that should be repaired, cleaned, upgraded, or replaced.
15. Hire a part-time employee and ask what he or she would change. Or, assign your new employee to make the upgrades!

Retail Tips compiled by William McLeod, Executive Director of Barracks Row Main Street at bmcleod@barracksrow.org or 202-544-3188. Adapted from article in Main Street News, October 2003.

INTERIOR MERCHANDISING

As part of the facade improvements, retailers in particular should also consider the merchandising of the front of the store's interior. While high shelving packed with goods may appear that a store has a wide selection they need to be properly arranged according to basic shopping tendencies.

As a general rule the highest margin items, the goods that retailers make the most money from, should be placed in the front of the store. Low margin, routine items such as milk, dog food, and bread should be placed in the back of the store so that patrons will have to walk past other products that they might "want" before purchasing the item that they "need." A downtown business group would be an appropriate organization to work with retailers to encourage such practices.

STOREFRONT SIGNAGE

In an eclectic district like a downtown where pedestrian activity is expected to be heavy, it is inappropriate to encourage suburban-style signage standards for storefronts. Specifically, merchants should consider the use of projecting signs and three-dimensional signs as a way to not only advertise the store but also to add ornamentation and detail to storefronts. It is important to note that the current code prohibits this type of signage so a code change will be necessary to implement this recommendation.

Storefront signage must be clean and concise. Signage on the glass should maintain the opacity of the window so as not to obscure viewing into the store. Store hours should be clear and regular. All signs in the windows should be professionally prepared. Avoid hand made signs that look cheap and unattractive as they will give the potential buyer the impression that the contents inside the store are as equally unappealing.

In addition to wall signs and under-canopy signs which should be provided for nearly every storefront, there are a number of buildings that should consider using wall murals for their end walls as they turn down the block. Wall murals were historically used by individual manufacturers such as Coca-Cola to advertise their products. These, of course, were replaced by billboards when the age of the automobile overtook the downtowns. In many communities, these murals have become part of the nostalgia of the area and in fact, are being replicated in new suburban locations such as at the SouthPoint Mall in Durham as a way to break up large blank walls.

A facade improvement grant program could be examined with incentives that may be distributed. The program should also include signage and should specifically encourage new and interesting signage types.

PROMOTE PUBLIC ART

What differentiates a true urban environment from a shopping center is the level of detail that adorns the public realm. Many communities have incorporated fun and educational artwork into their sidewalks and public spaces.

The Town could consider initiating an "Adopt-A-Square" Program with the local arts community and schools for the creative placement of civic art within the sidewalks throughout the downtown district. For example, a brass two-dimensional Daniel Boone figure or other references to Boone's history and future could be embedded into the concrete of the sidewalk. This type of artwork is not expensive, can easily be expanded and adds interesting features for pedestrians as they walk.

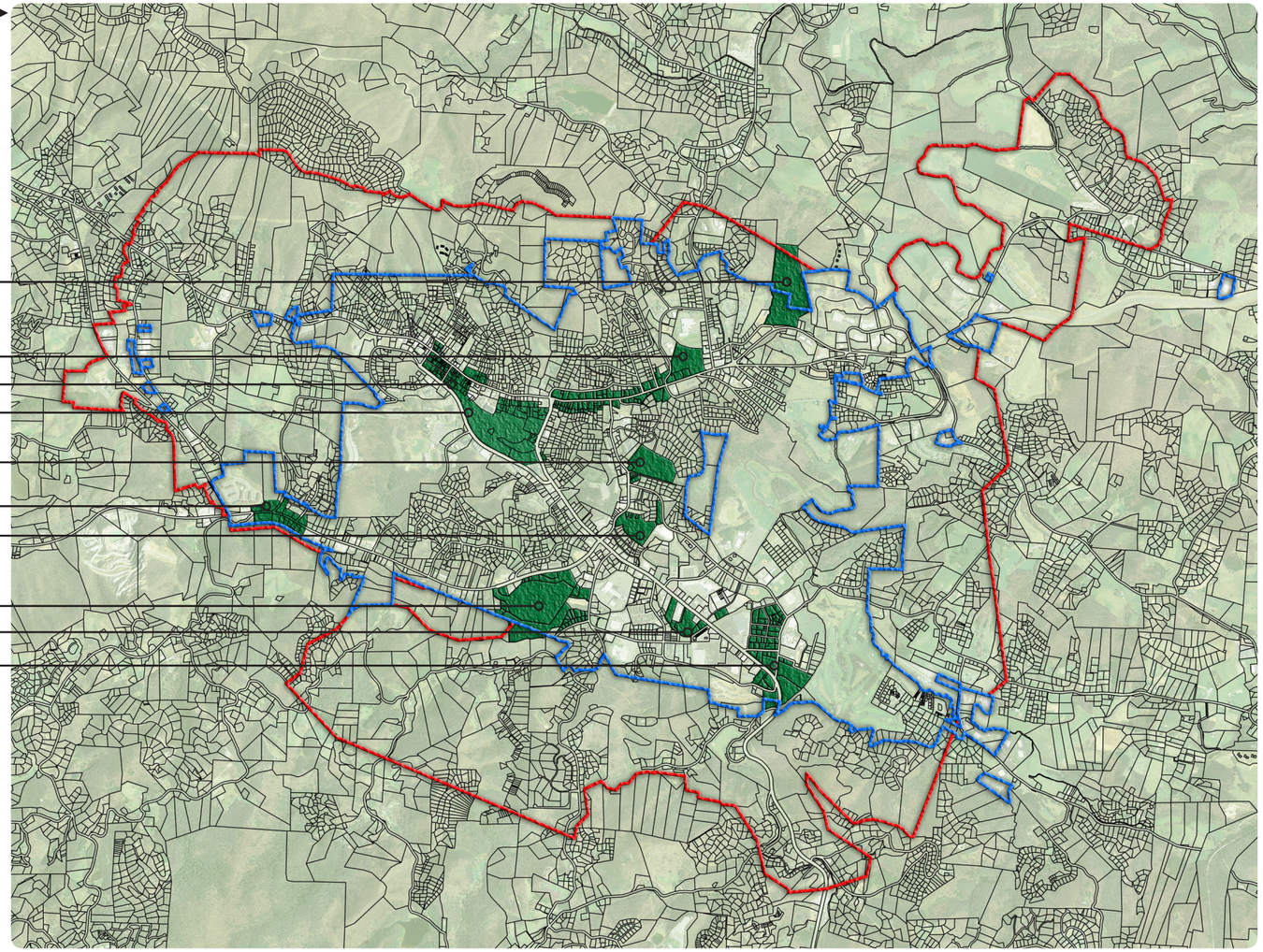
The Town should also encourage the placement of free-standing statuary and other forms of dimensional art work. Specifically, the Town should reserve locations for public art around all public buildings and facilities, such as the proposed Town Hall Plaza. Whimsy is encouraged as a way to enliven spaces and maintain a child-friendly focus.

Public art with a seat in Asheville, NC

Encourage new signage on storefronts

8: FOCUS AREAS

CATALYST SITE OPPORTUNITIES MAP ▶



The plans shown in this section are intended to be conceptual build-out visions for significant and prototypical areas of Boone. The purpose of these conceptual plans is not to require strict conformance to each building or parcel as drawn, but to show general patterns and intensities and potential development/redevelopment opportunities that are consistent with the community's goals. These conceptual plans are also meant to illustrate the desired development principles that have been articulated by residents and stakeholders. Care was taken in the design process to envision development alternatives based on property boundaries or known opportunities for parcel consolidation as well as the market feasibility for the scale, amount, and type of development.

While the illustrations shown in this section are preferred build-out alternatives created with public input and review during the charrette process, the conceptual plans are not intended to preclude site-specific modifications. It is assumed that any modifications will be the result of specific programmatic and market analysis.

Future development and redevelopment proposals for these sites should be expected to reflect the following aspects of the concept plans: the general street network; street connections and rights-of-way; open space areas and usable public spaces; general intensity of development; urban pattern (relationship of buildings to the streets and adjacent properties); building massing; street and pedestrian circulation patterns. Further, developments on these sites should mix uses both horizontally (within sites) and vertically (within buildings), where appropriate.

The conceptual development plans laid out in this plan were created with the assumption that their implementation would be accomplished primarily through private and/or institutional investment, with willing buyers and willing sellers and *not* through eminent domain. Although there will be roles for government investment in implementation of these concept plans (e.g., infrastructure improvements, public facilities, and development and enforcement of regulatory standards), the primary mechanism for accomplishing the physical vision embodied in these concepts will be the initiative of property owners, developers, and business owners in concert with the Town's adopted policy and regulatory processes.

OLD HIGH SCHOOL SITE

▲ OLD HIGH SCHOOL SITE EXISTING CONDITIONS

EXISTING CONDITIONS

This catalyst site is home to Watauga High School which is planning to move to its new location currently under construction near US 421. Access to the site is from NC 105, and the area currently houses school buildings, sports fields, and surface parking.

RECOMMENDATIONS

Several approaches were taken for the redevelopment of this site. The two illustrated here represent the most economically viable solutions for the site.

Option A: Redevelop the site as a research campus. As a research campus, this site could bring technology-based jobs to the region. Research campuses in college towns like Boone are often great partnership opportunities between national or international companies and the local university and Town.

Option B: Redevelop the site as a mixed use village. Another approach to the redevelopment is a large scale retail village with a mixed-use, pedestrian-oriented configuration. Many communities are using the lifestyle center/town center model as a way to increase density without decreasing the quality of the shopping or living experience. The concept illustrated could accommodate one large box store such as Target and four smaller boxes such as Dick's Sporting Goods, Barnes and Noble, a movie theater, etc. The mixed use nature of this development allows for over 400 residential units to be located above businesses. Parking would be housed in decks that are wrapped by the development and limited convenience parking along the main boulevard of the village.

Make future connections. The retail village development illustrates circulation connections from NC 105 to a proposed future alignment of the Daniel Boone Parkway south of the site and also connects the development to Wilson Drive and Winklers Creek Road.

▼ RESEARCH CAMPUS

▼ RETAIL/MIXED-USE VILLAGE DEVELOPMENT

DEVELOPMENT POTENTIAL: RESEARCH CAMPUS

Research Facilities: 537,600 sf

Parking: 2,266 spaces

DEVELOPMENT POTENTIAL: RETAIL DEVELOPMENT

Mixed Use: 313,400 sf

Housing: 448 Units

Parking: 2,034 spaces

NEIGHBORHOOD CENTER AT NC 105 & POPLAR GROVE

EXISTING CONDITIONS

This site is located at the intersection of NC 105 and Poplar Grove Road with limited development currently on the site.

RECOMMENDATIONS

Develop a neighborhood center to serve the surrounding residents. A small neighborhood center could be developed in this location that would provide service retail elements such as dry cleaners, coffee shops, and salons. The form of the development is still urban in nature with the buildings set along the street frontage and parking hidden in the rear. Most of the buildings would be one level with perhaps one or two being two levels with a mixture of residences and/or offices above.

Improve and enhance the transportation features of this area. This new development concept illustrates an opportunity to bring Poplar Grove Road into NC 105 at the preferred ninety degree angle. Improvements to the landscaping along NC 105 include street trees and median planting strips where appropriate as well as sidewalks and bike lanes where right-of-way permits.

▲ EXISTING CONDITIONS

▼ NEIGHBORHOOD CENTER PROPOSED DEVELOPMENT PATTERN

DEVELOPMENT POTENTIAL

Neighborhood Retail: 121,800 sf

Parking: 401 spaces

PRECEDENT IMAGES ▶

The images to the right are taken from a neighborhood center development in Cornelius, North Carolina. The buildings are single story and address the street to create a walkable environment. All parking for the development is hidden behind the buildings.

COTTAGE INFILL HOUSING ON STATE FARM ROAD

Image Source: Allison Ramsey Architects

Mountain-style cottage house designed for the Sanctuary Village infill development in Franklin, NC.

EXISTING CONDITIONS

This site is bounded by NC 105 to the west and State Farm Road to the east. Oakdale and Overlook Drive create the northern boundary, and the neighborhood along Sunset Drive creates the southern boundary. The site has steep topography and is currently an undeveloped, wooded site.

RECOMMENDATIONS

Encourage a low impact neighborhood. By preserving the woodland areas along the edges of the neighborhood, it is not visible from the streets and homes in close proximity. The topography was respected when laying out the circulation of the neighborhood and determining where home sites would be most appropriate. Small lot single family cottages would be most suitable for a site of this nature. Limited commercial or mixed-used development along Oakdale Drive near the 105 Extension is an infill opportunity that would fit well with the development pattern in this area.

Make connections to the existing roadway network. A winding connection to State Farm Road is necessary because of the difficult topography between the neighborhood and the street. By extending Overlook Drive, a new connection to Laurel Drive is created giving more options to new and existing residents to access State Farm Road. A road stub is indicated for future connections if redevelopment of the existing industrial property on State Farm Road occurs.

Consider the incorporation of workforce housing in the design. Moderately priced housing is a critical need in Boone. The town or a non-profit housing provider could partner with the developer to provide some housing in this neighborhood for residents who earn between 80 % and 120% of the area median income.

◄ EXISTING CONDITIONS

▼ COTTAGE HOUSING DEVELOPMENT PATTERN

REDEVELOPMENT OF THE DRIVING RANGE ON NC 105 EXTENSION

EXISTING CONDITIONS

This site is located at the intersection of NC 105 Extension and Horn Avenue and currently houses a driving range. Beverly Heights Avenue bounds the site on the south, and University Circle bounds the site on the north. This is a prime infill opportunity for new development near the center of the Town.

RECOMMENDATIONS

Encourage the redevelopment of the driving range with mixed use development, residential units, and common open space. Continuing Horn Avenue across the intersection creates a gateway into the site that could be flanked by mixed use development. A welcoming central green area is the focal point of the development with neighborhood-scale shops/ offices and multi-family units overlooking the space. Single family lots are tucked behind a preserved green buffer on the upper hillsides of the site.

DEVELOPMENT POTENTIAL

Retail: 12,000 sf

Mixed Use: 8,000 sf

Housing: 30 Single Family Lots, 52 Multi-Family Units

Parking: 170 spaces

▲ EXISTING CONDITIONS

▼ REDEVELOPMENT PATTERN

GATEWAY DEVELOPMENT ON EAST KING STREET (421)

EXISTING CONDITIONS

This greenfield site is located along East King Street (US 421) and is a gateway location for the Town of Boone. The site was suggested by attendees at the charrette because it is currently undeveloped and because of its visible location as a gateway into the community from the east.

RECOMMENDATIONS

Make an architectural statement along the street frontage. The buildings located along this gateway frontage should be architecturally significant and speak to the vernacular character of Boone. Building materials should be indigenous to the region (e.g., stone and heavy timber) and native plantings should enhance the architecture.

Encourage the development of the site with conservation planning principles. The concept illustrated to the right develops the most buildable areas of the property and conserves the steeper slopes and forested areas on the mountainside above. The development includes mixed use along the highway with parking hidden behind. This area would include retail, office with the potential for residential units as well. Behind the mixed use area, townhomes front a pedestrian scaled street and also have parking hidden behind to enhance the walkability for the residents. A limited number of single family lots are tucked the furthest away from the highway on the lower reaches of the slope and are served by a planted "close" (circular drive) that provides a green space for the residents to enjoy.

The tree covered hillside on the north side of the property could be placed into a conservation easement. A conservation easement is a voluntary deed restriction that landowners can place on their land. It permanently limits subdivision and non-agricultural development; however, landowners retain ownership of the property. Public access is not required, and the land can be sold or passed along to heirs. However, future owners must abide by the terms of the easement.

Landowners who place a conservation easement on their land are known as easement grantees. The grantee must find a government entity, such as the county, or a conservation organization, such as a land trust, to agree to monitor the property to be sure that the terms of the easement are fulfilled. This organization is known as the easement holder.

Landowners who donate a conservation easement may receive a federal income tax charitable deduction, as well as a reduction in the value of the property for estate tax purposes. North Carolina also has a unique state conservation tax credit available for donations of property or easements for conservation purposes.

▲ EXISTING CONDITIONS

▲ CONSERVATION DEVELOPMENT PATTERN

GATEWAY AREA DEVELOPMENT POTENTIAL

Mixed Use: 60,000 sf

Housing: 14 Single Family Lots, 78 Multi-Family Units

Parking: 370 spaces

EAST KING STREET (US 421) REDEVELOPMENT WITH PLANNED IMPROVEMENTS BY NCDOT

EXISTING CONDITIONS

East King Street (US 421) is poised for significant change due to the planned widening by NCDOT beginning in Fall, 2009. Their proposal is to widen from a four lane section to a five lane divided section with the expansion occurring on the southern side of the highway.

RECOMMENDATIONS

Negotiate the addition of a planted median along sections of the highway expansion area. Dialogue with NCDOT began during the workshop to introduce the idea of a planted median that would be implemented by the state but maintained by the Town of Boone as part of the widening project. This additional enhancement would transform what would be a typical five lane runway of asphalt into a slow speed, planted boulevard. The southern side of the highway will have a retaining wall, and the Town should encourage this to be a terraced stone wall with plantings along the ledges.

Insist on an enhanced urban form along this corridor as new development begins. Planting trees along the street will not be enough to enhance this corridor or make it an enjoyable place to live, shop, work — and walk. It will be vital that the Town encourage multi-story mixed use development along the street frontages with parking hidden behind. The walkability of this corridor will be enhanced immeasurably if the development pattern follows these design criteria.

EXISTING CONDITIONS ▶

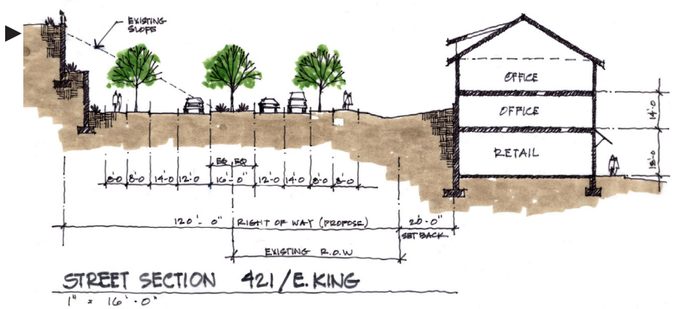
DEVELOPMENT POTENTIAL

Mixed Use - 537,000 sf

Housing -
40 Townhomes
6 Single Family Homes

Parking - 2,534 spaces

CROSS SECTION OF 421 EXPANSION WITH RETAINING WALL ON SOUTH SIDE & MIXED USE DEVELOPMENT ON NORTH SIDE



REDEVELOPMENT PATTERN ALONG US 421 ▶

PARK-AND-RIDE TRANSFORMATION

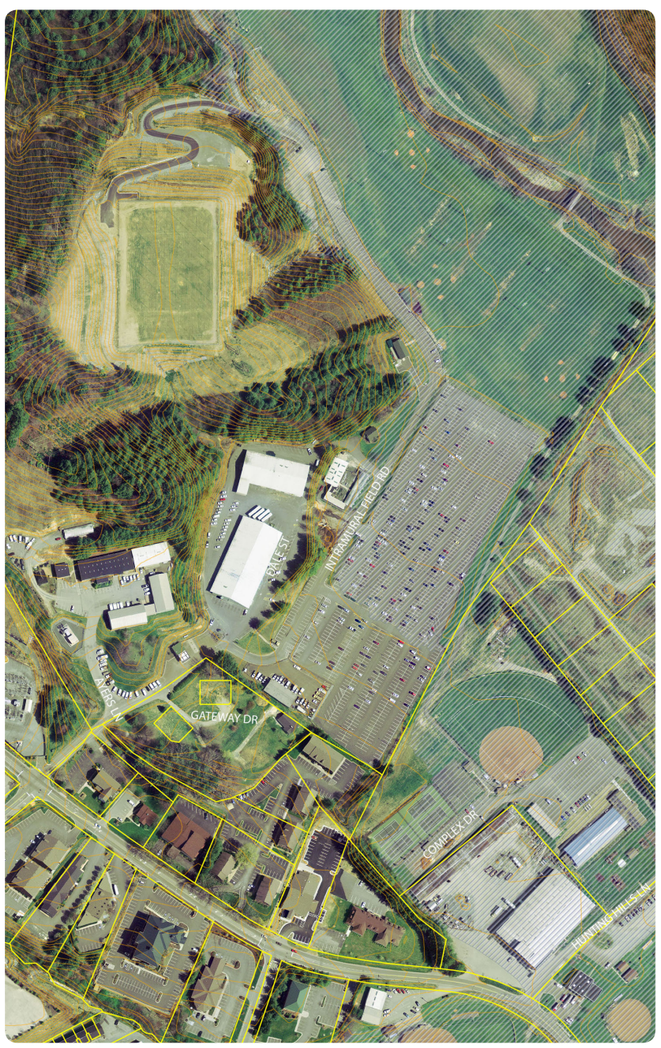
EXISTING CONDITIONS

The site is located along Intramural Field Road on the campus of Appalachian State University. It is currently a remote surface parking for ASU. ASU freshmen are the primary user group of the lot at present.

RECOMMENDATIONS

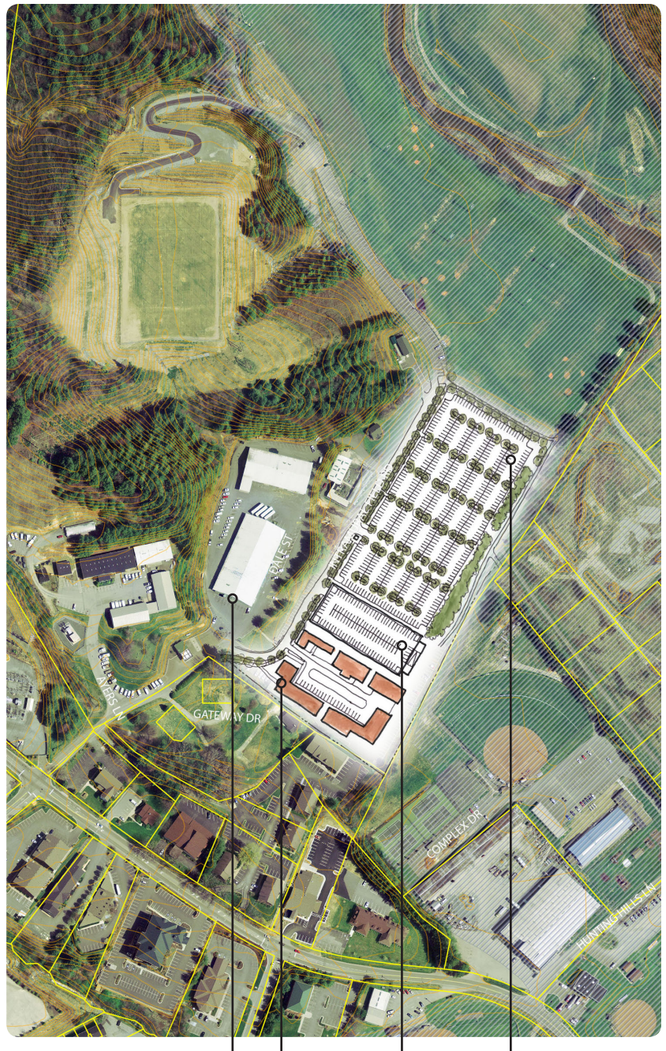
Expand and enhance the Park & Ride facilities. An increased ridership of the AppalCART warrants the expansion and enhancement of this parking area to use the space more efficiently and serve as a potential park-n-ride lot for university students, employees and potentially other commuters to Boone. Even with proposed buildings introduced on the site, there will be no net loss of parking because of the proposed addition of a one level parking structure. The existing surface lot that will remain should be enhanced with tree plantings and retrofitted with stormwater management practices such as rain gardens and permeable paving systems.

Consider a shared use public works facility between the University and the Town. The concept plan also introduces the concept of a shared use facility between the Town and the University that would include the relocation of the Town's Public Works Facility. The site's adjacency to the University's campus maintenance facility would create greater efficiency between these two agencies. Other compatible uses of both groups could be located in these buildings as well.



EXISTING CONDITIONS ▲

▼ PARK & RIDE EXPANSION



DEVELOPMENT POTENTIAL

Shared Facilities: 27,700 sf

Parking: 1,019 spaces

MIXED-USE ALONG THE GREENWAY

Level One: 16,000 sf Retail & 65 spaces

Level Two: 15 units & 56 spaces

Level Three: 15 units & 55 spaces

Existing Conditions: ~15,000 sq ft; single story retail

Level Four: 30 units

EXISTING CONDITIONS

The birdseye photograph to the right is extremely revealing about the current development pattern in Boone along the US 321 corridor: A beautiful backdrop of tree covered mountains with a foreground of large asphalt parking lots and large box stores or strip centers dominating the landscape. The catalyst site illustrated here is currently occupied by an single story retail strip center with a parking lot along the street edge, which is typical of development in this corridor.

RECOMMENDATIONS

Encourage development that addresses the street and the greenway with multiple story, mixed use buildings designed in a vernacular style. This site along Boone Heights Drive could serve as a beginning point of change for this area. Injecting 60 housing units into the site will begin to make the case for developing a more walkable environment for residents and visitors. The goal is to maximize the site's potential while keeping in mind architectural character and sustainable site design. Limited retail on the ground level with residential units in the upper three levels creates an environment of daytime and nighttime use and activity, with views along, and direct access to, the greenway.

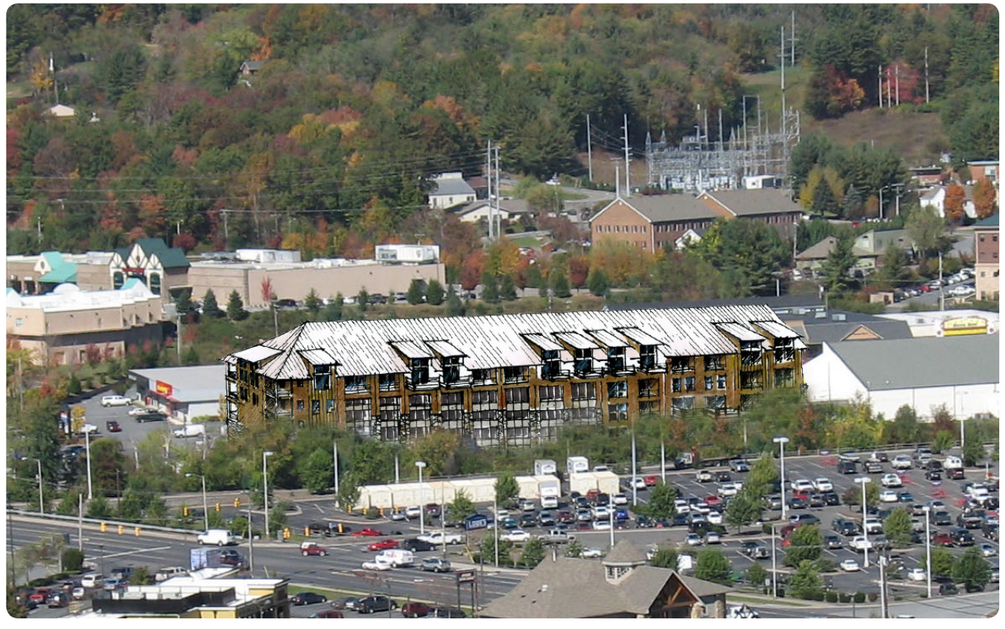
BOONE HEIGHTS MIXED USE POTENTIAL

Retail: 16,000 sf

Residential: 60 units

Parking: 176 spaces

▼ **EXISTING CONDITIONS** (SITE SHOWN WITH *)



▲ **PROPOSED MIXED USE DEVELOPMENT**

KRAUT CREEK/BOONE CREEK RESTORATION CONCEPT

One of Boone's key assets is the Kraut Creek (or Boone Creek) that connects the downtown to the hospital and beyond. The creek, its banks, and floodplain are also one of the Town's greatest potential scenic and recreational assets. Unfortunately, the creek has been severely compromised on both counts —natural and scenic—and is actually one of the Town's greatest eyesores. In many cases, the creek has been built over all together.

In a mountain environment, building in the lowlands and the floodplains of the valleys are the easiest places to build and most of Boone's roads and historic development has been in these locations. Fortunately, the community has begun to rally around this waterway as a natural and scenic asset worth protecting and preserving. Great results have already been achieved through the good work of environmental groups and ASU with initial creek restoration projects on portions of the northern reaches of the creek corridor near downtown and on the ASU campus.

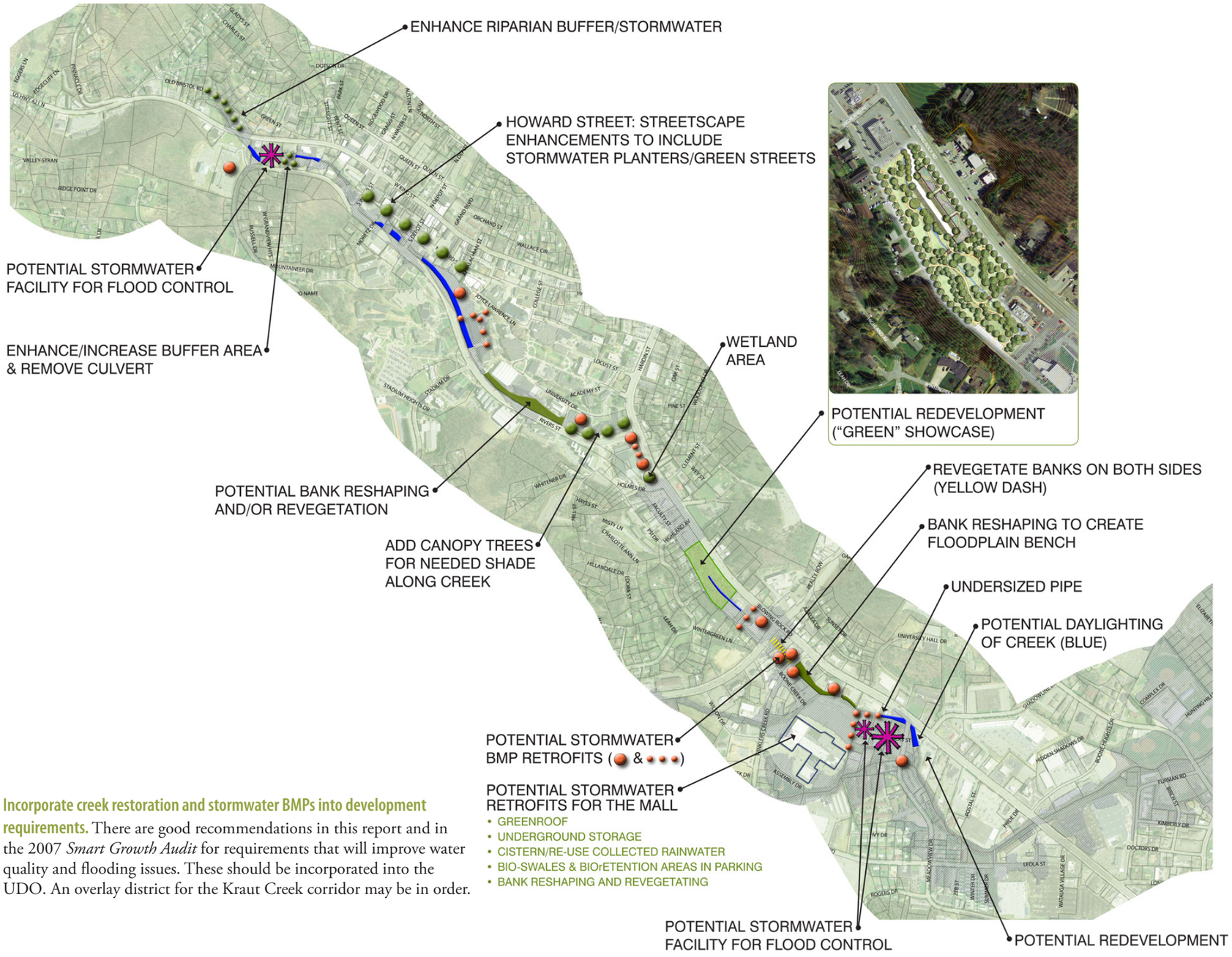
Because of the importance of this waterway to the Boone community and because of its potential to link so many of the community's goals, the creek corridor was a special focus during the October, 2008 charrette. In addition to meeting with local advocates and experts on the creek and looking at the studies and recommendations that had already been completed by students and advocates, an environmental specialist from Equinox Environmental of Asheville conducted a stream assessment and developed the preliminary strategic recommendations that are shown on this page and the two pages that follow.

GENERAL RECOMMENDATIONS

Work with Environmental Organizations, ASU, and area property owners to implement the recommendations in this plan. Environmental groups have already been successful in working with property owners, the University, and grant funders to restore sections of the stream and has plans to do more. The Town can contribute to these efforts through funding, providing incentives, seeking grant opportunities, and generally working with property owners to incorporate these recommendations.

Look for opportunities for demonstration projects in conjunction with development or redevelopment along the creek. There are many properties that are ripe for redevelopment along the creek corridor. The concept plan on page 54 shows a demonstration redevelopment concept for creek restoration and mixed-use development along US 321. Such a project would require both public and private investment.

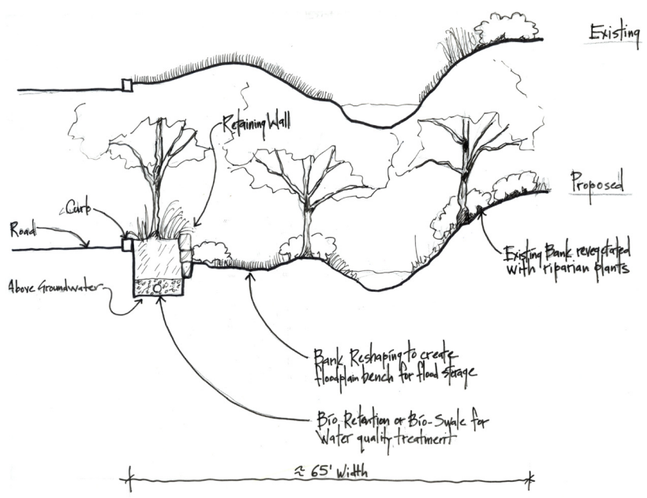
Incorporate creek restoration and stormwater BMPs into development requirements. There are good recommendations in this report and in the 2007 *Smart Growth Audit* for requirements that will improve water quality and flooding issues. These should be incorporated into the UDO. An overlay district for the Kraut Creek corridor may be in order.



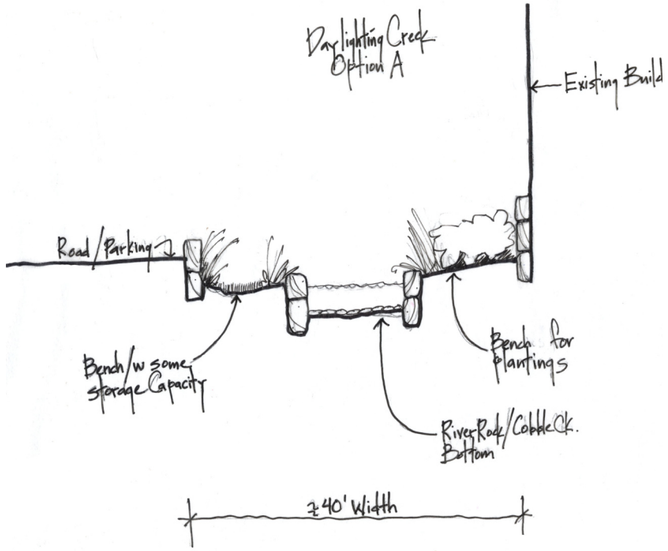
KRAUT CREEK/BOONE CREEK RESTORATION CONCEPT

The images above show existing conditions along the creek corridor. The images below show potential restoration options that take into account the current conditions along the creek.

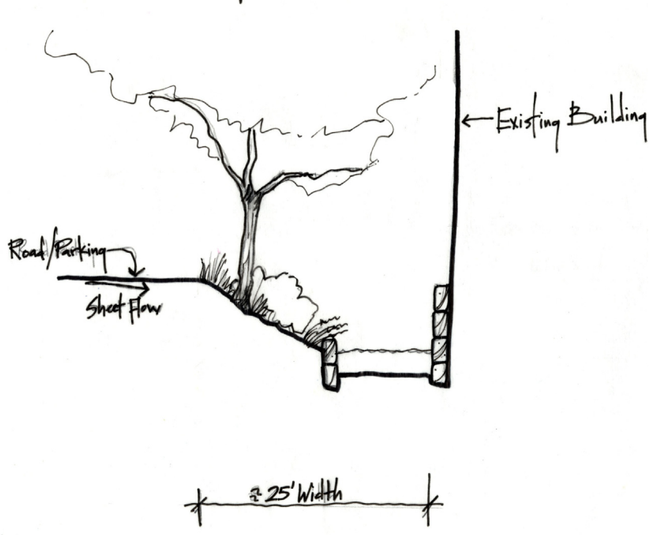
Creek Restoration Options for Varying Contexts



Typical Urban Condition showing enhanced restoration techniques that pre-treat stormwater and provide shady areas to cool the water and streambank stabilization to prevent erosion.



Daylighting Creek (Option A) that illustrates the opportunity to remove existing culverts to provide additional flood storage capacity as well as utilize the stream as an amenity.



Daylighting Creek (Option A) illustrating a more constrained condition that still improves water quality conditions and affords the opportunity for human enjoyment of the water.

KRAUT CREEK/BOONE CREEK RESTORATION CONCEPT

EXISTING CONDITIONS

This site is located along Blowing Rock Road (US 321) and is bounded by Blockbuster and Highland Avenue on the north and McDonald's on the south. Currently, the site is occupied by the Scottish Inn and several aging apartment buildings. Kraut Creek runs down the middle of the site and at present is paved over in most locations while being severely encroached upon in others. The entire area is in the creek's floodplain.

RECOMMENDATIONS

Showcase the site as a "green" redevelopment opportunity. Because of the "ripe" nature of the existing development and the creek's prominent location down the spine of the site, a special opportunity exists to create a significant "green" development as a demonstration project for creek restoration and sustainable development in Boone. Implementation of the concept would be a ideal opportunity to showcase Town, University, and private investment, cooperation, and expertise.

Restoring the creek to its natural state would be the first step to creating this living laboratory. A public green space with pervious walking trails would be another component of the design with strategic pedestrian crossings at different locations along the creek. Pervious parking would serve the three proposed mixed use buildings on site; these buildings could showcase all of the latest "green" technology with green roofs, rain collection systems, renewable energy production, and recycled/ sustainable building materials. The site should be planted with a wide variety of native species of shrubs and trees, becoming a small arboretum for the community to enjoy. Wildflower meadows and rain gardens would serve as other sustainable design elements of the site.

◄ EXISTING CONDITIONS

Pervious Parking
3 Mixed Use Buildings with Green Roofs
Pervious Trail System
Existing Trees Preserved & New Tree Plantings
Uncover & restore Creek
McDonald's
Wildflower Meadow
Rain Garden/Detention Area

DEVELOPMENT POTENTIAL

Ground Level Retail: 15,600 sf

Housing: 30 units

Parking: 50 spaces

PROPOSED "GREEN" ► DEVELOPMENT

PHASED REDEVELOPMENT OF KMART SITE

EXISTING CONDITIONS

The site is currently home to an aging, undersized Kmart and an enormous amount of surface parking fronting the US 321 corridor.

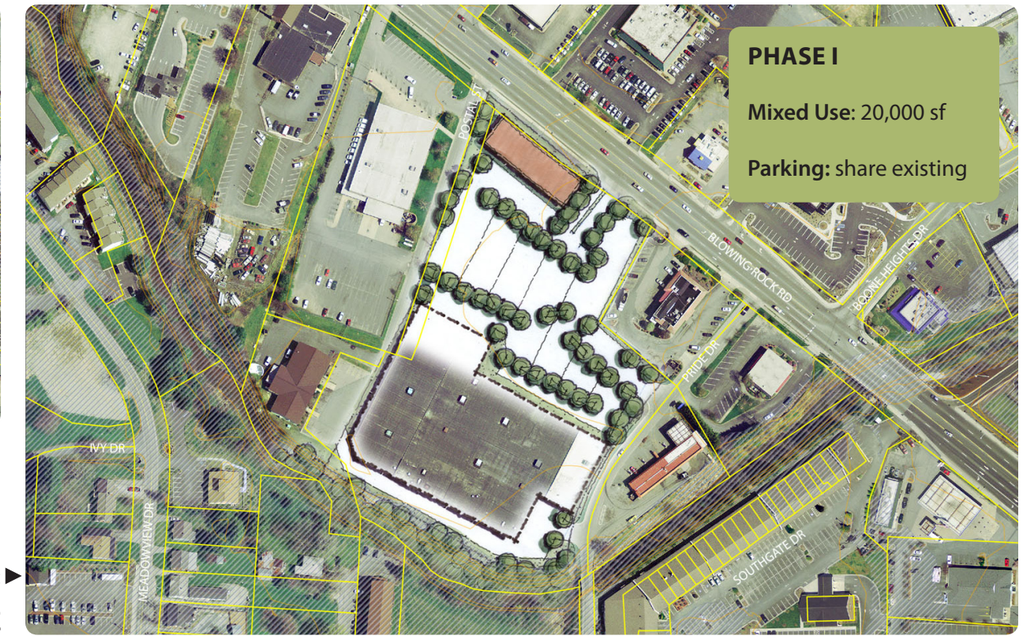
RECOMMENDATIONS

Prepare a phased redevelopment scheme for the inevitable exodus of the big box store. This approach can begin even before the Kmart decides to vacate the site by developing outparcels that are part of a larger development scheme. Eventually, the site can begin to fill in with the same amount of square footage as a big box (around 100,000 sf) but with a mix of uses and parking hidden behind buildings. This mixed use development creates not only a pedestrian friendly environment but an economically sustainable opportunity.

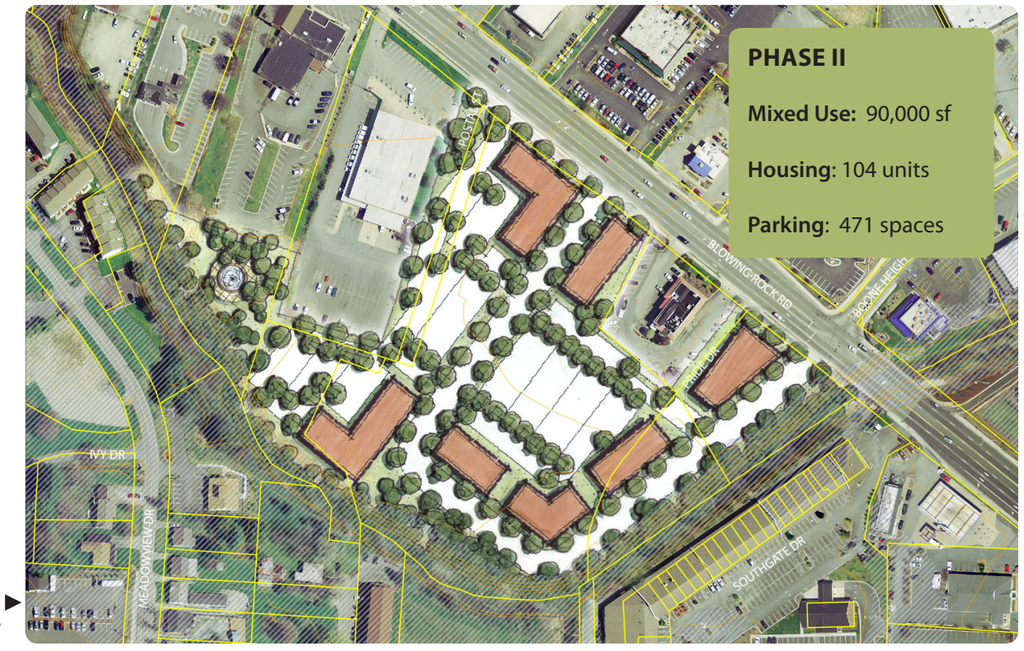
▲ EXISTING CONDITIONS

◄ EXISTING CONDITIONS ON US 321

PHASE ONE: OUTPARCEL DEVELOPMENT ►



PHASE TWO: SITE REDEVELOPMENT ►



HOSPITAL DISTRICT INFILL & REDEVELOPMENT

EXISTING CONDITIONS ▲

EXISTING CONDITIONS

The hospital district is located along US 321 in the southeastern part of the town. The area is dominated by big box development to the west and the existing hospital facility to the east. The core area is laden with individual medical offices with their own surface parking facilities.

RECOMMENDATIONS

Create a cohesive mixed use district with an emphasis on medical facilities and related uses. The goal for this area is to create a balance of uses that create an environment that is both functional and inviting to residents, visitors, patients, staff, as well as offices, services, and facilities that would benefit from proximity to the hospital.

The northern portion of the district introduces an assisted living facility and consolidates the medical offices into a configuration more conducive to shared facilities and parking. The proposed assisted living facility would house apartments, bungalows, and care suites.

Three of the core blocks are dedicated to housing with one having mixed uses of office and limited retail. A fourth block to the south is conceived as a mixture of office and retail while along US 321, mixed use with parking behind is the predominant pattern. The southeastern quadrant of the district could house offices or even a corporate headquarters such as a medical research company. This quadrant also has a historic home and barn that are proposed for protection through this redevelopment process.

HOSPITAL DISTRICT REDEVELOPMENT POTENTIAL

Office: 403,000 sf

Mixed Use: 383,000 sf (office, residential—some retail)

Residential: 428 Units

Assisted Living Facility: 149,000 sf (apartments/bungalows/care suites)

Total Development as Drawn: 1,363,000 sf

HOSPITAL ▶ DISTRICT REDEVELOPMENT

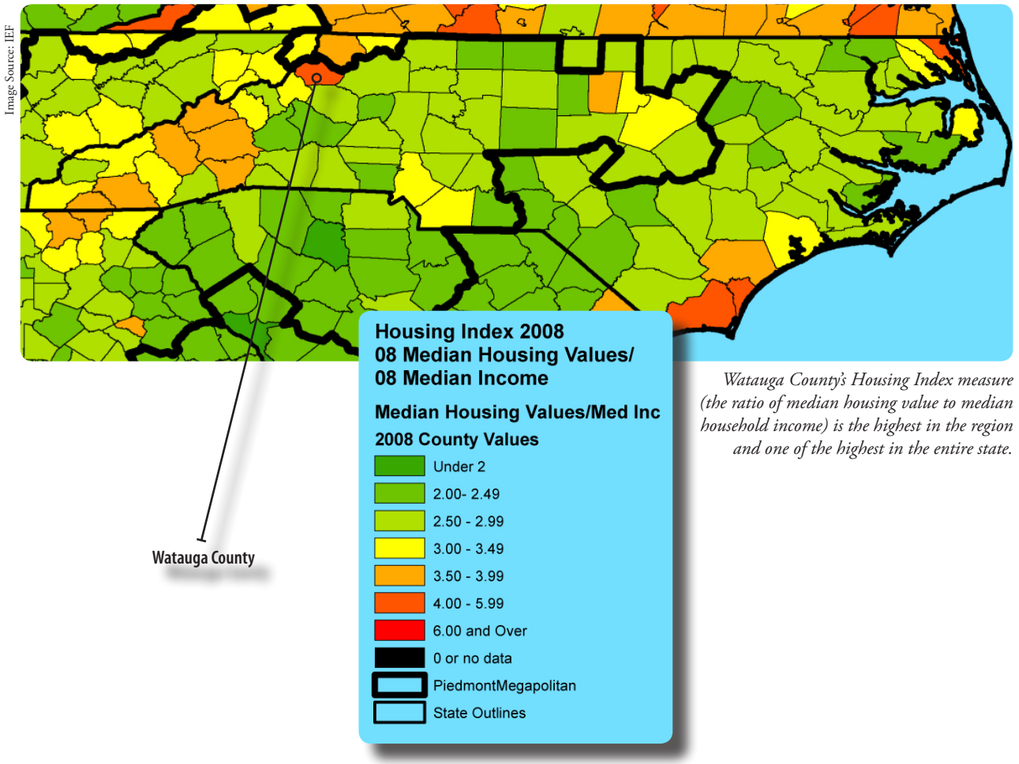
9: GENERAL RECOMMENDATIONS

CREATE A RANGE OF HOUSING OPPORTUNITIES & CHOICES

The *Western North Carolina Regional Outlook Report 2008* (prepared for the Institute for the Economy and the Future at Western Carolina University for the State's 23 western most counties: ief.wcu.edu) notes that western North Carolina has a serious problem of affordable housing in terms of availability, location and type of accommodation. Although 86% of respondents to IEF's regional public opinion poll own their homes, most respondents (62%) do not view homes in the region as affordable for people like themselves.

This information comes as no surprise to residents and stakeholders of Boone and Watauga County, who have consistently noted affordable housing as being one of the most pressing issues facing the town and the region. According the IEF's Housing Index analysis, Watauga County and the census tracts around Boone and Blowing Rock specifically, are some of the most expensive in the state when compared to area median income. IEF's analysis showed that median housing prices in Watauga County are six or more times the median household income (see map below left). It is an issue that impacts economic development and the ability to recruit and retain workers to the University, the Hospital, and other regional employers. It is also an issue of transportation, because housing prices push workers and students further and further from employment and services in Boone, which results in more traffic on the roads to and from the town.

Image Source: IEF



Watauga County's Housing Index measure (the ratio of median housing value to median household income) is the highest in the region and one of the highest in the entire state.

While affordable housing is generally related to the housing needs of households with incomes that are typically 80% or less of the area's median household income, North Carolina's most critical housing need is improving rental housing opportunities for households earning less than 30% of median income. Also, a shortage exists for housing for middle-class families (those earning above $38,000 and less than $50,000). A wide range of users (families, single-parent households, retirees & seniors) rely on affordable housing/workforce housing options, as do a wide range of employers.

The need for affordable housing continues to deepen while the public resources to address this need continue to decline. In this context, the following strategies present ways of attacking the continuing problem of providing housing that is affordable to members of the regional workforce and their families.

LOCATION & DESIGN OF AFFORDABLE HOUSING

Establish Location and Design Criteria for Affordable/Workforce Housing.

There are two major issues that affordable housing must address if it is to be sustainable economically and politically acceptable: location and design.

Affordable housing is a controversial reality of contemporary life, for gains in affordability often result from expanding the supply of land available for housing or increasing the density of housing units in a given area. The process of weighing the impacts of locating affordable housing is quite contentious and can be laden with implications of race and class. This makes the twin policies of dispersal throughout communities and similarity to market units in appearance extremely important. Minimum design standards of site layout and housing design can help in achieving these twin objectives.

According to the report "Making Affordable Housing Truly Affordable: Advancing Tax Credit Incentives for Green Building and Healthier Communities" (www.frontierassoc.net), there are locational factors regarding affordable housing that must be addressed in addition to the cost of the housing itself. Since the cost of transportation is a major factor in most low income household budgets, priority locations for affordable housing include locations with good access to services and jobs and transportation options, including transit.

When affordable housing is built in compact, mixed use areas, the community and affordable housing residents both benefit:

- Residents of compact communities drive 20-40% less per day, resulting in safer and less polluted communities.
- Local stores and businesses do best when more people live within walking distance or a short drive away.
- When more people work and live in the same town, civic organizations are stronger and residents can participate better.
- Residents of compact communities spend less on cars and have more time and resources for families and communities *(adapted from the Affordable Housing Design Advisor, www.designadvisor.org).*

In terms of design, affordable housing units should be similar to market-rate units in exterior appearance, proportion of attached and detached units, bedroom mix, and proportion of rental and owner-occupied units. The units also must be dispersed throughout communities and developments and must come on the market on a schedule similar to that of the market units.

Permanently affordable, owner-occupied units are interspersed with market-rate units in this mixed use development in Davidson, NC. From the outside, the affordable units are indistinguishable from the market-rate units except in size.

CREATE A RANGE OF HOUSING OPPORTUNITIES & CHOICES

RECOMMENDATIONS:

The Town's Affordable Housing Task Force and other local and regional groups have already begun to take action on some of the recommendations below and others. Like most issues, the issues of housing choice and affordable housing will have to be addressed on many fronts and will require the participation of public and private entities.

Work to provide sewer/water allocations and service to a proportional number of affordable housing units. Work with NC Rural Center and other state organizations to improve the ability for local agencies and government entities to secure funds for water and wastewater improvements to meet affordable housing goals in specified locations.

Provide Incentives for Affordable Housing. Consider a density bonus for provision of affordable housing. Provide tax rebates for housing in eligible areas.

Remove Regulatory Barriers to Affordable Housing Options. Promote infill and area re-development by adding specific zoning categories that enable small homes, cottages, neighborhood-scaled multi-family (duplex, triplex, quadruplexes), in-home rentals (boarders), co-housing and other forms of housing that are designed to be affordable and supportive of workforce development. Many other related recommendations were detailed in the Smart Growth Audit. These include:

- Allow accessory dwelling units in most zoning districts
- Allow duplexes and triplexes more widely
- Remove barriers for accessory apartments and duplexes
- Allow multi-family housing by-right in certain locations
- Consider allowing car-free housing
- Consider inclusionary housing requirements/incentives

Work with Local Employers to Develop In-Town Housing Options for Employees. Work with local employers to contribute to improvements in workforce housing for new workers. The University, the hospital, Watauga County Schools, and other large local employers will benefit in their recruitment efforts if affordable housing options are available locally. Work with these entities to contribute to development and/or funding of workforce housing in Boone. Employers can investigate Employer Assisted Housing Programs.

Work with ASU to maximize on-campus housing options for students. This recommendation is noted in the Smart Growth Audit, but it bears repeating. The more housing that ASU can provide on-campus, the less pressure on the town and neighborhoods to accommodate student housing.

EMPLOYER ASSISTED HOUSING (EAH)

Recognizing the potential benefits that homeownership has on the stability, morale, and productivity in the workplace, employers across the country have worked to build Employer Assisted Housing (EAH) programs and assist families striving for homeownership. Working with a non-profit group with affordable housing experience, private companies with EAH programs provide a financial incentive to homeownership. This assistance can take several forms, but typically it may be in the form of a zero percent interest, three to five year forgivable loan in amounts ranging from $1,000 to $5,000. Some organizations offer financial incentives in the form of grants.

INCLUSIONARY ZONING

Inclusionary zoning is a local government requirement for home builders and developers to provide a certain percentage of units in every new market-rate development at an affordable level for people identified as having low or moderate incomes. More than 200 local governments across the country are using inclusionary housing strategies, including Dare County and the Town of Davidson in North Carolina.

Programs can be mandatory or voluntary, and most programs contain cost offsets (e.g., density bonuses, expedited permitting processes, or fee waivers) for developers. Payment-in-lieu alternatives, if used properly, can be an excellent method for ensuring some flexibility for developers, while also generating land and dollars that can be used to meet a range of affordable housing needs in a community.

According to *Easing the Affordability Crunch: The Inclusionary Housing Option* (www.fanniemaefoundation.org) "recent studies have examined the advantages and limitations of . . .inclusionary housing programs. Three key lessons emerge:

1. Mandatory programs, on the whole, appear to be more effective than voluntary programs.
2. Although originally implemented in the suburbs, inclusionary housing programs can work well in urban centers.
3. Inclusionary housing strategies do not stifle development."

HOUSING LINKAGE FEES

A linkage fee is a housing impact fee, a means for local governments to collect monies from new commercial and industrial development to provide affordable housing. Linkage fees are premised on the basis that lower-wage workers, who are needed to build and work in new nonresidential development, should also be able to afford adequate housing within the community. Provision of such housing near employment centers helps reduce the economic and environmental costs of transportation. Most Jobs/Housing Linkage Programs require a business to contribute fees to mitigate its housing impacts, but some require business developers to actually provide market-rate and/or affordable housing directly (see also Employer Assisted Housing). Sometimes local governments provide the developer with regulatory relief (e.g. density bonuses or reduced parking requirements) to offset the cost to the developer of meeting the linkage requirement.

Linkage fees are most successful in jurisdictions that expect to attract substantial new business development and have land available for such development. Linkage fees can provide a substantial boost to the production of affordable housing. Also, because linkage fees directly link new job creation with the provision of appropriate workforce housing, they help create a better jobs-housing balance with the resulting benefits of less traffic congestion and reduced air pollution. Employees who can afford to live near where they work spend less time commuting and have more time for their families and their community.

Image Source: Harry Teague Architects

Benedict Commons in Aspen, CO was a joint effort between the City and two developers to provide affordable housing in Aspen for local workers.

Image Source: Poplar Wellington, LLC

The Wellington Neighborhood in Breckenridge, CO provides affordable and market-rate housing on a site that was once dredge-mined. The project recycles land, houses working families, and provides free transit to the nearby downtown.

The Town of Boone recently purchased the historic Post Office building downtown. It will continue to house postal services as well as other private or non-profit uses.

Image Source: Sharon Blair Tolbert

Woodshed/grainary at the Blair Farm. The farm house and outbuildings off of Deerfield Road were recently listed on the National Register of Historic Places. Established in 1844, it is one of the oldest existing farmsteads in Watauga County and includes some of the oldest buildings in Boone.

"The historical heritage of our State is one of our most valued and important assets. The conservation and preservation of historic districts and landmarks stabilize and increase property values in their areas and strengthen the overall economy of the State."
–NC General Assembly

Some of the most meaningful elements of local landscapes are the buildings constructed in a location over time. They can vividly tell the story of the origins, growth and sometimes the decline of a place. Besides being the repository of historical and community memory, historic buildings can also function as an engine for economic development. They can often stimulate a profitable growth in heritage tourism to support the local economy.

Continue to support the Historic Preservation Commission and private property owners in their efforts to inventory significant properties, develop a preservation plan, and protect individual landmarks. The Town has recognized the importance of historic preservation in Boone and recently established the Historic Preservation Commission. The Commission's responsibilities will include inventorying properties with historical, architectural, prehistorical and cultural significance; making recommendations on historic districts and landmarks; and preparing a preservation plan. One of the recent victories of the Town and the Commission was the purchase of the old Post Office downtown, which will continue to house postal services among other uses.

To protect historic buildings and individual landmarks there are two distinct types of historic districts:

1. The National Register of Historic Places, a federal program administered by the North Carolina Department of Cultural Resources
2. Local historic or preservation districts created by individual towns or counties in accordance with North Carolina state enabling legislation

The information below is derived from the resources on the North Carolina State Historic Preservation Office website (www.hpo.dcr.state.nc.us).

THE NATIONAL REGISTER OF HISTORIC PLACES

The National Register, established in 1966, is the nation's official list of buildings, structures, objects, sites, and districts worthy of preservation for their significance in American history, architecture, archaeology, and culture. The Blair Farm off of Deerfield Road was recently recognized with this designation. A farmhouse built in 1844 and outbuildings, it is one of the oldest existing farmsteads in Watauga County.

TAX CREDIT INCENTIVES

A privately owned building that is listed in the National Register or is a contributing building in a National Register historic district may be eligible for a 20% federal income investment tax credit claimed against the costs of a qualifying rehabilitation of the building. North Carolina tax law provides a 20% "piggyback" credit for such projects. Federal and State credits apply only to income-producing, depreciable properties, including residential rental properties. Federal tax credits do not apply to owner-occupied residential properties.

Additional North Carolina tax credits introduced in 1998 provide a 30% credit for certified rehabilitations of non-income-producing historic buildings, including private residences. The work must meet a $25,000 investment threshold and must comply with the same rehabilitation standards as income-producing projects.

In addition to these credits, the Tax Treatment Extension Act of 1980 provides federal tax deductions for charitable contributions of easements in historically significant properties for conservation purposes.

PROTECTION IN PUBLIC PLANNING

National Register listing does not provide absolute protection from government actions that may affect the property, but it does mean that if a federal or state project (such as highway construction and Community Development Block Grant projects) is in conflict with the preservation of a National Register property, the North Carolina Historic Preservation Office will negotiate with the responsible agency in an effort to eliminate or minimize the effect on the historic property. The Office's recommendations are advisory only.

OWNER CONSENT

A privately owned property may not be listed in the National Register over the objection of its owner or the majority of its owners. A district may not be listed in the National Register over the objection of a majority of owners of private property within the proposed district.

LOCAL HISTORIC LANDMARKS

This program of local designations is an option available to local governments under North Carolina enabling legislation (G.S. 160A-400). Properties listed in the National Register sometimes also receive local designation in jurisdictions where local preservation commissions have been established according to the state enabling legislation. However, there is no direct correlation between National Register listing and local designation.

In locations where there is not a critical mass of buildings to qualify for historic district designation such as in Boone, it is still possible to protect individual buildings through designation as a local landmark and render the same protections as are enjoyed by historic districts. Local landmark designations may apply to individual buildings, structures, sites, areas, or objects which are studied by the commission and judged to have historical, architectural, archaeological, or cultural value.

ADDITIONAL RECOMMENDATIONS

Identify High Country-specific historic architectural details and incorporate these into local design guidelines.

Work with private developers, property owners and public entities (e.g., ASU, etc.) to protect historic and culturally significant structures and sites as new developments are proposed. Provide incentives for protecting and preserving structures and significant sites.

The farm house and barn located near the hospital at the intersection of US 321 and Deerfield Road are exemplary of Boone's rural heritage and worthy of protection. The concept plan for the hospital district (see Focus Areas section) recommends preserving this building.

One of the recurring themes from public input during the plan process was the need to maintain and promote architectural styles that reflect the history and culture of the High Country.

Recently, Boone has applied Commercial Development Appearance Standards to good effect, especially in regards to building form, materials, and retaining walls. However, as pointed out the *Smart Growth Audit*, there are aspects of the standards that can be improved upon and enhanced for different contexts and building types.

Design standards and guidelines come in several forms and have a variety of uses. They may be used by master developers to regulate the work of different home builders and maintain consistent quality across different areas and stages of development. Alternatively, they may be developed by local government as part of a new regulatory framework. In either instance, they may be advisory or prescriptive, depending on appropriate circumstances.

Design standards are specific requirements, and add another layer of regulatory control and provide a tool by which communities can establish and guide the desired character through uniform design. Design guidelines, while dealing with similar issues, remain advisory, specifying best practices that government wishes developers to follow, but precise details may be open to negotiation as part of the approval process.

Standards and guidelines describe the desired architectural features such as type of exterior materials, front porch requirements, arrangement and design of windows, placement of garages, etc. They also address location, orientation and relationships of buildings and parking lots; pedestrian circulation and safety; and character and qualities of landscaping. Although architectural styles have changed decade by decade, the principles of good design can be identified and applied to future development.

Elements of design standards for Boone should be the subject of intensive local discussion, with stakeholders within the community having the opportunity to decide the level of regulation or guidance appropriate.

Developers themselves, if operating as master developers of large projects are likely to make design standards mandatory and legally binding through their contracts with builders. In this instance, the guidelines become more like "pattern books," such as the one used by the master developer at Baxter, in Fort Mill, SC.

In private developments, the pattern book embodies detailed design regulations that are legal documents between private consenting parties; there is no public local government role in their formulation or implementation. The regulations can thus become very specific, with very detailed stipulations about style, materials and construction details.

5.3 MASSING

BUILDING DESIGN

Massing is defined as the shape or form a building, or assemblage of buildings, assumes through architectural design. All building facades are a composite of horizontal tiers and vertical bays.

The scale and massing of a 6 story building should be designed to create interest along its entire street frontage with street level windows and building entrances.

Guidelines

1. For human scale and visual interest, break down the mass of the building, horizontally and vertically, into a hierarchy of volumes. Do not create a large monolithic structure. Within each volume or bay there should be an orderly placement of windows and doors.
2. If a building is long or large, more than one entrance may be needed on the front façade, or entrances may be needed on a number of building sides. In general, for walkability in the Core area, building or store entrances should occur at a minimum every 150 feet.
3. Building heights should not exceed six (6) stories in the Core Areas of Village Centers. In all other places they should not exceed three (3) stories. Building heights should transition to lower heights from the Core to the Edge.
4. Buildings in Village Centers may add up to two (2) additional stories provided the upper levels are recessed a minimum of 25 feet to permit sunlight to enter the street and open up views of the sky to the pedestrian.

Consider the use of multiple buildings in lieu of one large monolithic structure

Recess the upper stories to allow sunlight to pass onto the street and minimize the height impact to the pedestrian

City of Raleigh Urban Design Guidelines 36

X.X ARCHITECTURAL DETAILS

Commercial Facades

Facades shall be comprised of brick, stacked stone, wood, cemetitious fiberboard siding, or cedar shake shingles. These building walls shall consist of no more than two materials with heavier materials located lower on the facade. The predominant material shall be used consistently on all building elevations.

GUIDELINES

1. No more than two adjacent buildings shall not have the same facade material, same color (including brick), or brick texture. Additionally, no two buildings which face each other shall have the exact same combination of materials and colors.
2. Wood and cedar shake shall be sealed with an opaque stain or paint.
3. Foundation walls, piers and retaining walls shall be brick, stone, or other masonry material.
4. Clapboard siding shall be smooth, horizontal, and maximum 6 inch to weather.
5. Corner boards, at a minimum 5-1/2 inch wide, of contrasting color are encouraged.
6. Trim, at a minimum 4 inches wide, shall be used at all openings. Six (6) inch trim is preferred.
7. Brick masonry units shall be horizontal and heavily textured with buff or ochre mortar. Wall opening lintels shall be detailed with a change in coursing for soldiers or jack arches, for example. Stone or cast stone is also acceptable.
8. Wall material transitions shall not occur at outside corners. Returns are not permitted.

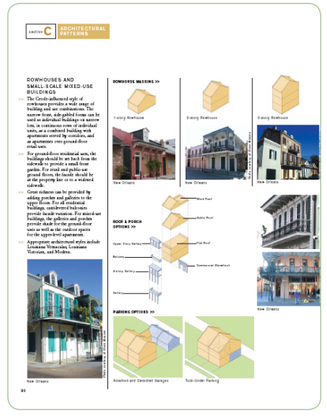
O'NEAL VILLAGE

RECOMMENDATION

Develop Design Standards for All Buildings.

Echoing the recommendations in the *Smart Growth Audit*, this plan encourages the Town to consider developing and applying some level of design standards to all buildings. These standards should vary according to the context of development (downtown versus rural, for example) and should incorporate architectural details that accurately reflect the history of buildings in the High Country. This recommendation includes non-residential buildings and multi-family buildings. And because of the desire to encourage infill development in certain neighborhoods there may be a need to also regulate infill and/or small-lot single family homes as well.

Images clockwise from top left: City of Raleigh Urban Design Guidelines; O'Neal Village Neighborhood Pattern Book, Greer, SC; Louisiana Speaks Pattern Book prepared by Urban Design Associates.



Include Visitability and Universal Design Standards in Local Guidelines.
With changing demographics, including an increasingly elderly population locally and nationally, design guidelines in Boone need to consider building access as part of the Town's design standards. In general they should not preclude zero-step entries through other regulations that might have this unintended consequence such as certain site grading requirements that cause awkward transitions between the building and the parking lot due standards that prioritize the parking lot grade.

In addition, these standards should be encouraged with all affordable housing projects that might be undertaken in the community as a way to broaden the housing opportunities for the greatest number of individuals.

The intent of visitability and universal design standards is to simplify life for everyone in society by making products, communications and homes more usable by as many people as possible, including people with disabilities. Visitability standards may be seen as the first step towards an accessible home and include the following three elements:

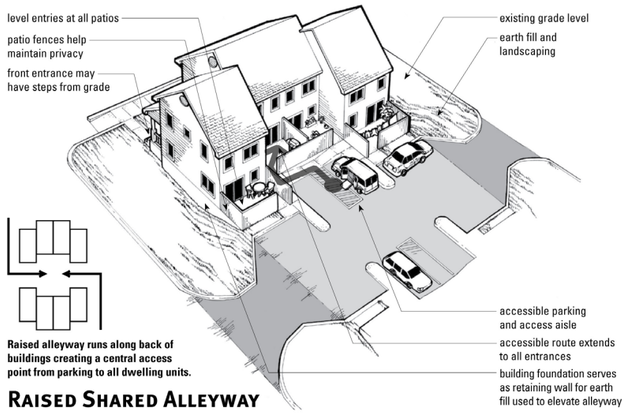
- At least one no-step (or zero-step) entrance
- Doors and hallways at least 32 inches wide
- A bathroom must be on the first floor of the unit, and it must be big enough to accommodate a wheelchair with the door closed.

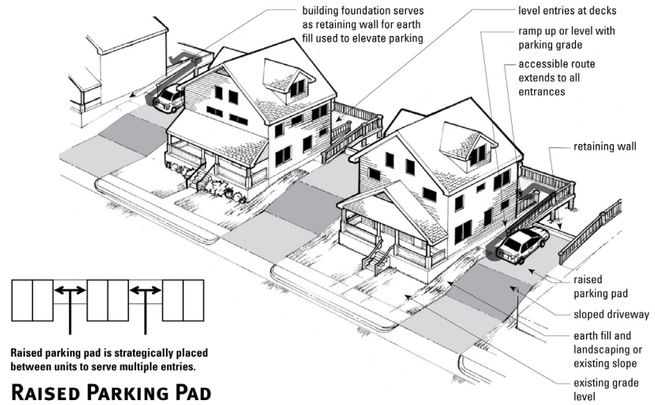
Universal Design is a higher standard of accessibility than visitability. It refers to a home that accommodates the widest range of potential users, including small children, the frail and elderly, people with mobility and visual impairments (disabilities), and other special needs. Universal design homes are much easier to use by people of all ages and abilities without adaptation or specialized design features.

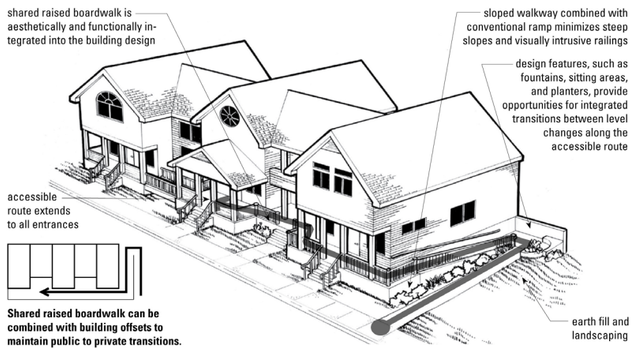
The following are principles associated with Universal Design:

- Equitable Use
- Flexibility in Use
- Simple and Intuitive
- Perceptible Information
- Tolerance for Error
- Low Physical Effort
- Size and Space for Approach and Use

(This information is adapted from "Visitability and Universal Design Standards" www.road2la.org and "the Principles of Universal Design". www.design.ncsu.edu)







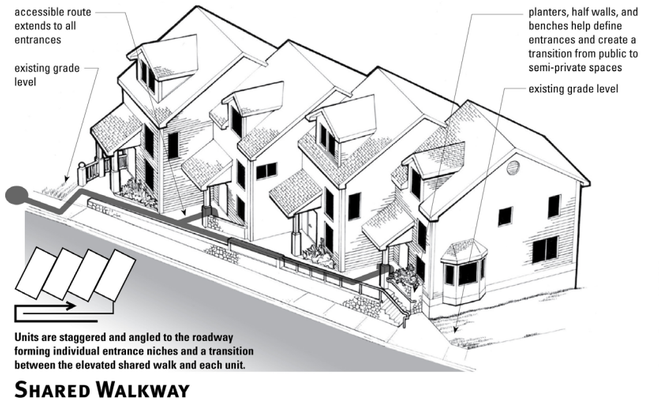


Image Source: NCSU

Examples of zero-step entries from "Stepless Entrances for Multifamily Housing" from The Center for Universal Design at North Carolina State University. The full publication can be accessed at: www.design.ncsu.edu/cud/pubs_p/docs/Stepless_Entrances.pdf

OTHER IMPLEMENTATION RECOMMENDATIONS

Recommendations for implementation are included throughout the report. The strategies listed below are for broader programs or efforts that tie together many of the detailed recommendations from other sections of the plan.

RECOMMENDATIONS

Prepare Small Area Plans for Neighborhoods and Districts. A town-wide plan rarely gets to a level of detail that can satisfy all of the needs and desires of specific small areas within the jurisdiction. Much feedback from citizens and stakeholders in the plan process related to issues and recommendations that can only be fully explored in the context of a focused small area plan—issues such as the need for neighborhood traffic calming; how to deal with neighborhood encroachment from student rentals and commercial development; providing equitable access to public parks and amenities, small-scale public investments, and the like.

Already the Town is considering some small area plans or corridor plans, including the US 321 corridor between Boone and Blowing Rock. As a way to build on and further detail the recommendations from the Boone 2030 planning effort, this plan recommends that additional small area or corridor plans be considered over the next decade, including:

- Residential Neighborhoods
- Downtown
- Happy Valley/Kellwood area (one of the most likely areas for the Town's future growth)
- 321 Corridor between Boone and Blowing Rock
- Hospital District
- Gateway Corridor Enhancement Corridors (see below)

The Town should consider developing at least one small area plan every other year. These plans should include, at a minimum, and as appropriate for each area: a natural resource inventory and recommendations for preservation; transportation strategies for all modes; public open space strategies; housing strategies; historic and cultural preservation recommendations; market analyses for economic development and new investment; branding strategies; design guidelines; and recommendations for regulatory changes and capital investment.

Designate Gateway Corridor Enhancement Corridors. Plan feedback from local stakeholders and visitors indicate a strong dissatisfaction with the appearance of the commercial corridors that are the gateways to Boone. The Framework Plan indicates areas along the US 421 corridor at the eastern and western entrances to the Town's jurisdiction as being important areas for special attention. Other corridors may merit this designation as well, including portions of the US 321corridor and the NC 105 corridor at the gateways into Boone. These areas are recommended for enhanced public and private investment to improve the appearance of these corridors for the public traveling into and through Boone.

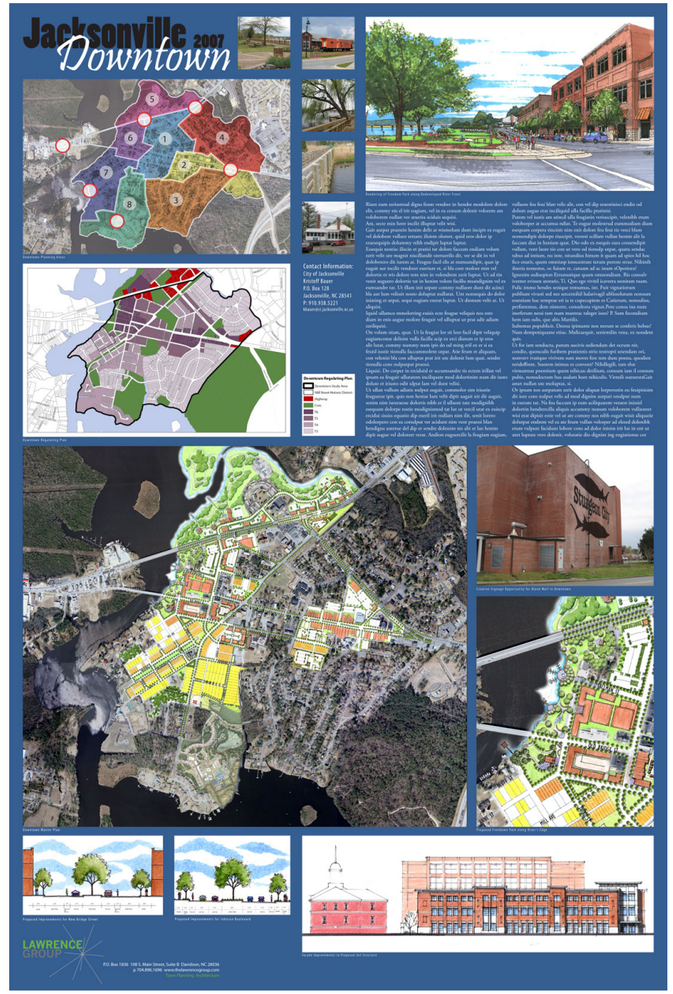
The Town should consider a variety of strategies for these corridors including:

- Detailed corridor land use, design, and transportation plans
- Overlay zoning districts that set standards for signage, building design, and landscaping
- A grant program for building, landscaping, or signage improvements
- Additional entry monuments and landscaping
- Capital investments in landscaping, lighting, banner signage, and other streetscape improvements
- Development incentives for new development or redevelopment in the corridors

Create a Capital Improvement Prioritization Plan. This plan adds numerous capital recommendations to the Town's already full plate of capital needs. One of the key steps in implementing this plan will be to establish a prioritization of projects requiring public funding. The survey and other public input for this plan certainly give elected officials a good reference point in terms of understanding the citizens' priorities for public spending. In fact, one of the questions in the survey was a ranking of project types for public funding. A similar, but more in depth follow-up survey might be useful to elected officials in setting priorities and timelines for capital expenditures.

Establish a Boone Design Studio. When it comes to planning and implementation there are outstanding local resources in Boone at ASU, the community college, and with local organizations and professionals. One way that the Town could capitalize on this expertise and formally put it to work in furtherance of the community's goals is to establish a permanent non-profit design studio. The studio could operate as an independent organization but with support from the Town, drawing on the local resources of students, professors, and professionals in planning, construction, natural resource management, sustainable design, and renewable energy, to create plans and manage project implementation. For example, the studio could provide planning services for small area plans, provide design consultation for buildings or site design, develop creek restoration plans, or assist in public outreach.

Cities such as Raleigh, NC and Chattanooga, TN have (or have had) design studios that are supported in part by the municipality. UNCC's School of Architecture has a similar program that is fully supported by the University. In the case of Boone, the Town could consider providing space and some technical resources, while the University and the County could contribute staffing or other services to the venture. University professors and students are already contributing time and energy to such work, including excellent studies and recommendations for the Kraut Creek. The design studio would be a way to formalize and direct these efforts.



Summary poster from a small area plan for downtown Jacksonville, NC. The plan includes detailed urban design, transportation, open space, and marketing and branding recommendations as well as new development standards to implement the recommendations of the plan.

GERMANTOWN, TN SMART GROWTH PARTNERSHIP PROGRAM & MATRIX

In 2007, the City of Germantown, TN adopted a plan to encourage the redevelopment of 700 acres in the center of their community into a walkable, sustainable downtown area. Once the plan was complete, the City adopted a new zoning ordinance which granted significantly more development opportunities than permitted under the previous regulations. In turn, the code issued new standards for building design, public improvements, and sustainability guidelines.

Subsequent to the Code, the City adopted a decision making guide that grants additional development incentives ranging from streamlined permitting to Tax Increment Financing (TIF) over a 15 year period. The Smart Growth Matrix is a tool to assist the Board of Mayor and Alderman in analyzing development proposals within certain designated areas (Smart Growth zones). It is designed to provide a quantitative measure of how well a development project accomplishes the City's Smart Growth priorities. The matrix incorporates criteria that reflect the Smart Growth goals described above. These criteria include the location of development, sustainable development practices, parking, urban pattern & design, neighborhood support, employment opportunities, increased tax base and other policy priorities.

If a development project, as measured by the matrix, significantly advances the City's Smart Growth Initiative, certain public-private partnerships may be available to help offset the higher cost of developing in an urban area. These partnerships may include the reduction or reimbursement of development fees; public investment in new or improved infrastructure; and accelerated infrastructure investments, which would include available, but unassigned, Capital Improvement Program (CIP) resources related to on- and off-site project improvements. A maximum value for partnerships is set based on the project matrix score and the increase in property tax revenue related to the project. (*For more information please reference www.germantown-tn.gov)*

Develop a Public/Private Partnership Program for Redevelopment. A consistent theme from participants in the plan process was the need for public and private partnerships for development and redevelopment in Boone. This plan highlights many opportunities for such partnerships, including joint-use parking decks for ASU and downtown; creek restoration projects; and incentives for developers. Many of the goals that the Town is hoping to achieve through this plan will require public participation in the form of regulatory incentives, tax rebates, public financing (such as Project Development Financing; see text box on the right), utility incentives, or streamlined development review.

This plan recommends that the Town develop a menu of public participation strategies along with recommended thresholds for private investment. The text box on the left and the table below provides an example of such a program from Germantown, TN. The menu could include everything from partial tax breaks for homeowners who provide accessory dwelling units to bond financing for infrastructure for projects in certain locations or of a certain size. The key is that the goals of the partnership program should be tied directly to the goals of the Town (e.g., affordable housing, natural resource and historic preservation, mixed use development, etc.) as reflected in this plan and other local policy initiatives. The program then needs to be marketed to taxpayers, developers, builders, and other investors.

GOAL	CATEGORY	ELEMENT/CRITERIA	WEIGHT	VALUE	TOTAL SCORE	TOTAL POSSIBLE	TOTAL SCORE BY SECTION
MIXED-USE	Upper-story Residential	Provide residential space totaling at least 20% of the building square footage and located above the first floor	3	3	9	9	
	Diversity of Uses	Construct or renovate a project with at least 5 different uses chosen from the list of Basic Services with at least one of which must be residential; OR provide a minimum of three different uses and locate the project within ½ mile of 5 other Basic Services	2	3	6	6	
	Diversity of Housing Types	Provide a minimum of three different housing types and each type much comprise a minimum of 10% of the total housing units to be counted	2	3	6	6	
	Street-level Pedestrian Uses	Provide a minimum of 75% of the ground floor along public right-of-way in pedestrian uses	2	3	6	6	27
4.0 A BALANCED TAX BASE							
	Fiscal Impact Analysis	Provide a fiscal impact analysis to determine whether revenues generated by the project are sufficient to cover the resulting costs for service and facility demands placed on the City	*Prerequisite*				

Part of the Germantown Smart Growth Matrix, which rates development projects applying for public participation on a variety of community goals including mixture of uses, financial impact to the community, environmental performance, public amenities and building and site design. Projects that meet certain thresholds qualify for varying types of consideration from the City from priority permitting to reimbursement for certain public infrastructure.

Total Points Possible		233
Minimum Points Needed		
Level 1	Meets Prerequisites	
Level 2	35%	82
Level 3	40%	93
Level 4	50%	117
Level 5	65%	151

PROJECT DEVELOPMENT FINANCING (OR TIF)

Project Development Financing, or Tax Increment Financing (TIF), is an economic development tool that local governments use to finance public improvements to a designated area without having to rely on the state or federal government for funding. Using project development financing, local governments may issue bonds to pay for a variety of activities (examples include buying and selling land, installing utilities, and constructing streets) in order to encourage the private development of land that may not otherwise occur.

The purpose of tax increment financing is to allow local governments to issue bonds to finance improvements in order to stimulate blighted areas or designated urban renewal districts (TIF districts). Revenues collected from the bonds issued are then invested towards infrastructure improvements or other projects within the area. As property values increase due to reinvestment in the area, the property tax gains, the "tax increment," are placed into a Revenue Increment Fund and later used to pay off the bondholder. Essentially, local governments are able to induce investment by borrowing against the incremental tax revenue they expect to receive.

In North Carolina, a TIF district may be established if the local government and relevant property owners determine that the area is eligible for redevelopment because it is blighted, deteriorated, undeveloped, underdeveloped, or inappropriately developed. The total land area used to define the TIF district may not exceed five percent (5%) of the total land area of the local government proposing the development project.

Traditionally, Project Development financing is used to attract businesses for job creation. However, in North Carolina a variety of projects are available to local governments using Project Development Financing, including housing developments.

Project Development Financing may be a useful tool for local governments with an interest in promoting economic development. As part of this effort, affordable housing developments may result from Project Development Financing, but they would not commonly be the reason to initiate development. Affordable housing on its own is not likely to increase the tax value of a land parcel; however, affordable housing could be included as part of mixed-use developments.

Information in this section is adapted from a memo prepared for the Mayor's Task Force on Affordable Housing in Asheville, NC, by Carrie R. Knight, dated February 14, 2008.